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MAGAZINE

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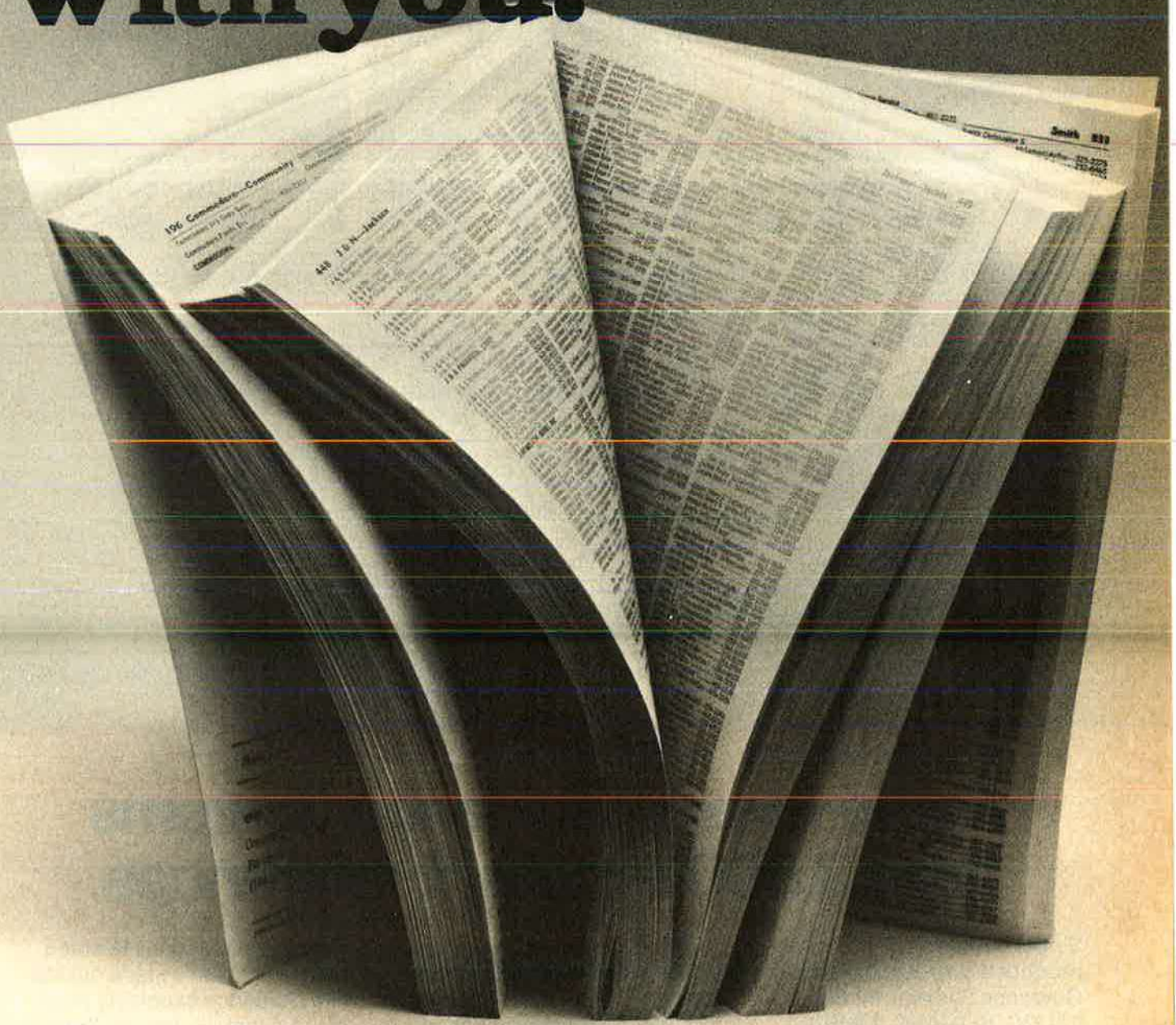

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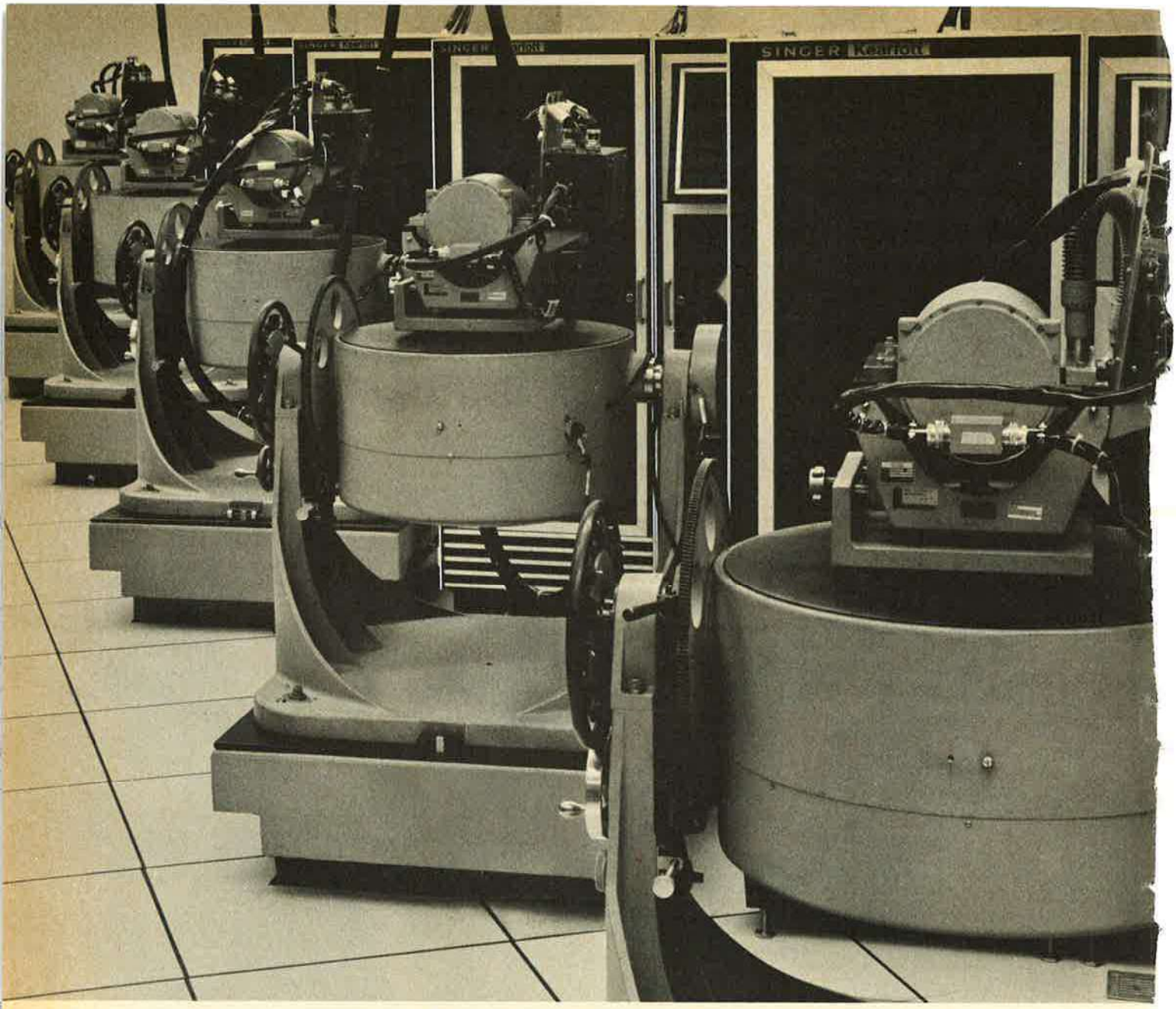

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AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

JUNE 1975
VOLUME 58, NUMBER 6

This Month

6 **Reverberations From Vietnam**
An Editorial by John F. Loosbrock

7 **Respect, Admiration, Gratitude**
Statement by Secretary of Defense James R. Schlesinger

15 **Stop the B-1, Dishonestly** / By Claude Witze

20 **Kriegie Reunion in Cincinnati** / By William P. Schlitz

23 **Orphans' Airlift from Vietnam** / A Photo Feature

25 **The Game of the Name** / By Lt. Col. Steve Hinderliter, USAF

26 **Technological Initiative: A Priceless Asset** / By Edgar Ulsamer

28 **The Importance of "Military" Space**

31 **The B-1's Cost-Effectiveness**

32 **Only Realistic Practice Makes Perfect**
By Lt. Gen. Ernest C. Hardin, Jr., USAF

36 **The Domino Effect of Personnel Cuts** / By Ed Gates

41 **Jane's All the World's Aircraft Supplement**
By John W. R. Taylor

49 **AFTEC Testing: Avoiding Advocacy** / By Edgar Ulsamer

52 **Down the Road to Friendship** / By Maj. Fred Meurer, USAF

56 **USAF and the Vietnam Experience**
By Gen. T. R. Milton, USAF (Ret.)

58 **Industrial Associate Members of AFA**

59 **Korea: A Twenty-Fifth Anniversary** / By Charlotte Knight

64 **Weird, Wonderful Warplanes** / By Col. Walter J. Boyne, USAF (Ret.)

70 **Arnold Air/Angels Conclave: A Busy Time in Louisville**

77 **Turning the Spotlight on Alcohol Abuse** / By Ed Gates

80 **"They Could Have Danced All Night"** / By John O. Gray

ABOUT THE COVER

The House Armed Services Committee on May 6 voted to cut $3.7 billion from the $29.8 billion requested by the DoD for new weapons, but it supported USAF's $749 million bid for development of the B-1 strategic bomber, shown being refueled by a KC-135.

Departments

10 **Airmail**
11 **Unit Reunions**
15 **Airpower in the News**
17 **The Wayward Press**
18 **Aerospace World**
22 **Index to Advertisers**
72 **Airman's Bookshelf**
74 **The Bulletin Board**
77 **Speaking of People**
78 **Senior Staff Changes**
82 **AFA News**
87 **AFA State Contacts**
88 **There I Was**

Because we're proud of it. And we're part of it.

The plane is the B-1 bomber, being built for the U.S. Air Force by Rockwell International.

The B-1 is one of the most remarkable achievements in jet aviation. A manned bomber that will fly at supersonic speeds and carry twice the payload of the B-52. A jet with a navigation system that guides the B-1 over the nap of the earth more surely than the human hand.

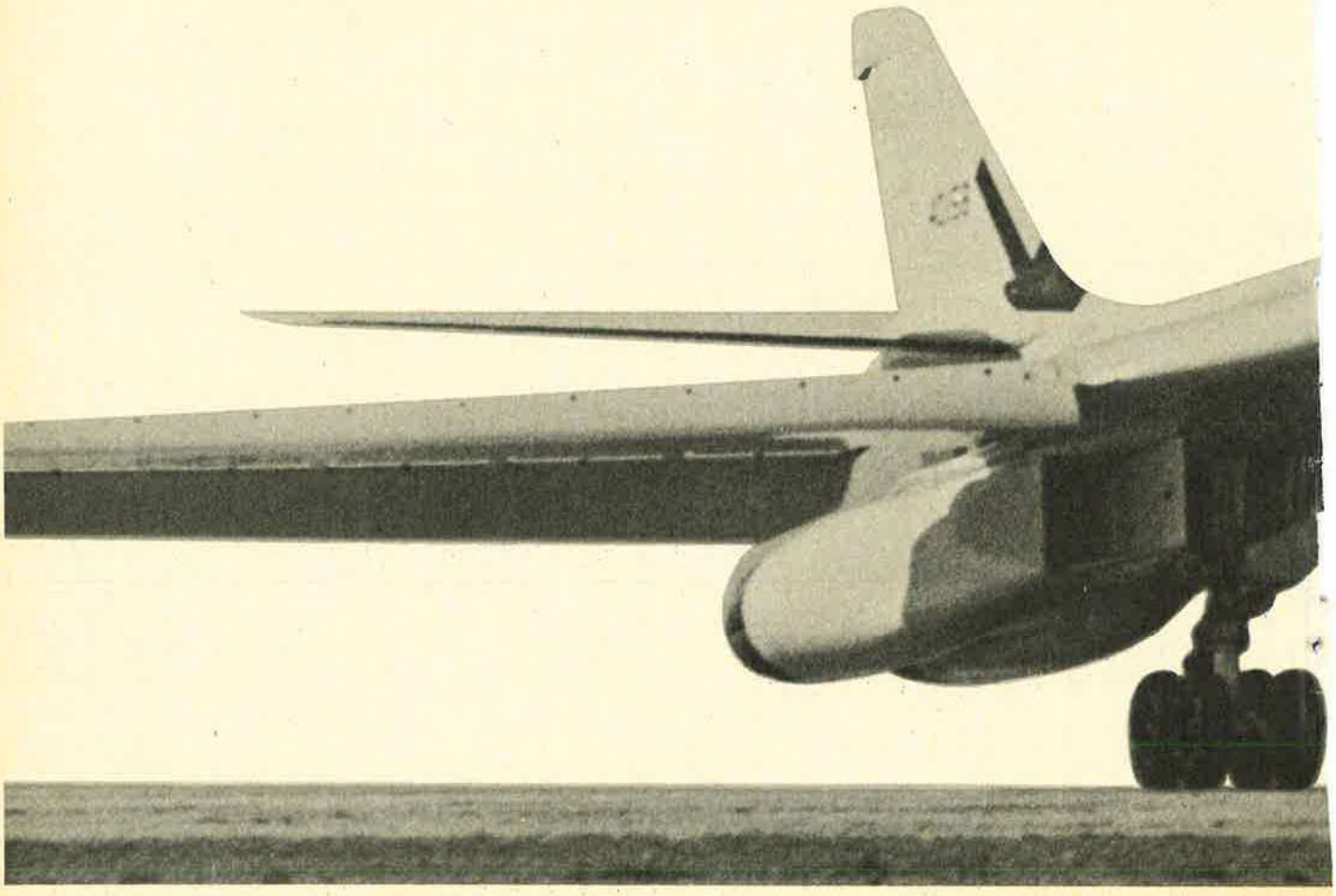
It's a major step in another way, too. The B-1 will have a life span of at least a quarter century—because it's designed to accommodate future advances in avionics.

That's where The Boeing Company comes in.

We're the associate contractor for the B-1 avionics systems integration.

Here's our up-to-the-minute report:

March: The first units of



flight avionics were shipped to Palmdale, California, where the B-1 is being assembled.

The avionics testbed, flight test aircraft No. 3, received its wings.

April: System validation for offensive avionics was completed.

May: Delivery of the first group of offensive avionics for the flight test aircraft is completed.

All work is on schedule and on budget.

It's been a demanding program involving tight deadlines, extensive research, inventive solutions and cost challenges to all the members of the B-1 team. At Boeing, we're proud of everyone on that team.

That's why Boeing is running an ad on this Rockwell International airplane.

BOEING

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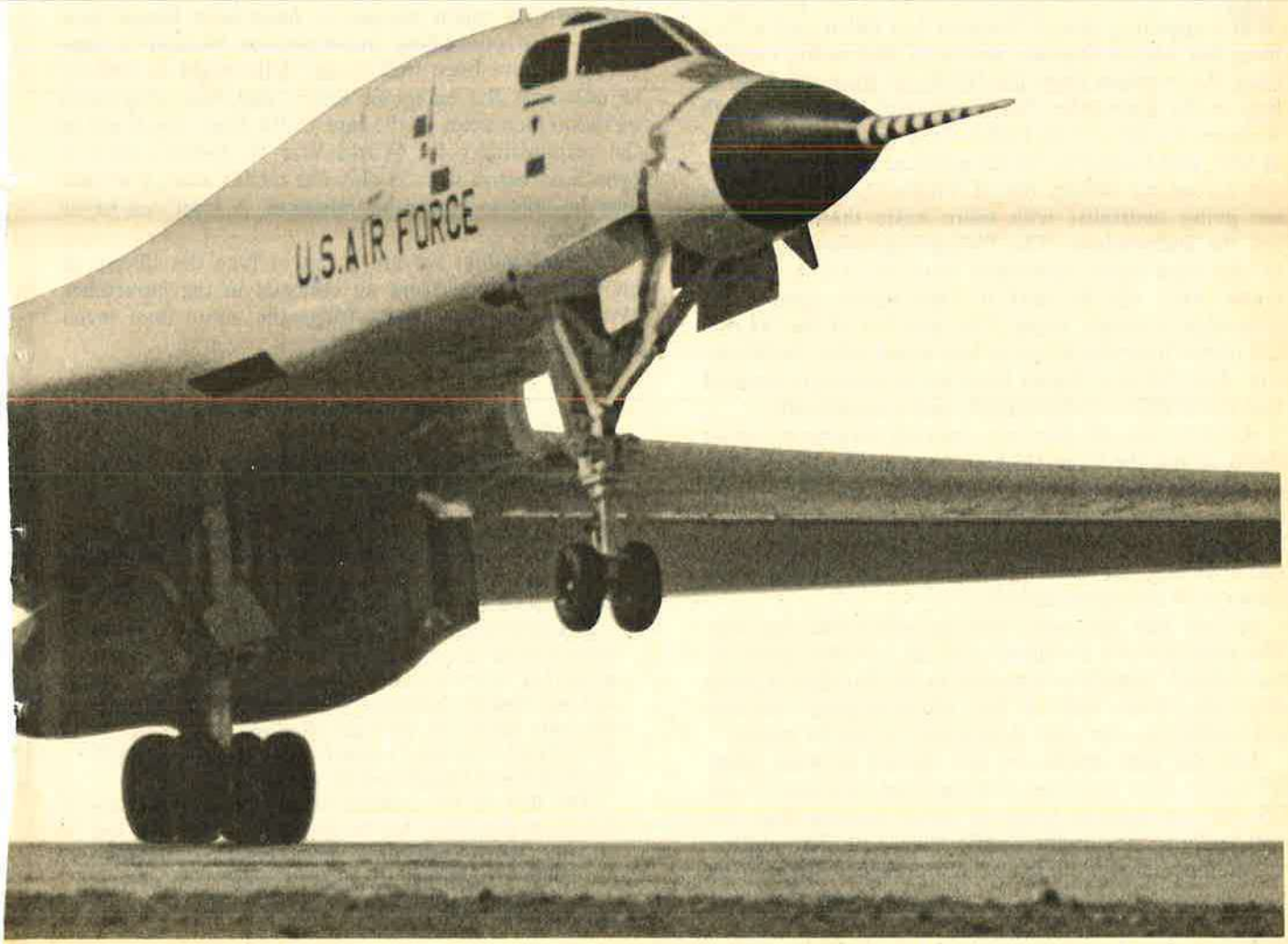


Reverberations From Vietnam

By John F. Loosbrock
EDITOR, AIR FORCE MAGAZINE

An American loss in Vietnam would put enormous pressure on the other countries in Southeast Asia which already are experiencing Communist insurrections.

More important, an American retreat would affect the way that men in Moscow, and in Peking, and in many other places, shape their plans for the future.

That is why there can be no neutral solution in Vietnam. One side must win and the other must lose, and the impact will reverberate far beyond the boundaries of two tiny countries.

—From the 1968 Statement of Policy of the Air Force Association.

WELL, it has all happened or is in the process of happening. South Vietnam has fallen, not with a bang but with a shudder, and with frightening rapidity once the invaders from the North set their minds to it, easy in the knowledge that meaningful US aid to South Vietnam would not be forthcoming. Cambodia is gone as well, and Laos, too, for all practical purposes. American forces are pulling out of Thailand, and the Thais are going neutralist with more haste than grace. So are the Indonesians. The Philippines, where a review of the base-rights agreement with the US is already under way, will be next to take action against the American presence there. The position of the 38,000 US troops in South Korea is less secure after the Southeast Asia debacle. Japan becomes increasingly isolated and vulnerable—both militarily and economically.

Already the Soviets are making overtures about rights to use the huge US-built base at Cam Ranh Bay as a handy link between Vladivostok and their bases in the Indian Ocean area. While the prospect of a Soviet presence on the mainland of Southeast Asia may make Peking nervous, it has got to be chilling some spines in Washington as well.

So one side has won, and the other side has lost. The pressures *are* enormous and the reverberations *are* widespread. American influence in the Far East is going down the drain, and we face the strategists' century-old nightmare—an Asia dominated by hostile power.

And the side effects are not limited to Asia. They spill over into wherever the national interests of the US rub up against those of other nations that are unfriendly or downright hostile toward us. The erosion of American credibility haunts our alliances and security arrangements, weakening the trust and support of our friends and tempting those who are not our friends into adventuristic new tests of will and strength.

It is a great temptation simply to write off the Southeast Asia experience as if it were a bad debt, a lost gamble. The temptation is equally great to turn away from the outside world, to look inward at the myriad of domestic troubles that continue to plague our country—economic, environmental, societal problems of staggering magnitude and variety. There have been pleas for a ban on recriminations about Southeast Asia, for a kind of gentlemen's agreement not to search for villains or scapegoats—a sort of blanket intellectual amnesty for decisions and policies that got us to where we are today.

The risks of a witch-hunt must be acknowledged, of course. But there are also risks in expunging mistakes because they might happen to have been honest mistakes or in concealing incompetence because it happened to have been well meant. One might as well try to uncouple the egregious errors and mismanagement of the democracies in the late 1930s from any share in the responsibility for World War II. Indeed, there is even less reason now to play the ostrich since a winner may be able to ignore his mistakes. A loser can never afford to.

In this context we are going to take the liberty of quoting ourselves, from an editorial in the November 1967 issue of AIR FORCE Magazine, more than seven years ago.

We wrote then:

> . . . The Vietnam question is far and away the most divisive, the most corrosive, the least susceptible to solution of any national issue, in our lifetime, certainly, and perhaps since the Civil War. . . .
>
> What bothers us is what is almost without exception the missing element in what we read and what we hear—a sense of history. By this we mean a realization of what has happened to bring us back to where we are in Vietnam today. . . .
>
> US involvement in Vietnam took the turn it did—toward massive commitment of US ground forces—when US military policy was openly announced as one of "flexible response"—the philosophy so persuasively advanced by Gen. Maxwell Taylor in his book *The Uncertain Trumpet* and so eagerly adopted by President Kennedy and his advisers. . . .
>
> The flaw in the concept of flexible response lies not in its flexibility, but in its rigidity. After all, the US has responded with a high degree of military flexibility to a string of crises over the past twenty years, going as far back as the Berlin Airlift.

It was the public articulation of flexible response as national policy, and the implementing of flexible response as a kind of creeping escalation, which caused the real mischief. The US told the opposition, in effect, exactly how it would respond to future overt aggressions as well as to so-called wars of national liberation. Coupled with a *de facto* renunciation of the use of even the smallest of nuclear weapons, the US-proclaimed policy was begging to be tested. Tested it has been, and found wanting.

The proving ground was shrewdly chosen. American "advisers" were already in place. The Viet Cong was well organized, and the political fabric of South Vietnam was enticingly fragile. The US stood virtually alone in interpreting the prospective loss of South Vietnam as a threat to world peace and freedom. The United Nations, changed drastically in composition and effectiveness since the Korean War, was an unlikely instrument of intervention. . . .

A truly bold escalation of the military effort might have saved the day. But the escalation was hesitant and fragmentary, delayed by an understandable hope that just a little more might prove enough.

What has happened demonstrates the fallacy of the belief that military action can be so precisely tailored to a given situation. The US carefully measured its own response without realizing that the reaction of an enemy is essentially unmeasurable.

The war in Vietnam has been described as one with political, rather than military, goals. This is put forward as a new phenomenon, unprecedented in our history—a dubious thesis at best.

In fact, it is the political base of the war that is shakiest. In South Vietnam itself the political base has never been solid and there has never been what one could fairly term popular support for the effort.

And here at home, the dragging on of the conflict has eroded the political base for support of the war. Personal involvement in the conflict is spotty. Some young men are drafted. More are not. Tours of duty in Vietnam are limited to one year. The war competes for resources with needed social, economic, and technological programs. There is no rationing, no regulation of prices or wages, not even the likelihood of a war-attributable surtax.

There can be no popular support for a war in which the populace is not deeply and personally involved, especially when no end can be promised.

Thus, the case for boldness in the beginning grows stronger on examination. The case for a policy of so-called flexible response has been thoroughly discredited by events. The Vietnam War is a big price to pay for this discreditation, but if we heed the lesson for the future it may be worth it.

The diagnosis, it immodestly seems to us, has lost little validity in the years that have intervened since it was made.

Three major errors stood out then and stand out now, errors rooted one way or another in arrogance, ignorance, and business-as-usual politics:

- The doctrine of flexible response, now more commonly known as gradualism, arrogantly assumed that the war could be orchestrated from the Pentagon and the White House. This prolonged the conflict, increased its costs in blood and treasure, and made it essentially unwinnable.

- For political reasons, the American taxpayer was insulated from involvement through a credit-card approach to paying for it. If the war had been financed on a pay-as-you-go basis, those who refused to end it quickly on military grounds would have been forced to do so from sheer political pressure.

- Also for political reasons, it was decided not to mobilize the Reserve Forces but to depend for American manpower on the draft. Draft inequities alienated the young, the poor, and the minorities and must bear a large share of the blame for the social upheavals of the late 1960s.

At home and abroad, the bulk of our current national woes can be laid at the door of what must have been the worst-managed effort in the history of governments. Merely to remember this will not restore the dead to life, heal the wounded, or recoup the money and materiel so profligately wasted. But not remembering it will guarantee that the whole national sacrifice will have gone for naught. ■

RESPECT, ADMIRATION, GRATITUDE

In a message to the armed forces marked by eloquent simplicity, Secretary of Defense James R. Schlesinger put American military accomplishments in Southeast Asia in a perspective that deserves attention. The text follows:

As the last withdrawal of Americans from Vietnam takes place, it is my special responsibility to address to you, the men and women of our armed forces, a few words of appreciation on behalf of the American people.

For many of you, the tragedy of Southeast Asia is more than a distant and abstract event. You have fought there; you have lost comrades there; you have suffered there. In this hour of pain and reflection you may feel that your efforts and sacrifices have gone for naught.

That is not the case. When the passions have muted and the history is written, Americans will recall that their armed forces served them well. Under circumstances more difficult than ever before faced by our military services, you accomplished the mission assigned to you by higher authority. In combat you were victorious and you left the field with honor.

Though you have done all that was asked of you, it will be stated that the war itself was futile. In some sense, such may be said of any national effort that ultimately fails. Yet our involvement was not purposeless. It was intended to assist a small nation to preserve its independence in the face of external attack and to provide at least a reasonable chance to survive. That Vietnam succumbed to powerful external forces vitiates neither the explicit purpose behind our involvement—nor the impulse of generosity toward those under attack that has long infused American policy.

Your record of duty performed under difficult conditions remains unmatched. I salute you for it. Beyond any question you are entitled to the nation's respect, admiration, and gratitude.

With the power of our F100 engines, the F-15 has climbed

And that's only one of eight time-to-climb world records the McDonnell Douglas F-15 achieved in a special test program. A test program in which it demonstrated its capability to intercept any known fighter threat at extremely high altitudes.

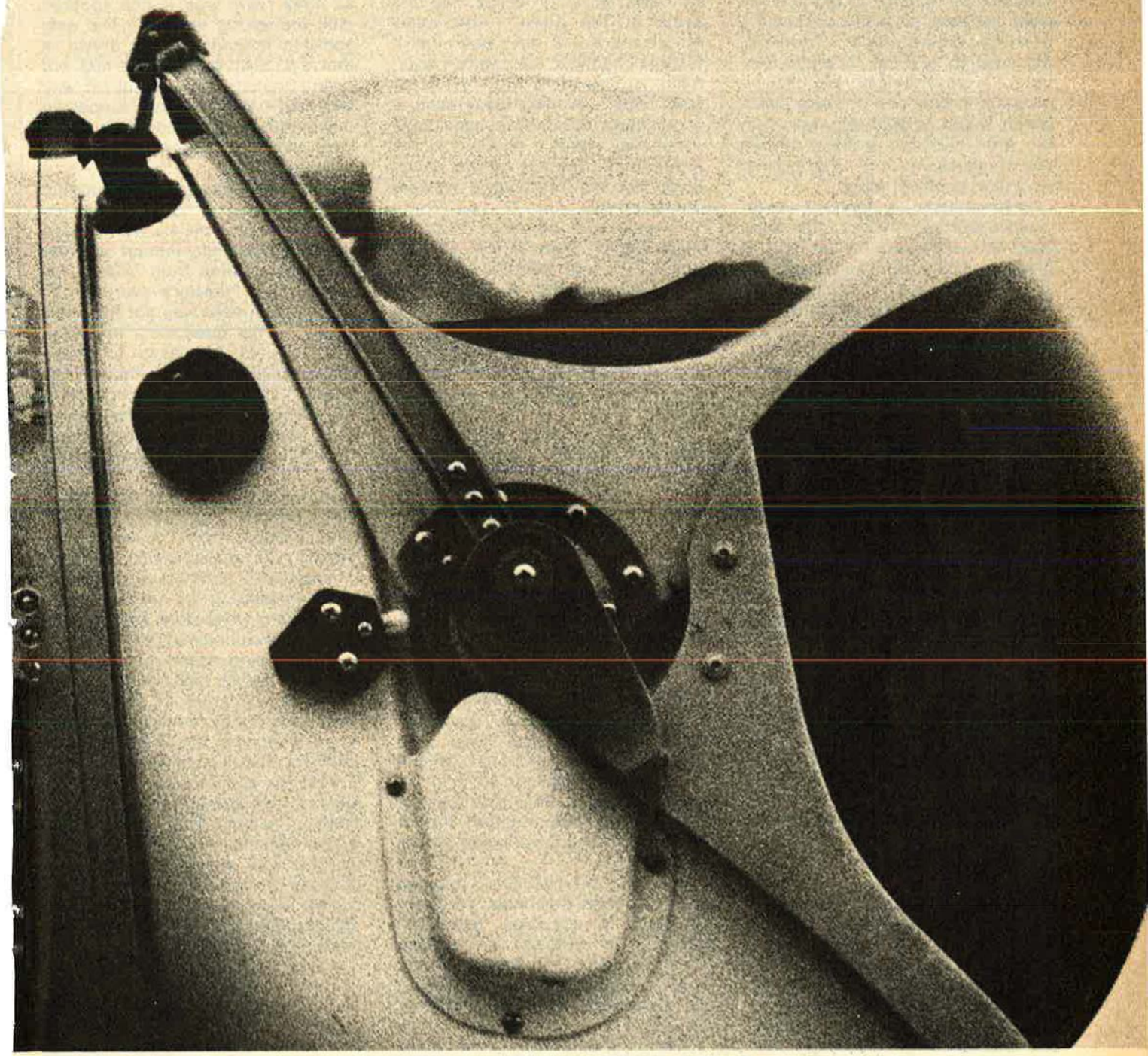
The records set by the F-15 were for altitudes of 3,000, 6,000, 9,000, 12,000, 15,000, 20,000, 25,000 and 30,000 meters. And they produced some interesting statistics. In the 3,000 meter flight, the F-15 lifted off the ground in only 400 feet—about seven airplane lengths. In the 6,000, 9,000 and 12,000 meter flights, the F-15 reached the speed of sound only 19 seconds after take-off. The aircraft also reached a target altitude of 15,000 meters in just over 77 seconds—about 10 seconds faster than the Apollo moon shots.

to 7 miles in less than 1 minute. Almost straight up.

This record-setting flight program once again verified the basic design, performance and reliability of the aircraft and its two Pratt & Whitney Aircraft F100 turbofan engines which operated within their normal limits and performed superbly at all speeds, altitudes and attitudes.

The F100 is also the powerplant for the new General Dynamics F-16. And for both aircraft, it provides a thrust-to-weight ratio of greater than one, enabling them to accelerate even while in vertical flight. Further proof of the proud performance we build into every engine.

Pratt & Whitney Aircraft, Division of United Technologies Corporation, East Hartford, Conn. 06108.



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Leadership in the Field

Gentlemen: Three cheers for Colonel Thayer ("Airmail," April '75). He very accurately blew the cover on a single representative case of what has been the historical Achilles heel to the credibility of Air Force leadership. Naturally, he directed his remarks to this specific case because he was commenting upon Mr. Wolk's article, "The B-29, the A-Bomb, and the Japanese Surrender." Nevertheless, the case in question is only one of many cases which, when objectively viewed in the total historical context, shows the weakness in our stewardship as public administrators.

Unfortunately, a form of Hollywood press agentry has often been used as a substitute for the facts in order to cover our own mistakes. As a result, the reporting of Air Force history has too often been a concoction of these myths of press agentry rather than factual information. Politics does indeed make strange bedfellows. I dealt exclusively with this subject in my own Air University thesis of some 350-plus pages in length, but, even then, I only scratched the surface. . . .

On the other hand, I am very surprised at Mr. Wolk's reply. In the past, I have found him to be a thoroughly competent author, and he has given me many hours of pleasure with his writings. In this particular case, however, I detect a pedantic attempt to defend by attack when no defense was required. The reply really did not answer the mail. Instead, it more resembled the rationalization of the hostess who suspects criticism when none was intended. Perhaps we were witnesses to an acute case of pride of authorship.

Col. Ronald E. "Baron" Mintz, USAF (Ret.)
Chapel Hill, N. C.

Gentlemen: The letter from Colonel Thayer in your April issue (if he is not joking) is very discomforting. I am stunned that an Air Force colonel cannot distinguish between acceptance of responsibility—as a function of command—and bureaucratic leadership. Vietnam has been an excellent example of bureaucratic direction of a war from Washington, instead of achievement of desired objectives by a handcuffed Westmoreland. . . . Our biggest problem in this country today is the failure of so many people to accept their responsibilities. . . .

In specific response to the letter: As Wolk said, "Winning was the name of the game." How many Americans would have been lost if Marshall had won the invasion argument, vs. how many were lost in the B-29 raids? "A horrendous number of aircrews *could* have been lost" —but they weren't, and this is the fortunes and gamble of war. Good leadership and planning *in the field* prevented it.

I would sure object to trying to bomb Japan, even at low altitude, in a B-17 or B-24 from the Marianas. The B-29 resulted in (eventually) the B-50, C-97, KC-97 (which gave us ten years of peace with the B-47), the Guppy, and provided the entry (aerodynamically) for the 707 and today's generation of transports!

A cheap airframe would have sufficed? Colonel Thayer's letter is a cheap shot at some great leaders.

Lt. Col. David S. Kahne, USAF (Ret.)
Laramie, Wyo.

Gentlemen: Mr. Herman Wolk's response to my arguments raises more questions than it answers, probably because he is overly dedicated to proving the Air Force is comprised solely of people in white hats, especially among "leaders" and "commanders." I did not imply that LeMay was "evil," only that individuals placed in difficult bureaucratic situations tend to respond in typical ways. But the history he recounts required further analysis through questioning Wolk's observations.

Isn't it a bit difficult to discuss the shift from high-level precision bombing to low-level saturation bombing of civilians as nothing more than a shift in tactics? If this is all it amounted to, why was it so significant to avoid involving Arnold?

While I could have used more precise language, wouldn't continued failure on the part of the B-29s have forced the Air Force to publicly admit the aircraft was useless within the doctrine originally outlined for it, a form of "abandonment"?

If the AAF developed a "foundation" for bombing civilians as early as 1943, why was it not adopted until the spring of 1945? The only sensible inference to be drawn is that the 1943 suggestions *had not been adopted,* and we must ask why they had not been. And, supposing they had been adopted, there would have been no reason to avoid informing Arnold.

The interesting bureaucratic question (and it is nonsense to argue that generals are not bureaucrats) remains why Arnold was not informed. I infer from Wolk's response that "LeMay's own words" as to why Arnold was not informed relate to the presumed necessity that "Arnold not have to share responsibility should things go wrong." This amounts to a doctrine of protecting senior commanders from having to make very tough decisions—by keeping them in the dark.

As to "organizational survival," I can't imagine any other purpose behind Wolk's article. Surely the intention was to emphasize the past successes of airpower as a means of demonstrating the need to maintain a bomber posture sufficient to "win" wars without additional forces.

In analyzing organizations, I do not see heroes and villains, only individuals trapped in social systems which (they feel) compel them to do what they do. If we endorse LeMay's keeping of secrets from Arnold, we should not be surprised when a John Mitchell testifies about keeping secrets from a President. In this instance, the larger issue is why the AAF suddenly shifted to a doctrine of saturation bombing in Japan; it is not a pleasant issue to contemplate, and it cannot be dismissed as "tactics."

Col. Frederick C. Thayer, USAF (Ret.)
Pittsburgh, Pa.

The author again replies: I agree that history has often been con-

structed of myths. I wrote about the B-29 campaign because I wanted to tell this story as it happened—from the facts. I wrote for no other reason.

Though the Committee of Operations Analysts emphasized incendiary bombing by B-29s in their November 1943 report to General Arnold, the bombing could not have been done at that time for obvious reasons. Twentieth Air Force was not established until April 1944, and General Hansell's B-29s were not able to operate from the Marianas (thus covering vital Japanese targets) until October 1944.

During January–March 1945, General Arnold was hospitalized with a very serious heart attack. It was questionable whether he would even return to command. In Arnold's absence, General LeMay informed General Norstad (acting Commander of Twentieth Air Force) in advance of the change to low-level night attack. Thus, LeMay informed higher headquarters and the command function was not bypassed.

The B-29 offensive was, in one sense, a race against implementation of General Marshall's invasion plan. The fact is that Arnold and Norstad had prodded LeMay to get an incendiary campaign going without further delay. General LeMay acted within the urgency of this situation.

Herman S. Wolk

F-80C Restoration

Gentlemen: The US Air Force Armament Museum at Eglin AFB, Fla., has recently acquired an F-80C, #49–432, and is in the process of restoring and refinishing the aircraft for display. The aircraft was assigned to the 51st Fighter Group, Far East Air Force, and saw action during the Korean War.

The museum intends to repaint the aircraft in the colors of the 51st Fighter Group and would appreciate pictures and information from any reader who may have flown or has knowledge of this aircraft.

Lt. Col. H. A. Russell, Jr., Dir.
US Air Force Armament Museum
3201st Air Base Group (AFSC)
Eglin AFB, Fla. 32542

WW II Training Facility

Gentlemen: I am researching the history of the Walla Walla Army Air Base, used during World War II as a B-24 and B-17 training facility.

Photos of the planes on the base are few and far between, and I would be grateful if readers who trained here and have any photographs that I could include in my articles would contact me. Any training anecdotes would also be appreciated.

I will return all photos sent, after making copy negatives from them.

Frederick A. Johnsen
Reporter
Walla Walla *Union-Bulletin*
1st and Poplar Sts.
Walla Walla, Wash. 99362

Book on UFOs

Gentlemen: Readers who have had first-hand experience with the US Air Force investigation of UFOs (of 1947–69) that might prove of interest to the author of a book on the subject, are requested to write to

Don Berliner
1202 S. Washington St.
Alexandria, Va. 22314

F-104 History

Gentlemen: I am writing an informative history of the Lockheed F-104 Starfighter, versions X through S (omitting the F-104G and CL-104). If any readers have been involved with the F-104, pilot, ground crew, etc., please write to me.

Jim Ireland
3940 Pasadena Ave.
Sacramento, Calif. 95821

306th BG History

Gentlemen: I am working on a history of the 306th Bombardment Group of the Eighth Air Force and would like to contact as many former members of that organization as possible.

The 306th was as hardworking a group, but not as frequently cited, as many others in the Eighth, and I feel that now is a propitious time to undertake an extensive history of the organization.

Russell A. Strong
4900 Appleridge Ct.
Dayton, Ohio 45424

"Wheelbarrow Club"

Gentlemen: I am trying to make contact with all US enlisted aircrewmen, past and present. The purpose is to form a fraternal organization, tentatively called "The Wheelbarrow Club."

We are interested in hearing from qualified people desiring more information or seeking to join—especially those having flown combat since World War II.

CWO Guy H. Kennedy, Jr.
Patron Fifty c/o FPO
San Francisco, 96601

Air Attacks on Australia

Gentlemen: I am doing research for an historical account of Japanese air attacks on Australian territories during the Southwest Pacific phase of World War II and wish to contact ex-members of the 49th Fighter Group, which played a vital role in the North Western Area of Command during 1942.

The only names I have at hand, but with no addresses, are

Lt. Andrew J. Reynolds, Capt. B. S. Irvin, Lt. John P. Landers, and Lt. W. A. Levitza. Would appreciate information on the whereabouts of these men and hearing from other members of the 49th.

James D. Rorrison
P. O. Box 64
South Brisbane
Queensland, 4101, Australia

UNIT REUNIONS

Burma Bridgebusters

The 490th Bomb Squadron (M), known in WW II as the Burma Bridgebusters, will hold a reunion in San Francisco, Calif., August 7–9. Former members are urged to contact

Ivo Greenwell
3849 S. Rockford
Tulsa, Okla. 74105

CBI Hump Pilots Association

The 30th annual reunion of the China-Burma-India Hump Pilots Association will be held at the Carillon Hotel, Miami Beach, Fla., August 7–10. Additional information from

Mrs. Jan Thies
808 Lester St.
Poplar Bluff, Mo. 63901
Phone: (314) 785-2420

Ex-POWs

American Ex-Prisoners of War will hold their 29th annual national convention in St. Louis, Mo., July 15–19. All ex-prisoners, regardless of which conflict, are invited. Contact

Jim Atwell, Ed.
POW *Bulletin*
1017 N. Phelps Ave.
Winter Park, Fla. 32789

Flying Skull Squadron

The 85th Fighter Squadron "Flying Skull Squadron" of the 79th Fighter Group will have its 30th anniversary reunion August 1–5 at the Marriott Motor Hotel, Chicago, Ill. Former pilots, ground crews, and other personnel of this fighter unit are asked to contact

Leonard Beckerman
6433 N. Damen Ave.
Chicago, Ill. 60645
or
Edwin Newbould
1123 E. 173d Pl.
South Holland, Ill. 60473

Papa Wolf

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Cost-effective applications:

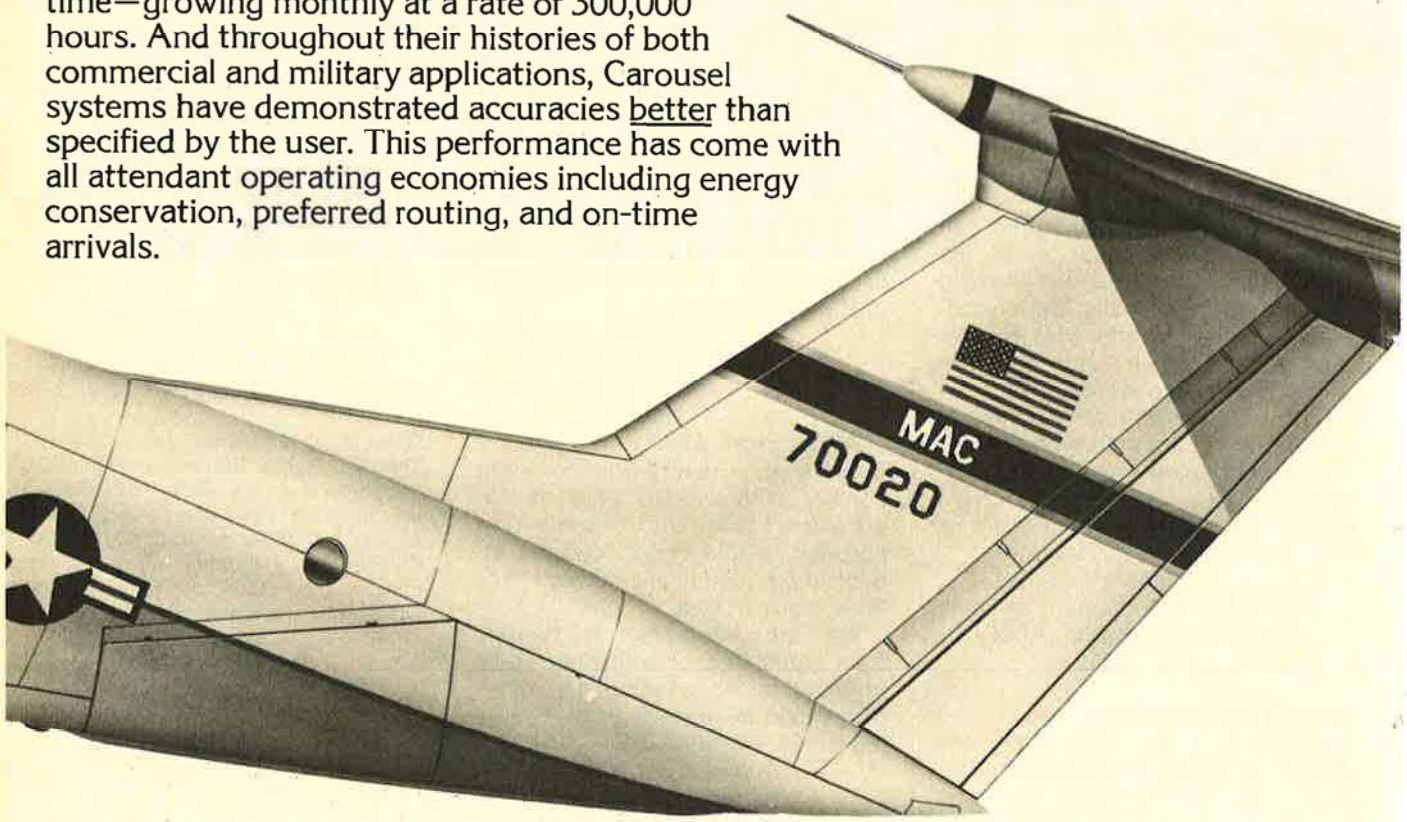
Carousel IV and the special environment Carousel V systems are currently proving their mettle in a number of military applications, including: EC-135J, E-4A, AWACS, YF-16, TRAP, WB-57F, C-9B, TITAN III-C, HH-53, KC-135, C-141 and WP-3D.

In addition, Delco's Carousel IV is well established as the leading inertial nav system in commercial aviation. The choice of 46 of the world's airlines, these systems are presently in operation in hundreds of aircraft including 747's, DC-10's, DC-8's, 707's and VC-10's. Recently Carousel IV was selected for the British Airways Concorde SST and Pan Am's new 747 SP's.

There are good reasons for this record of acceptance. Read on.

Cost-effective dependability:

Carousel systems have logged over 13,500,000 hours of operating time—growing monthly at a rate of 300,000 hours. And throughout their histories of both commercial and military applications, Carousel systems have demonstrated accuracies better than specified by the user. This performance has come with all attendant operating economies including energy conservation, preferred routing, and on-time arrivals.



Cost-effectiveness aircraft.

Cost-effective reliability:

Through a continuing program of reliability improvement, the Carousel's SYSTEM MTBF (navigation, control display, and mode selector units) is presently in excess of 1400 hours. This figure is documented and updated by monthly reports from users around the world.

Carousel systems incorporate sophisticated BITE (Built-in Test Equipment) and self-test capability which keep removal and maintenance repair times to the minimum. Carousel's maintainability and high reliability contribute to a very cost-effective logistic support program.

The cost-effective INS:

Carousel IV-V is a proven, reliable, dependable, and widely accepted inertial navigation system. Cost-effective Delco Carousel for our nation's military aircraft makes a lot of sense.

For full details contact our Military Avionics Sales Department, 6767 Hollister Avenue, Goleta, California 93017. Phone (805) 961-5004.

Millions of hours ahead of all the rest.

Delco Electronics

Division of General Motors

Airmail

San Antonio. Contact Papa Wolf for details and possible reunion for Sam.
Lt. Col. Mark Berent, USAF (Ret.)
6220 Ackel, Apt. 661
Metairie, La. 70003
Phone: (504) 445-6025

"Misty" FACs
There is an urgent need to compile a current roster of "Misty" FACs for a practice reunion. To update the roster, please contact

Maj. Dave Thomson
207 Sweetbriar
Alexandria, La. 71301

Tuskegee Airmen
The 99th and 553d Fighter Squadrons, 332d Fighter Group, 477th Bomber Group (M), and 118th and 126th ABUs (Sq-F) and supporting units of WW II at Tuskegee Institute; Tuskegee, Walterboro, Attabury, and Freeman AAFs; and Selfridge, Goodman, and Lockbourne AFBs, and overseas, will hold a reunion at the Pontchartrain Hotel, Detroit, Mich., July 31–August 3. Civilians, airmen, officers, ex-cadets (active, separated, retired), dependents, and dependents of lost and deceased personnel are invited. Vets and active personnel of other air services who wish to affiliate are invited to join us.

Richard Jennings
19909 Hartwell St.
Detroit, Mich. 48202

47th Bomb Group
Ex-members of the 47th Bomb Group (L) interested in a reunion please contact

Ted H. Broman
1482 Blackhawk Ct.
Sunnyvale, Calif. 94087
Phone: (408) 736-3274

49th Fighter Sqdn.
The 49th Fighter Squadron, 14th Fighter Group, of WW II, will hold a reunion in Oklahoma City, Okla., August 1–3. Please contact

Sheril D. Huff
3200 Chetwood Dr.
Del City, Okla. 73115

57th Bomb Wing
The 7th annual reunion of the 57th Bomb Wing (M), 12th Air Force, will be held July 16–20 at the Hilton Inn, Albuquerque, N. M. The Wing is composed of the 310th, 319th, 321st, and 340th Bomb Groups, plus the 308th Signal Corps Wing attached. For information write

Harold G. Lynch
Springfield College
Springfield, Mass. 01109

75th Air Depot Wing Assoc.
An organizational meeting of the 75th Air Depot Wing Association will be held in Tulsa, Okla., August 1–3. All former members please contact

Vern Wriedt
2121 Cedar St.
Davenport, Iowa 52804

111th Tac Recon Sqdn.
A reunion is being planned in August 1975, in Chicago, for all WW II members of the 111th Tactical Reconnaissance Squadron. Members who served in the 111th and are not on the current mailing list please contact

Frank Hubacek
53 West Jackson Blvd.
Chicago, Ill. 60604

303d Bomb Group (H)
The first reunion of the 303d Bomb Group (H), "Hell's Angels," 8th AF, of Molesworth, England, will be held in Orlando, Fla., August 29–31. A group register is also being prepared so please send name, address, and details of service to

Lt. Col. Charles J. McClain, USAF (Ret.)
693 Darcey Dr.
Winter Park, Fla. 32789

352d Fighter Group
A reunion is planned on October 10 for members of the 352d Fighter Group, Station 141, Bodney, England, during WW II. For further information, write to the following, and include your squadron, job, and assignment dates.

Sheldon F. Berlow
4409 Fillmore
Hollywood, Fla. 33021

466th Bomb Group
Three regional rallies will be held by the 466th Bomb Group, stationed in Attlebridge, England, during WW II. Dates and persons to contact are

Eastern: Cocoa Beach, Fla., August 15–17
J. Woolnough
7752 Harbour Blvd.
Miramar, Fla. 33023

Central: Arlington, Tex., August 1–3
J. Daniels
c/o Six Flags Inn
Box 70
Arlington, Tex. 76010

Western: Newport Beach, Calif., August 1–3
Ms. M. Larson
c/o Newporter Inn
Newport Beach, Calif. 92660

485th Bomb Group
The 11th annual reunion of the 485th Bomb Group (828th, 829th, 830th, 831st Bomb Sqdns.) will be held at the Atlanta Internationale, Atlanta, Ga., August 1–3. Contact

Homer G. Hale, Jr.
115 Tara Way
Athens, Ga. 30601

Airpower in the News

By Claude Witze
SENIOR EDITOR, AIR FORCE MAGAZINE

Stop the B-1, Dishonestly

Washington, D. C., May 7

"G. E. Defends Its Weapons Business," says a headline on the financial page of the New York *Times* of April 24. The defense, according to the *Times* report from the company's annual meeting at a Boston hotel, was necessitated by seventy-five protestors who picketed the four-hour session of about 700 shareholders. They carried signs: "Power Over Millions, Decisions by a Few," and "Jobs for Peace, Not for War."

One of the leaders, according to the *Times*, was David Gagne of the Unitarian-Universalist Association. He demanded that GE Chairman Reginald H. Jones tell when the company would "draw the line" on weapons production. The answer was that GE will stop when Congress decides weapons are not necessary for national security.

Mr. Gagne, who appears to be a stockholder, nominated Natalie Shiras, a first-year student at the Harvard Divinity School, for a seat on the board of directors. She received 11,241 votes out of more than 150,000,000 that were cast. Most of them, the *Times* says, were cast by proxy before Miss Shiras' nomination.

The newspaper says many of the demonstrators represented the American Friends Service Committee (AFSC) and Clergy and Laity Concerned. These two organizations are the moving powers behind NARMIC, which is an acronym for National Action/Research on the Military Industrial Complex. Their current activist campaign is called "The Super-Sonic (sic) Swing-Wing Swindle," subtitled, "The Story of the B-1 Bomber." This is a slide show, provided with documentation and a script. There are 140 slides, and the presentation runs about a half hour. AFSC says you can order a copy of your own for $50 from: Stop the B-1 Bomber, National Peace Conversion Campaign, 160 North 15th St., Philadelphia, Pa. 19102.

So far, there has been no report that this effort is the product of a lobby, financed, in the main, by tax-exempt contributions. We do have at hand a letter from Clergy and Laity Concerned, denouncing the B-1 project and appealing for contributions for a fight against it in Congress. The letter is signed by Don Luce, Director of CALC, and he says he needs $100,000 for the campaign. He adds this postscript:

"Your contribution to CALC will help us STOP THE B-1 BOMBER. CALC is working with the National Council of Churches on this program. If tax-deductibility enables you to make a larger gift, your check may be made payable to the NCC."

AIR FORCE Magazine has found that CALC is not registered with the Clerk of the House of Representatives as a lobby. Nor is it listed as a tax-exempt organization. The NCC is tax-exempt and, as such, is proscribed from carrying on propaganda or influencing legislation as a "substantial part" of its activity. On Capitol Hill, the CALC appeal has raised a few eyebrows, which is easy to do so soon after Watergate and its disclosures of how money can be "laundered."

The $50 slide show of AFSC and CALC had its premiere on April 15, income tax day. The sponsors say it was exhibited in nearly a hundred cities across the country. In Washington, the show was sponsored by our busiest spokesman for unilateral disarmament, the Center for Defense Information, whose director is Rear Adm. Gene LaRocque, USN (Ret.). The Admiral's financing is reported to come from the Fund for Peace, the Field Foundation, and individuals, including Stewart Mott, the automotive heir sometimes called an "activist philanthropist."

It was in quarters owned by Mr. Mott at 122 Maryland Ave., across the street from the Supreme Court, that Admiral LaRocque gathered an audience of about twenty-five for the unveiling of "The Super-Sonic Swing-Wing Swindle," as produced by NARMIC. The script gives credits, incidentally, to Debby Frazer for the words, Leon Carlin and another cartoonist whose name is not revealed, for the illustrations and graphs, and to Phil Stanford, once on the staff of Rep. Les Aspin of Wisconsin, for "timely information." One Jamie Lewenton of CALC also contributed some of the research, writing, and documentation. There is no evidence of any input from recognized authorities on air power or bombers.

The technique used in this show is one familiar to fans of Peter Davis, producer of the CBS 1971 spectacular, "The Selling of the Pentagon," and the current prize-winning movie, "Hearts and Minds." The text is replete with half-truths, outright errors, distortions, and misinterpretation. Wide use is made of the Davis approach of placing text and slides in juxtaposition when there is no relation between them. Examples are easy to find.

The opening picture is of an F-111 assembly line, followed by a shot of the B-1 bomber. The script says America continues to arm, despite peace, and the B-1 is "one of many lavish new weapons being developed." This is followed by two slides of a slum in Philadelphia, and the author says it is "plagued with problems . . . poor housing . . . old and dilapidated schools, few places for recreation." Then there is a photo of the unemployed. After a pause, the script says, "This slide show is a production of 'Stop the B-1 Bomber; National Peace Conversion Campaign.' The campaign questions why our government spends vast sums of our tax money on the military, while the needs of communities like Kensington [the slum pictured] are ignored." There is no mention, anywhere in the show, of the weaponry programs of any other nation or of the vast increase in US budgeting for social programs during the past few years.

The show's major effort is spent in attacks on Rockwell International, General Electric, and Boeing—the major contractors in the B-1 program. One slide, for example, shows these firms on a chart. The script says, "They are among the largest corporations in the country" and goes on to report that "the average profit on a sample of large military contracts was fifty-six percent." According to the 1974 report of the Rockwell

firm, their after-tax profit, as a percentage of sales, for aircraft operations was 1.4 percent. The corporate total profit was 2.95 percent after taxes.

Another slide purports to show the Rockwell company's bomber history. The script tries to prove that the firm, formerly North American, always has bombers on the line. It says Rockwell "has been in the bomber business since World War II. As they finish one plane, they begin another—what's known as the follow-on system. They built the B-25 (slide) . . . followed by the B-45 (slide) . . . the B-70 (slide)." Well, the B-25 is a real oldie, the plane used by Jimmy Doolittle in his 1942 Tokyo raid. North American built only 143 B-45s between 1948 and 1951. They have not had a bomber in production since. As all airmen know, there have been six postwar strategic bombers—three built by the Convair Division of General Dynamics and three by the Boeing Co. Rockwell's role as a bomber-builder has been minor.

There is a portrayal of a sad executive on one slide. The text says: "Many companies depend on huge military profits to stay alive. In 1970, Rockwell Chairman Willard Rockwell said, 'We knew that as a company we had just one more chance—the B-1.'" Rockwell's reference here was to the future of military aircraft contracts only. Last year the B-1 represented, to Rockwell International, a sale of $250 million out of corporate sales of $4.4 billion. The corporation would stay alive without the B-1.

At another point, showing a picture of the B-1, the text accuses the industry, specifically Rockwell, of ensuring profits by constantly promoting "new and more costly weapons." The implication is that the B-1 is a Rockwell invention. This ignores the formative years of the concept, which go back to 1961, when the Air Force conducted a study called SLAB (for Subsonic Low Altitude Bomber). This was followed by ERSA (Extended Range Strategic Aircraft) and LAMP (Low Altitude Manned Penetrator). Then there was AMP (Advanced Manned Penetrator) and AMPSS (Advanced Manned Penetrating Strategic Systems). Only then were Rockwell and others invited to take part in a newer AMSA (Advanced Manned Strategic Aircraft) study that led to the B-1. Industry was not asked to bid on the bomber itself until December 1969. It is a long chapter in history not known to experts of NARMIC.

One of the more disgraceful intervals in the slide show is devoted to a vicious attack on David Packard, former Deputy Secretary of Defense. He is pictured, and the script tells us he knows the game of musical chairs in business and government. This is illustrated with a cartoon of a man shedding his civilian clothes for a uniform. Then: "David Packard . . . knows this game. He made a personal fortune as a founder of Hewlett-Packard, a military electronics firm. He was also a director of General Dynamics, the nation's largest military company. In 1969, he was made Deputy Secretary of Defense. . . . From inside the Pentagon, Packard fought hard for the B-1. . . ."

There were more words to distort the role played by David Packard, but no suggestion that he made a contribution to his country and did it at huge personal financial sacrifice.

This subject was discussed at length with Admiral LaRocque, a week after the performance at his office. The Admiral told AIR FORCE Magazine that he personally is in favor of the military-industrial complex and believes it is essential to our defense. He believes it must work under stern government controls, as it does. On the subject of David Packard, the Admiral agreed that his administration had been good for the Pentagon, that he made genuine contributions to management there, and that the personal sacrifice was immense.

Then, how did he justify his sponsorship of the NARMIC slide show that portrays David Packard as an industrial scoundrel, bleeding the taxpayer? Admiral LaRocque's answer was that he agreed to sponsor the performance without ever having seen the presentation. "I saw it for the first time when you did, here on April 15," he said. He indicated he was surprised with much of the content and, specifically, did not agree at all with the evaluation of David Packard as portrayed by the Admiral's young friends from Philadelphia.

At the showing, Admiral LaRocque argued that he is in favor of a strong defense for the US, but considers the present establishment far too expensive. He calls the B-1 bomber the No. 1 target for elimination from this year's budget proposals. His Center for Defense Information is circulating literature, and campaigning, to this end.

In an interview, the Admiral contended that information given out by the military services is sometimes incorrect, more frequently misinterpreted. He is frankly in favor of unilateral disarmament and is associated in his work with others who favor it, including, in addition to Stewart Mott, Dr. Jeremy Stone, Dr. Jerome Wiesner, Richard A. Falk, former Sen. Joseph Clark, Richard Barnet, and Seymour Melman. Some are listed as consultants to the Center. The Admiral says the United States should step out and disarm first, and in that way show its "leadership."

The activities of the antidefense lobby are more evident this year than they have been in the past, but there are few signs they have important impact. Much of the energy previously devoted to opposing US war policy in Vietnam now is looking for new outlets, and finding them.

An excellent example of this is the previously mentioned motion picture called "Hearts and Minds," put together by Peter Davis. In early April, the movie empire gave the film an Academy Award as the year's best feature-length documentary. Like his CBS show, "The Selling of the Pentagon," "Hearts and Minds" is a skillful running together of unrelated film clips, designed to portray our country as silly, racist, brutal, and childish.

One of the worst examples in the film involves Gen. William Westmoreland, now retired Army Chief of Staff, who once commanded our land forces in Vietnam. In "Hearts and Minds," there is a sequence of a multiple funeral. The families of the deceased display something close to hysteria at the graveside; one old lady, almost crazed by grief, tries to climb into a grave. For the next shot, Davis uses a clip of General Westmoreland, on a hillside in South Carolina, saying "The Oriental doesn't put the same high price on life as does the Westerner. Life is cheap in the Orient. As the philosophy of the Orient expresses it, life is not important."

The juxtaposition, of course, makes the General sound heartless. In the Washington theater where this reporter saw the film, a woman in the audience screamed "MURDERER!" as the General faded from the screen.

In a telephone interview with AIR FORCE Magazine,

General Westmoreland said he was interviewed by the movie crew, and Mr. Davis, for two hours. "Hearts and Minds" includes less than two minutes of the footage that resulted. General Westmoreland says that much of what he put on the film was about his experiences in combat in that part of the world. He had talked about the callousness of commanders in the East, their practice of cruelty, the 1968 massacre in Hué, and such deviations as the practice of immolation and the Japanese resort to the kamikaze.

It was in that sense that he made his remarks about the value of life in the Orient. Peter Davis used the clip next to a picture of a family funeral.

At the Academy Awards festival in Hollywood on April 8, the prize was accepted by an associate of Davis, a man named Bert Schneider. He read to the audience a wire of congratulations he had received from representatives of the Communist regime in Hanoi. "Please transmit to all our friends in America our recognition of all that they have done on behalf of peace," it said.

The form of intellectual and factual dishonesty perfected by Peter Davis, first for TV and now the movies, is moving on. You can expect to see more of it, even in slide shows about bombers, and, who knows, maybe at the GE annual meeting. ■

The Wayward Press

The collapse of South Vietnam, at this writing, is about a week old. So far, we have seen no newspaper commentary and heard no television pontification about the fact that there is no Freedom of the Press in Ho Chi Minh City. Private newspapers, which flourished not long ago in Saigon, are outlawed. If there is lamentation in the US press, tears are shed in editorial sanctums and never dampen newsprint. It is easy to assume advocate journalists don't care because their side won; the publishers, these days, seem to think the First Amendment sits in the outside office, guarding the door. It may be the last domino to fall.

Now comes a liberal columnist, Marquis Childs, with the theory that Nguyen Van Thieu, the South Vietnamese leader, was waiting for American troops and bombers to save his nation. And, Childs goes on to argue, this would do no good because American troops and bombers can't win. He writes of the futility of "terror bombing," the "razing" of Hanoi, and how the accounts of that period, as reported by the press, were greeted with revulsion all over the world.

This effort by Childs to revise history will not pass unnoticed. Adm. Thomas H. Moorer, who was Chairman of the Joint Chiefs of Staff when the events took place, has called the column "typical of the half-truths and one-sided, misleading conclusions that are fed to the American people in an unending stream by Mr. Childs and others of his profession." In a letter to Ben Bradlee, editor of the Washington *Post*, which printed the Childs column, the retired Navy airman challenges a number of his points.

Childs, for example, concludes that President Ford would have sent bombers and troops back into Vietnam if Congress had not forbidden it. Admiral Moorer responds that, without the congressional restriction, the North Vietnamese would have been deterred. "When all possibility of retaliation was removed," he wrote to Bradlee, "the North Vietnamese, aided fully by the Soviets and Chinese, launched their attack to the South."

To the charge, by Childs, that President Nixon "unleashed terror bombing . . . Hanoi was razed . . . two principal hospitals . . . were destroyed," the Admiral said, "Hanoi was hit, yes, but with precision. It was certainly not razed. As a matter of fact, the North Vietnamese ordered their people to move into the center of the city and bring supplies with them for protection. . . . Use of the words 'razed' and 'destroyed' are gross and misleading exaggerations. Neither of the hospitals was destroyed, although they did receive some damage."

Childs had written: "At the end of two weeks of carpet bombing, which by its very nature could have little relation to military targets, the Communists agreed to resume negotiations."

The Admiral's answer:

"This statement is patently false. There was no carpet bombing of any kind. Every target was an important military target. I personally selected the targets and followed the operations sortie by sortie. This was a highly professional operation conducted with courage, precision, and skill."

Again, Childs wrote of bombs dropped on Thai Nguyen, leaving the impression the target was civilian in a "suburb" of Hanoi. Well, if it is, Baltimore is a suburb of Washington. And the target, the Admiral explains, was "the largest railroad marshalling yard packed with railroad cars loaded with weapons donated by our 'friends,' the Soviets and Chinese."

As Chairman of the JCS, Admiral Moorer, in 1973, accepted the Collier Trophy, presented that year to the airmen of the armed forces who participated in Linebacker II. A year earlier, he had been proud to accept, also on behalf of "the Air Units of the Allied Forces in SEA," the H. H. Arnold Award of the Air Force Association.

Marquis Childs, so far, has not acknowledged the professionalism of our airmen in Vietnam. Neither has he commented on the death of a Free Press in that country.

• • •

To hear *The Nation* tell it, the armed forces' educational programs, recruiters, high school JROTC units, and general "propaganda," constitute a "massive and growing invasion of the nation's public high schools . . . [that] violate the spirit of independent school systems and their traditional separation from church and state."

All this is spelled out in an article in the issue of April 5, called "The Pentagon Moves In," by Robert K. Musil. *The Nation* says he does "research on domestic militarism." It sounds like interesting work.

Author Musil takes off on the Army's Project Ahead, a program under which prospective recruits, while still in high school, sign up for college courses, subsidized up to seventy-five percent by the government, take several while in uniform, and may continue at the same college after military service.

"The Air Force," Musil continues, "offers a somewhat similar plan called the Air Force Community College. . . ."

The AFCC, as most Air Force people know, does no such thing. Rather, it ties together USAF technical training courses with off-duty college-level courses, and awards students of both credit certificates, accepted by colleges throughout the country.

According to Mr. Musil:

"The dangers of Project Ahead and the Air Force Community College are real, but they may not be apparent to high school students (and their parents) desperate for a college education in a time of depression. The seductive schemes are part of a campaign to resell the Armed Forces to the public and, especially, youth, after a sharp reaction against militarism during the years of Vietnam."

If this is a danger, Robert K. Musil should press on with his research into domestic militarism. There is a lot to learn.

Aerospace World

News, Views & Comments

By William P. Schlitz
ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

Washington, D. C., May 1

DoD will continue to trim US air defenses against bomber attack, while putting more emphasis on space surveillance and ballistic missile warning, officials said.

As Defense Secretary James R. Schlesinger told the Congress during last year's budget hearing, "Without an effective antimissile defense, precluded to both the US and USSR by the ABM treaty of 1972, a defense against Soviet bombers is of little practical value." While reducing the number of air defense fighter squadrons and surface-to-air missile batteries . . . "we will, however, retain the capability to protect the sovereignty of our airspace and defend against limited threats," the Secretary said.

Thus, some radar units have been shut down, most of the continental SAM force has been inactivated, and the Air Guard is to be assigned additional air defense missions.

With the planned phase-out of seven ANG F-101 Voodoo squadrons by July 1, 1977, ADC's interceptor force will consist solely of F-106 Delta Dart squadrons, both in the ANG and active force. By mid-1980, the force will be cut to 122 active and ninety ANG F-106s.

But penetrating enemy bombers or reconnaissance aircraft won't be afforded a free ride over the US, the Secretary said: "In a crisis, we would expect at least some strategic warning, which would give us time to increase the readiness of our air defense forces and augment them with appropriate general-purpose forces."

☆

Air Force Systems Command's Aero Propulsion Lab, Wright-Patterson AFB, Ohio, and NASA's Lewis Research Center, Cleveland, have undertaken a joint effort to determine the feasibility of using synthetics to fuel military and commercial jet aircraft.

No small sums are involved. Currently, US military and commercial jets consume about eight percent of all petroleum-derived fuels used in this country, and that rate is expected to grow. Fuel prices have also skyrocketed in recent months. Two years ago, it cost nearly $7,000 to fuel a C-5 transport; today it costs more than $22,000.

The project will be a long-term one, with sufficient quantities of turbine fuels from coal and oil shale to conduct full-scale engine tests not available until the early '80s.

Gen. Russell E. Dougherty, CINCSAC, presents the Allan S. Major History Trophy to SSgt. Louis J. Cecconi, 449th Bombardment Wing, Kincheloe AFB, Mich., as the best SAC wing historian of the year 1974.

Defensive threat situation display being developed for the B-1 bomber by Boeing Aerospace Co. will allow operator to evaluate enemy radar environment and determine effective countermeasures.

NASA's giant photo map, the first ever assembled from satellite images, was put together for the space agency by the Agriculture Department's Soil Conservation Service Cartographic Division. It measures ten by sixteen feet and is composed of 595 cloud-free black-and-white images.

(Refining processes to produce jet fuel from coal and oil shale are currently under study by Exxon Corp.)

In the meantime, NASA and Air Force labs will examine the behavior of such fuels, particularly their combustion characteristics. Yet to be determined are the "syn fuels" adaptability to existing engines, possible modification of such hardware, and environmental effects.

As previously reported, US Navy is also working on syn fuels to power ships. Recently, 10,000 barrels of crude shale oil produced by the Paraho Oil Shale Demonstration facility in Colorado have been turned over to government—including Air Force—labs and private industry for evaluation.

☆

Following April's C-5 crash, the tragic accident in which many Vietnamese orphans being evacuated were killed, USAF has assigned flying crew chiefs to all C-5 flights.

The precautionary measure is being taken until the exact cause of the crash is determined, officials said.

Previously, flying crew chiefs were only assigned to flights abroad where ground maintenance might present obstacles.

USAF has also moved to limit C-5 operations in areas of air turbulence and from rough runways, forbade the transport of passengers and use of the rear cargo door (it is believed that a malfunction of the aft cargo door caused the crash near Tan Son Nhut AB, Vietnam).

The Air Force is currently conducting a review of all C-5 operational, material, and support systems.

☆

The Army's Safeguard ballistic missile defense system, located in northeast North Dakota, has achieved initial operational capability and has been integrated into the nation's defense system under control of the Continental Air Defense Command (CONAD), DoD announced.

(Under the current agreement with the USSR, it is the only missile defense installation permitted, and has been designed to protect ICBM launch sites.)

The Safeguard system consists of five launch sites supported by data processors and command and control equipment. Armament will include seventy short-range Sprint and thirty long-range Spartan missiles.

☆

USAF has successfully flight-tested a new reconnaissance camera that transmits high-quality photos to ground interpreters in about ten seconds.

Developed by AFSC's Air Force Avionics Lab, Reconnaissance and Weapon Delivery Division, Wright-Patterson AFB, Ohio, the AN/UXD-1 displays still photos on a TV-like screen with 2,000-line resolution, compared with the 350-line resolution of commercial TV sets. Moreover, "part of any picture can be enlarged by an electronic zoom mechanism that—at the push of a button—magnifies an area up to ten times its original size in the photography," AFAL technicians report. The camera approaches "the ideal for real-time photo interpretation," they said.

Built by RCA, the AN/UXD-1 also simultaneously records photos on film. It has been tested at high speeds and at altitudes up to 50,000 feet aboard an RF-4C.

The first of the new improved version of Lockheed's C-130H transport was turned over to the Air Force recently. Other deliveries of USAF's workhorse cargo aircraft will continue through 1976. The first "'76" model was flown to Dyess AFB, Tex., to join Military Airlift Command operational forces. The new C-130H version has been described as a "new airplane within a proven frame." Lockheed has sold forty-seven versions of the C-130 to customers in thirty-seven countries. The transports have flown a total of nearly ten million hours.

☆

Lockheed has begun delivery to USAF of the improved "H" version of the C-130 Hercules, an aircraft that has served as the workhorse of the transport fleet for two decades. (Besides the US, C-130s have been bought by thirty-six other countries.)

All new aboard the improved C-130H, which has undergone an extensive flight-test program, are a search and weather radar, a "flight-operable" auxiliary power unit, air-conditioning system, and Allison T-56A-15 propjet engines.

Additional new H-models will be delivered to the Air Force this year and next to upgrade MAC's airlift capabilities.

☆

In mid-April, Israel displayed its new delta-wing Kfir (Young Lion) jet fighter/bomber.

Israeli officials said that the Kfir can hit Mach 2, or 1,400 mph, and has a combat ceiling of 50,000 feet. It resembles France's Mirage V in

design and is equipped with GE's J79 engine, powerplant of the US F-4 Phantom. The F-4 is the mainstay of the Israeli Air Force.

Israel Aircraft Industries, which has had Kfir under secret development for several years, unveiled the aircraft on the eve of the Israeli independence day anniversary.

Israeli-built new Kfir fighter-bomber looks like France's Mirage V and has US J79 engines.

At ceremonies at IAI facilities at Lydda, Israeli Premier Yitzhak Rabin told aircraft workers and dignitaries, "This plane is a tribute most of all to Jewish wisdom that is capable of combining the beauty of French planning with the power of American engines."

Despite this latest step toward weapon self-sufficiency, it is understood that Israel is very interested in acquiring additional advanced weapons from the US, including the F-15. At the Kfir unveiling ceremonies, Israeli Defense Minister Shimon Peres said, "As long as the Soviet Union supplies with increasing generosity advanced military technology to the Arab world, Israel will be in need of the assistance of the US in order to maintain the defensive and deterrent balance with its neighbors."

☆

Currently under development is an advanced tail-warning radar system that will give military aircraft time to react to threats from the rear.

Being developed by Raytheon Co.'s Missile Systems Division, Bedford, Mass., the radar is expected to find a wide range of applications on both strategic and tactical aircraft, the company said.

The system is being designed to tie into existing cockpit displays for both visual and optionally audio monitoring of both missile and aircraft threats from behind.

According to Raytheon, the all-weather system is built on a modular basis to adapt to various bomber and fighter/interceptor aircraft ranging from the F-15 to the B-1 and a number of helicopters.

The system, which will pick up air-to-air and surface-to-air radar and heat-seeking missiles, would give a pilot sufficient reaction time to drop

Kriegie Reunion in Cincinnati

The atmosphere was rife with nostalgia during the thirtieth-anniversary reunion of former American inmates of Stalag Luft III, one of Germany's most notorious World War II POW camps.

Some 500 "kriegies" and wives came to the get-together at Cincinnati in mid-April from all over the country and overseas. On hand also during the two-day assembly was a contingent of Canadian prison-camp brethren who were warming up for a kriegie bash of their own to be held in Regina, Saskatchewan, Canada, August 1–3 (American kriegies invited).

As World War II drew to a close, Stalag Luft III housed, in a manner of speaking, thousands of Allied officers, the majority of whom were crewmen shot down on missions over the Continent. (It was from the Luftwaffe-run camp's North Compound that the famous mass breakout of British Commonwealth officers and others took place. Only three made it to freedom; fifty were subsequently shot upon recapture.)

The Cincinnati reunion, organized as in the past by ex-kriegie David Pollak and his able volunteer staff, was conducted with the usual light touch. Free-flowing afternoon sessions featured a lecture by Cornell University's Dr. Frank Drake on the future of man in space. Among other entertainment was war-year film footage, including the classic documentary on the B-17 *Memphis Belle*. A bus-load of kriegies and spouses toured the Air Force Museum at nearby Wright-Patterson AFB.

It was evident to an outsider that there is a bond among the kriegies that goes beyond mere fellowship. All had been indelibly marked by the dual trauma of forced exits from aircraft on the brink of destruction followed by varying periods of confinement at the mercy of explosively ruthless captors. But the kriegies have mellowed through the years—there is little rancor evident—and, being a gregarious and affable lot, chat about almost incredible personal experiences with dispassion and humor. (Their catch phrase in the recital of the crucial stage in some spine-chilling tale of parachuting from a burning airplane: "And there I wuz," followed by laughter at their own expense.)

Yet, beneath the light-heartedness, each expressed almost awe about what had transpired back in the '40s and about his own survival. As ex-kriegie USAF Lt. Gen. A. P. Clark put it: "Everyone here has passed through the eye of a needle."

Guest speaker Air Force Capt. Edward T. Mechenbier, a six-year Vietnam POW, also lauded the comradery that had been forged among his fellow prisoners amidst the adversity of confinement. "Wow!" said one kriegie at the conclusion of Captain Mechenbier's address. "Compared to him, we were on a Sunday school outing." Erased by time for the most part were memories of fear, hunger, cold, lice, and doubt at Stalag Luft III.

At the reunion, evening festivities included talks by such kriegie notables as Col. C. G. Goodrich, USAF (Ret.); Maj. Gen. Delmar T. Spivey, USAF (Ret.); Lt. Gen. A. P. Clark, USAF (Ret.); Col. Jerry Sage, USA (Ret.); and Canadian Wally Floody. Tribute was paid to representatives of the Red Cross and other groups that had helped the kriegies survive captivity.

The kriegies have set up a fund to finance a reunion five years hence. Former kriegies are requested to send contributions to the David Pollak POW Fund, 1313 East Kemper Rd., Cincinnati, Ohio 45246. —W. P. S.

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Aerospace World

chaff or flares, turn to engage, or employ evasive maneuvers, depending on the situation. The radar system, which displays a left, right, or middle sector indication of a potential attacker, also identifies it as either a missile or aircraft.

☆

USAF currently is test-flying a digital flight control system aboard an A-7D aircraft at Edwards AFB, Calif.

Called DIGITAC, the system is the first of its kind to be test flown and is helping Air Force Flight Dynamics Laboratory explore incorporation of such systems in current and future tactical fighters.

According to USAF, "The system features pilot-selectable control modes [multimodes] that are designed to enhance tracking performance by tailoring aircraft handling qualities to specific weapon-delivery tasks," such as air-to-air and air-to-ground gunnery and bombing.

Testing of DIGITAC, built by Honeywell, will be concluded in July.

By improving aircraft handling characteristics, combat effectiveness will be upgraded as well, USAF believes.

☆

The Air Force has ordered the design, manufacture, and test of a system that can catapult-launch remotely piloted vehicles.

Two Stored Energy Rotary Drive (SERD) catapult systems, developed by All American Engineering Co., Wilmington, Del., will be installed at Tyndall AFB, Fla., for the test phase and later operational use. The SERDs will launch BQM-34A and F RPVs, with testing taking place next May and June under the direction of the recently established Deputy for Remotely Piloted Vehicles headed by Col. Ward W. Hemenway. The deputate is part of Air Force Systems Command's Aeronautical Systems Division.

RPVs are currently launched via the Rocket-Assisted Takeoff system, and catapult launch is seen cutting costs by an estimated $1 million per year.

So much for launch. For recovery, USAF is considering the use of huge parafoils that would deploy from returning RPVs much like a parachute and bring the vehicles to accurate and soft-touch landings.

Two forty-by-eighty-foot parafoils, built by Aero of South Bend, Ind., began tests in May at the Army's Dugway Proving Ground Range, near Hill AFB, Utah, under the supervision of AFSC's Aeronautical Systems Division.

Currently, RPVs are retrieved in midair by HH-53 or CH-3 helicopters after the vehicles' engines are cut and parachutes deployed, a costly proposition that is also subject to weather problems.

The 3,200-square-foot recovery parafoils are the largest yet built, and compare to the 300- to 400-square-foot personnel-size devices.

Index to Advertisers

AiResearch Mfg. Co., Garrett Corp.	Cover II
American Telephone & Telegraph Co., Long Lines Dept.	1
Boeing Aerospace Co.	4 and 5
Delco Electronics Div., General Motors Corp.	12 and 13
Dial Finance Co.	22
Holiday Inn—Fullerton	14
IBM Corp., Federal Systems Div.	57
McDonnell Douglas Corp.	Cover IV
Pratt & Whitney, Div. of United Aircraft	8 and 9
Singer Co., Kearfott Products Div.	2
Sperry Rand Corp., Sperry Flight Systems Div.	24
USAA	21
Vought Systems Div., LTV Aerospace Corp.	Cover III

AFA Convention	79
AFA Symposium	69
AIR FORCE Magazine	40

Orphans' Airlift From Vietnam

Air Force planes and Air Force people played a major role in a great humanitarian undertaking during the final days of the Vietnam War. From bases in the Philippines to Stateside destinations, the Air Force family opened hearts and arms to the innocent victims of the Vietnam tragedy.

A stopover at Hickam AFB, Hawaii, provided time out in the journey for much-needed rest and equipment changes. Photographs courtesy of the Air Force.

Aerospace World

1909 WALTER T. BONNEY 1975

The Air Force Association lost one of its most loyal and enduring supporters with the death on May 10 of Walter T. Bonney. He was stricken with a heart attack at his home in Frederick, Md.

Mr. Bonney served six terms as a member of AFA's Board of Directors, the most recent in 1960. He had always been a friend and confidant of the AFA staff, from Executive Director James H. Straubel to the mail room.

His earliest major contact with AFA was at the 1950 convention in Boston. At the time, Mr. Bonney was Director of Public Relations for the Bell Aircraft Co., in Buffalo, N. Y., builders of the X-1, USAF's first supersonic airplane. He played a key role in arranging a presentation ceremony in Boston, when the Air Force turned the X-1 over to the Smithsonian Institution.

A veteran newspaperman from the Springfield, Mass., *Republican,* he later joined the National Advisory Committee for Aeronautics, and became the first Director of the Office of Information of the new NASA. From 1960 until his retirement in 1971, he was Director of Information for the Aerospace Corp., El Segundo, Calif., a systems management firm organized to serve USAF. At his death, he was engaged in writing a history of the old NACA.

Walt Bonney was held in respect by both airmen and newsmen all across the US. He had a passion for truth and a scholar's regard for detail, about men and about flying machines, that made him invaluable as a source for others and masterful at the work that came from his own typewriter.

To AFA and a host of friends and professional associates, he gave freely of his time; he was never too busy to help—whether in tracking down an elusive fact or with practical editorial advice.

His passing leaves a void we cannot fill. —C.W.

Lt. Col. Steve Hinderliter, Director of Information for Third Air Force at RAF Mildenhall, devised this I. C. (Intellectual Curiosity) test on USAF bases. A score of 20 correct earns you an *Eagle* award; 15–20 and you're a *Falcon;* 10–15 makes you a *Pigeon;* 5–10 a *Turkey*. Fewer than five correct, and you get the bird in this . . .

GAME OF THE NAME

Almost everyone knows that the Arnold Engineering Development Center was named for General "Hap" Arnold, and that Grissom AFB, Ind., honors USAF's first astronaut. But how many can identify a USAF base named for a newsman, a senator, or a missile pioneer? The following quiz tests your knowledge on how USAF bases got their names. For more information on these bases, see "Guide to USAF Bases at Home and Abroad," in the May '75 AIR FORCE Magazine Almanac issue.

1. TAC base named for a WW I fighter ace killed in a 1942 aircraft accident in Australia.

2. SAC base named for USAF's second Chief of Staff (1948–53), who died in 1954.

3. AFLC base named for two aviation pioneers and an aviator killed in a 1918 crash while testing gun synchronization.

4. ATC base named for a glider pilot and engineer who started flight experiments in 1896, and was adviser to the Wright brothers.

5. Former ADC base, now operated by AFRES, named for the first American to fly with Britain's Royal Flying Corps in WW I. He became an ace, and was killed while leading a low-level bombing mission against German air bases.

6. TAC base named for a guided missile pioneer who was killed in a 1946 B-17 crash on Taiwan.

7. ATC base named for a WW I aerial observer killed in 1918 when his Sopwith aircraft was shot down by German Fokkers.

8. MAC base (recently transferred from TAC), named for a WW I pilot killed in 1919 near Fayetteville, N. C., in the crash of a JN-4 Jenny while surveying routes for airmail.

9. AFSC base named for a local newsman and pre-WW II advocate of private flying, who was killed in 1941 while giving flying lessons.

10. SAC base named for the first AAF casualty of WW II, killed December 7, 1941, while taking off from Wheeler Field, Hawaii.

11. TAC base named for second-ranked ace among AEF airmen of WW I. Awarded the Medal of Honor posthumously for shooting down eighteen airplanes and balloons in seventeen days.

12. Recently closed SAC base named for the project officer of the *Lucky Lady II* B-50 which made the first nonstop, round-the-world flight, later killed in 1957 when his B-47 exploded.

13. MAC base named for the second-ranked ace of WW II, credited with thirty-eight victories in the South Pacific, and killed in January 1945 while leading a P-38 flight in the Philippines. Awarded the Medal of Honor posthumously.

14. AFLC base named for the first US Army pilot killed in a military aircraft (a Curtiss D Pusher Type IV biplane in 1911).

15. MAC base named for the first enlisted man to die in an air accident, in the crash of a Wright Type B Flyer at College Park, Md., in 1912.

16. ATC base named in memory of a US Senator from Texas.

17. AFSC base named for a WW II pilot killed in the 1948 crash of the YB-49 "Flying Wing" experimental bomber.

18. SAC base named for a USAF officer killed in 1952 during the Korean War when he deliberately crashed his damaged F-80 into an enemy gun emplacement near Sniper Ridge. Awarded the Medal of Honor posthumously.

19. ADC base named for a major general who directed the August 1943 low-level bomber attack on oil refineries at Ploesti, Romania.

20. AFCS base named for two local airmen, one killed during the Argonne offensive in 1918, and the other killed in Korea while flying his 99th mission in an F-84.

ANSWERS:

1. George AFB, Calif. (Brig. Gen. Harold H. George)
2. Vandenberg AFB, Calif. (Gen. Hoyt S. Vandenberg)
3. Wright-Patterson AFB, Ohio. (Orville and Wilbur Wright, and 1st Lt. Frank S. Patterson)
4. Chanute AFB, Ill. (Octave Chanute)
5. Hamilton AFB, Calif. (1st Lt. Lloyd A. Hamilton)
6. Holloman AFB, N. M. (Col. George V. Holloman)
7. Keesler AFB, Miss. (2d Lt. Samuel R. Keesler, Jr.)
8. Pope AFB, N. C. (1st Lt. Harley H. Pope)
9. Laurence G. Hanscom AFB, Mass.
10. Whiteman AFB, Mo. (2d Lt. George A. Whiteman)
11. Luke AFB, Ariz. (2d Lt. Frank Luke, Jr.)
12. McCoy AFB, Fla. (Col. Michael N. W. McCoy)
13. McGuire AFB, N. J. (Maj. Thomas B. McGuire, Jr.)
14. Kelly AFB, Tex. (2d Lt. George E. M. Kelly)
15. Scott AFB, Ill. (Cpl. Frank S. Scott)
16. Sheppard AFB, Tex. (Morris E. Sheppard)
17. Edwards AFB, Calif. (Capt. Glen W. Edwards)
18. Loring AFB, Me. (Maj. Charles J. Loring, Jr.)
19. Ent AFB, Colo. (Maj. Gen. Uzal G. Ent)
20. Richards-Gebaur AFB, Mo. (1st Lt. John F. Richards and Lt. Col. Arthur W. Gebaur, Jr.)

AIR FORCE
JUNE 1975 MAGAZINE

TECHNOLOGICAL INITIATIVE: A PRICELESS ASSET

BY EDGAR ULSAMER
SENIOR EDITOR, AIR FORCE MAGAZINE

Defense-related basic and exploratory research has decreased by forty percent over the last decade. The Defense Department considers it paramount to redress this imbalance over the next five years in order to maintain technological parity with the Soviet Union.

THE Defense Department's $104.7 billion FY '76 budget request includes about $10.2 billion to "maintain for our nation, now and for the future, one of its priceless assets—technological initiative."

The latter figure is the aggregate of what the Defense Department and the individual services propose to spend on the full-scale development of new weapon systems as well as on what Dr. Malcolm R. Currie, Director of Defense Research and Engineering, calls the "creation of new technology options."

The latter category, he points out, represents the cutting edge of military technology and is essential to permit "those who follow us to shape their own destinies based on conditions that will exist in their own times."

About forty percent of DoD's proposed research, development, test, and evaluation (RDT&E) budget is earmarked for the creation of such options. Dr. Currie told AIR FORCE Magazine that under DoD's five-year budget forecast, funds requested for new technology are to go up by about ten percent annually—in real as opposed to inflated dollars—over the next five years in order to "revitalize that crucial part of our technological effort."

He has found strong congressional interest in reversing the decline of defense-related basic and exploratory research that "has decreased forty percent over the last decade." Because of the significantly greater Soviet level of effort in defense-related technology that "seeks to wrest the initiative from us," there is increasing awareness that "national survival" is at stake, he added.

Compounding the gravity of a shrinking US technology base, in the view of DoD leaders, is that "in today's environment we must look to technological advantage to compensate for the limitations on the number of modern weapons that we can afford to buy and operate or that we are allowed by treaty agreement."

US vs. Soviet Approach

The US approach to defense R&D, in Dr. Currie's view, is essentially a search for "quantum jumps. We seek to push back frontiers of technology, attain substantially higher plateaus of capability, and find revolutionary solutions. We foster a competitive environment that stresses innovation and is receptive to new technology and keyed for rapid change.

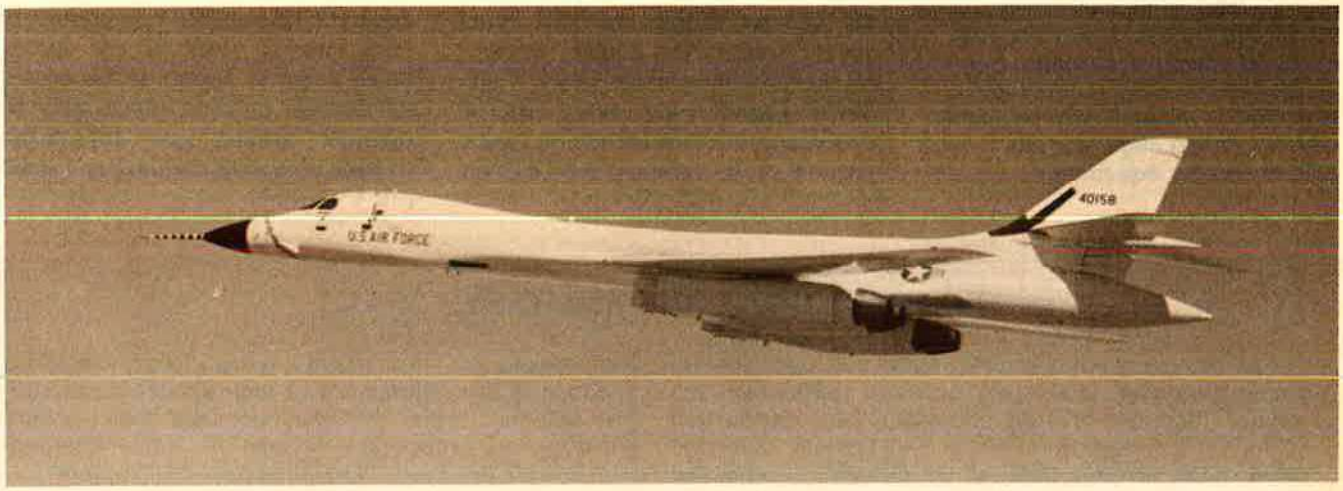
"By contrast, the Soviet approach could be broadly characterized as 'conservative incrementalism.' Soviet R&D institutions and the requirements-generation process that underlies them have in the past been committed essentially to step improvements of existing systems and components. When incrementalism is the dominant deployment strategy, risks are fewer and the personal cost of failure less."

Even though the Soviets seem to prefer a policy of low-risk evolution, they have "learned that a reactive policy in military technology is not enough to give them military superiority. We now see them working hard to change the technology balance by trying to gain the initiative in many areas of military R&D."

Many aspects of the USSR's military R&D program are obscure, but "we know its management is highly centralized, its priorities are the highest in the Soviet economy, and its guidance and control come directly from the Politburo—about half of whose members have technical backgrounds," according to Dr. Currie.

The Politburo's strong support of the Soviet science and technology effort is backed by a strong resolution of the Communist Party's Central Committee, which states that "the development of Soviet science has specific significance [at this time] when the scientific-technological revolution has become the most important area in the competition of the two opposed world systems."

The execution of R&D policy is assigned to the Council of Ministers, seventy-five percent of whom have technical backgrounds, according to DoD intelligence. Military R&D, Dr. Currie explained, is carried out by a



Top: Recent Air Force studies of subsonic versions of the B-1 strategic bomber concluded that such redesign would not be cost-effective. Above left: ALCM is to undergo "all-up" test next year. Above right: SLCM pioneers terminal guidance concepts. Left: Trident is Navy's answer to ASW challenge.

large system of research institutes and design bureaus managed by at least eight ministries of defense industry.

"The innocuous names of some of the ministries—such as General Machine Building, Medium Machine Building, or Shipbuilding—belie their actual management roles. More than eighty-five percent of their research institutes deal with the natural sciences and engineering," Dr. Currie said.

In narrow areas of technology, DoD believes, the Soviets can "mount sizable efforts and accelerate their rates of technical advance. In several areas they are ahead of us. Overall, however, the Soviet system seems to discourage real innovation and, despite what we perceive as large-scale development efforts, they frequently fall short of what we accomplish with far less direct effort."

On balance, "I believe that the American 'new technical plateau' approach to defense R&D is superior to an approach dominated by conservative incrementalism. Our ap-

Dr. Malcolm R. Currie, the Pentagon's R&D chief, expressed "profound" concern over enigmas in Soviet advanced research because "some exotic technology" may lead to radically new weapons that this nation might not be able to counter adequately.

proach is an expression of our national character. We should understand it and not denigrate it. It has provided us—so far—with the broad technological initiative," Dr. Currie said.

Soviet Strategic Technology

During the past decade, the United States developed and deployed five strategic missile systems, counting the SRAM air-to-ground missile. During the same period, the Soviets produced fourteen new offensive strategic missile systems. According to DoD reckoning, the pace of Soviet research and development of strategic systems during the past three years "is more than double" the rate of the preceding seven years. "The Soviet Union shows every sign of continuing to concentrate a major portion of its military RDT&E on strategic weapons, both offensive and defensive," according to Dr. Currie.

Emphasizing that there are gaps and unknowns in this country's understanding of Soviet technological programs and intent, he added that "our concern for these enigmas is profound. Can the Soviets develop some exotic technology for application to actual weapon systems, and, if so, will our own technological resources be adequate to counter or offset them?

"These enigmas in toto may represent a significant percentage of the Soviet military RDT&E budget. Furthermore, many of them have an apparent or possible relationship to vital mission areas of our forces. Some enigmas appear to be related to strategic missiles; others may be oriented toward new approaches to ballistic-missile defense; and some

THE IMPORTANCE OF "MILITARY" SPACE

The resources the Soviets have put into military space programs "over the past three years are much greater than our own commitments," Dr. Currie told AIR FORCE Magazine. While the Soviets launched more space vehicles than the US and the Soviet space program "is considerably more expensive than our own, at least in terms of launch cost, we believe that their spacecraft are not as technologically advanced as ours," according to the Pentagon's research chief.

The Soviets, he said, are well aware of "the pervasive influence of space technology on military posture. We are concerned that the Soviets may be evaluating the use of man in space for military missions in addition to routine testing of the Soyuz spacecraft in anticipation of the Apollo/Soyuz Test Project flight in 1975." He declined to discuss "the specific Soviet activities" on which this concern is based.

While the Soviets appear to lag behind the US in the "quality of spacecraft sensors and the art of producing space vehicles, they are striking out on their own in a number of areas and are exploring paths we have not yet tried," Dr. Currie said. There have been a number of Soviet space launches whose purpose "we simply don't understand," he added.

A noteworthy event—although one whose meaning is subject to differing interpretations—was last year's placement of two Soviet satellites in synchronous equatorial (geostationary) orbit, a Russian first. One of them was a "dummy," apparently launched to test orbital placement, and the other an operational spacecraft of the Molniya type, normally deployed in highly elliptic orbits to provide communications links to high northern latitudes, Dr. Currie told AIR FORCE Magazine. Some analysts believe the Soviets shunned geostationary orbits in the past because their sensor technology was not sufficiently mature to operate from an altitude of 22,300 miles; others are of the notion that the Soviets did not require geostationary satellites because of the redundancy of their spacecraft in various elliptical orbits that may enhance their military security and reduce the chance of signal intercept *(see March '75 issue, "The Soviet Space Program").*

There is no doubt, in Dr. Currie's opinion, that "over the next ten or fifteen years space is not going to remain the unmolested territory, the sanctuary, that it is today. This issue must be addressed explicitly." DDR&E, the Air Force, and other elements of the Defense Department are learning to cope with the resultant technological requirements, he said. "Survivability can be achieved through the basic systems concept involving such factors as redundancy, adjustment of the orbital parameters to reduce vulnerability, and flexible designs so that if part of a system is destroyed, the remainder can still carry out the fundamental mission. In addition, we are making substantial progress in hardening the avionics of our spacecraft," Dr. Currie told this reporter.

In the past, survivability principally meant hardening against collateral effects of a nuclear detonation. "As we gain more experience in space-system operation and understand the potential vulnerabilities more clearly, we are learning that satellite systems can be given an acceptable probability of survival for accomplishing military missions. Although all the technologies and tactics have not been developed yet, the concept for employing survival aids for space systems against potential threats is consistent with the strategy we use for other military systems. The Air Force is completing an effort to define the satellite system survivability criteria, based on the threat and the function of each satellite, and to match those criteria to each type of satellite system critical to our defense posture," according to Dr. Currie.

The Pentagon's research chief pointed out that the

may be directed against our fleet of ballistic-missile submarines."

The strong and accelerating Soviet technology efforts in ASW make it "impossible to predict when a significant threat to the survivability of our SSBNs will arise. There are simply no reliable indicators we can use," in Dr. Currie's view.

The US Navy's new Trident submarines, with their long-range missiles and reduced detectability, are one answer to the ASW challenge. The other is continued reliance on the strategic Triad.

There is increased recognition among US defense planners that while the vulnerability of silo-based ICBMs may increase as Soviet missile throw weight and accuracy improve, it will never be total. The central reason is that the long flight time of attacking ICBMs and the timing constraints associated with massive nuclear attacks make complete surprise impossible.

Also, since Soviet gains in throw weight and accuracy can be reasonably well measured, the degree of vulnerability can be calculated and counterbalancing measures taken. Conversely, while the US SLBM force is considered highly survivable, a technological breakthrough by the Soviets—perhaps unknown to the US—could categorically jeopardize the US sea-based deterrent.

The potential for advances in ASW, of course, is not confined to the Soviet Union. As Dr. Currie pointed out, the Defense Advanced Research Projects Agency (ARPA, an element of DDR&E), in conjunction with the US Navy, demonstrated recently that present capabilities can be improved "greatly" and that "further significant gains" can be made.

ARPA's Director, Dr. George H. Heilmeier, told a congressional subcommittee that "we are initiating a major new thrust to explore the limits of detection and localization of submarines. This work is an outgrowth of ARPA efforts on acoustic array signal processing technology. This program, called Seaguard, will explore the physical limits of acoustic propagation of submarine-generated noise in the ocean . . . using the giant ILLIAC IV computer previously developed by ARPA. Our goals in this initiative are to dramatically improve the technology of detection and localization of submarines." Sorting out the noise signature of submarines from the ocean's natural noise clutter requires enormous computer capabilities.

A pivotal question arising from Air Force now requires that survivability criteria be incorporated into the design of space systems and evaluated through the development and fabrication phase, "the same as performance and cost now are."

Other technological efforts to boost the survivability and jam-resistance of US military satellite systems, he said, include satellite attack warning sensors and ground-station and command-link protective measures. DoD's plan is "to develop the applicable technology and then have the first 'customer' satellite program that needs it incorporate" the required techniques in its system, Dr. Currie explained.

The Air Force Satellite Communications Systems (AFSATCOM), to be developed in two stages, will be tailored to "withstand massive physical and jamming attacks" and provide reliable command and control of the nation's nuclear-capable forces, according to Dr. Currie. This is to be achieved by 1990. The system's first stage, AFSATCOM I, will provide us "with a global system that will have modest antijam capability. The AFSATCOM I space segment will consist of transponders installed on host satellites, the Satellite Data System (SDS), and the Air Force capability on the FLTSATCOM (Navy's Fleet Satellite Communications System) satellites scheduled for launching in 1977. Proliferation of coverage and backup of the primary SDS and FLTSATCOM segments are being obtained through transponders installed on other host satellites. It is this aspect of redundancy that will provide the AFSATCOM I space segment with *some* degree of survivability to physical attack," Dr. Currie explained.

At the same time, the Air Force is already formulating the concept of AFSATCOM II with emphasis on "a major upgrade in antijam survivability and improvement in satellite physical survivability. In support of this effort, two experimental satellites called LES 8 and 9 [Lincoln Laboratory Experimental Satellite] are scheduled for launch in November 1975," Dr. Currie said. The LES 8/9 program is to demonstrate the operational feasibility of high-power radioisotope thermoelectric power sources in order to increase nuclear hardness. The solar panels of conventionally powered satellites, designed to pick up the sun's radiation, also pick up radiation generated by a nuclear explosion—with fatal results to the spacecraft. A survivable satellite, therefore, requires a reliable, self-contained and shielded power source which, because of the spacecraft's longevity, must be nuclear.

The LES satellites, Dr. Currie said, will also use a new gyro that "could eliminate dependence for satellite attitude control on conventional sensors, which are vulnerable to nuclear effects. Based on the LES 8/9 experiment and other industry and government studies, the Air Force expects to define AFSATCOM II by the end of FY '76," Dr. Currie said.

AFSATCOM will be used to transmit messages for force execution, force report-back, and force redirection. The entire system will include "relatively simple UHF (ultra high frequency) low-power terminals on bombers, airborne command posts, in launch control centers, at missile silos, and on fleet ballistic submarines to reliably and securely communicate via satellites." The system will remain operational even if exposed to large land-based jammers, Dr. Currie said.

Similar hardening and antijam features are being incorporated into other US satellite systems. In the case of the crucial Early Warning Satellites, radiation proof testing of satellite components to increase hardness is being continued this year, along with modification of the ground stations to accommodate antijam capabilities.

At the same time, Dr. Currie said, techniques are being evaluated to increase the surveillance coverage of these satellites. Three Early Warning Satellites are currently operational. Placed in geostationary orbit, one satellite hovers over the Eastern Hemisphere to provide warning of ICBM or FOBS launches. The other two are positioned above the Western Hemisphere, covering overlapping areas to warn of attack against the US by submarine-launched ballistic missiles.

the strategic arms limits arrived at by the 1974 Vladivostok understanding is how to best allocate the 1,320-MIRV ceiling to ICBMs and SLBMs. Within that limit, "should we develop improved capability for Trident where survivability is better than ICBMs, but equivalent accuracy is more difficult to attain? Or should we develop an improved ICBM with greater throw weight for fixed silo and/or mobile applications, and reduce MIRVs in other systems? The Secretary [of Defense] and everybody else is looking at these questions right now. We have a study going on to find out what represents the optimal mix and what will give us the best return on our investment," Dr. Currie told AIR FORCE Magazine.

Improving Triad

Whatever the outcome of the current analyses, there is the pervasive requirement for "flexible strategic deterrence in the years ahead. As a result, we are going ahead with initiatives for options to improve the accuracy and yield of our strategic systems," Dr. Currie said.

So far as SLBMs are concerned, he said, DoD has slowed efforts to improve accuracy "in recognition of the very difficult problem of choosing the most appropriate solutions." The Trident I missile, also referred to as the C-4, according to Dr. Currie, "hopefully will have the same accuracy as the Poseidon missile. Going from a range of about 2,000 miles to about 4,000 degrades accuracy but we expect to offset this by improved guidance. We have made no provisions for radical guidance improvements—such as terminal guidance—so far as Trident I is concerned."

Trident I is to be deployed on a new class of SSBNs bearing the same name, as well as retrofitted into thirty-one currently operational Poseidon submarines. The new missile's increased range is expected to extend the SSBNs' operating range fourfold and make it possible to base the boats in US ports without reducing time on patrol. In fact, shorter intervals in port will increase alert rates.

For the moment, DoD does not plan on providing Trident I with maneuvering reentry vehicles (MARV), but is keeping open that technological option if "we see the extensive Soviet R&D effort on ABM technology being transformed into operational hardware."

(The Defense Department explores MARV technology for two reasons. They can follow an erratic flight path to evade interceptor missiles. Or they can use their maneuvering capability to increase accuracy. In part, this can be achieved by flying steep reentry angles to minimize the so-called displacement error—as opposed to shallow angles which magnify it.)

The follow-on to the C-4 SLBM, called Trident II, Dr. Currie told AIR FORCE Magazine, "at present is not yet clearly defined. An intensive study on this subject has recently been initiated." Both the MK 12A and the LABRV, or large ballistic reentry vehicle, are among the warheads under consideration for Trident II, he said. MK 12A is a high-yield warhead for Minuteman III currently in engineering development.

LABRV has yet greater yield with "enough desirable attributes to make it a candidate RV for Trident II or MX," according to Dr. Currie. The Air Force, as the executive agency of the triservice ABRES (advanced ballistic reentry systems) program, expects to demonstrate that the warhead, designed by the Energy Research and Development Administration, can be packaged into a reentry vehicle of acceptable size and performance.

The MX Question

Of the options open to the United States under the SALT I Interim accord and last year's Vladivostok agreement, "accuracy seems the most broadly applicable, and is receiving the most attention" as a means for offsetting the widening Soviet lead in ballistic missile throw weight, according to Dr. Currie.

"Accuracy is the crucial tool needed for executing limited options; it allows high probability of kill while minimizing collateral damage . . . and has an exponential effect on the destructiveness of a weapon against a hard target. But high accuracy is much more difficult to attain with SLBMs than with ICBMs. One should not oversimplify and assume that the accuracy levels of Minuteman apply to Trident," Dr. Currie said.

This factor and the "lower yield available for existing and near-term SLBMs make it advisable to proceed at a more deliberate pace in examining the spectrum of possible technological options to improve SLBM accuracy," he pointed out.

Conversely, the "initial counter" to gains in Soviet offensive strategic capability must be the continued improvement of Minuteman's accuracy, yield, and silo hardening initiated last year. Better ICBM accuracy is also important, Dr. Currie told this reporter, because accuracy levels assumed in the past may have been too high.

Work in this regard includes modification of RV designs to allow for the effects of environmental conditions in the target area based on newly acquired knowledge, and research on geodetic and gravitational factors that "contribute significantly to the total CEP of ballistic missiles," he said. New instruments and techniques are being used—including sophisticated satellite radar altimetry and satellite-to-satellite tracking—to "refine our knowledge of the shape of the earth and the local anomalies of the gravitational field."

Two events in 1974 affect USAF's MX advanced ICBM program, Dr. Currie told this reporter: "The fact that the Vladivostok agreement put an upper cap on the number of central launch systems and MIRV weapons, coupled with DoD's goal to seek mutual restraints on strategic nuclear forces. If the Soviets show restraint in SALT II [currently in progress] and in the tempo of their development and deployment efforts, we will reciprocate within the framework of perceived equivalence."

The pace of the MX program has also been "significantly reduced as a result of our judgment concerning the time-scale of the threat to land-based ICBMs and the overall constraint in fiscal resources." The Minuteman force, as presently constituted, is now believed to remain survivable beyond the mid-1980s rather than the early 1980s as thought earlier.

Concurrent with slowing down MX development, the Defense Department also shifted the program's focus more toward increased throw weight and away from an initial capability for mobile basing.

"While existing silos may become

vulnerable in the future, the attractive features of least cost, good accuracy, excellent command and control, and least operation and maintenance cost may make it advisable to plan for initial basing in these silos with subsequent rebasing to a mobile mode if required by threat evolution. This more lengthy time-scale will also allow us to address the more difficult problems associated with mobile basing," Dr. Currie said.

MX is in a "very fluid state." It is reasonably certain that, if implemented, MX "would be somewhat larger than Minuteman to lessen the throw weight imbalance. But, as currently envisioned, MX would give us far less throw weight than needed to fully offset what would be available to the Soviets if they opt for massive deployment of the SS-19s and SS-18s."

While it is technically possible to build an advanced ICBM weighing more than 150,000 pounds and suitable for existing silos as well as air launch, there is "also the chance that we might build something smaller, depending on propellant efficiencies, staging, expected deployment dates, and the risks we are willing to run," he said. The synergistic effect of advanced technology in nozzle technology, materials, staging, propellants, and other elements makes it possible to design MX "with several times the throw weight of Minuteman," according to Dr. Currie.

Sophisticated guidance options for MX as well as Trident II are being explored by the USAF-managed ABRES program. These techniques include terminal-guidance approaches used for precision-guided tactical weapons.

"We are carefully sorting out—initially by analysis, later by component development and test, and finally by flight-test demonstrations—which technical approaches are most promising. At the moment, the ones that appear competitive are TERCOM, an altimeter-profile matching scheme that has already been flight-tested; MICRAD, a microwave radiometer approach; RADAG, a radar cross-section correlation technique; and several laser and optical approaches," as well as tie-ins with the future Satellite Global Positioning System, according to Dr. Currie.

The Air-Launched Cruise Missile

Terminal guidance, especially TERCOM, is being pioneered and refined as a central part of the Navy and USAF cruise-missile programs. An "all-up" flight-test of the prototype cruise missile (ALCM, for "air launched" in case of USAF, and SLCM, for "sea launched" in the Navy version) is scheduled for late 1976, Dr. Currie told this reporter. The two advanced development programs share such common components as engines, guidance, and warhead. The Air Force plans to delay engineering development of ALCM until after successful completion of next year's flight-test.

"If it turns out that TERCOM won't work—we are quite confident that it will—then we would have to develop one of the other guidance options. This would stretch out the program and delay the missile's operational availability considerably," Dr. Currie said.

In the view of the Defense Department and the Air Force, an air-launched cruise missile "may be required to complement the pure penetrating bomber in advanced-threat environments, particularly SAMs, but the extent of the need depends on how the threat evolves."

The first generation of ALCM, Dr. Currie said, most likely "will be subsonic because the present state of technology makes this more cost-effective. For the generation after that we probably will have to consider the addition of at least a supersonic dash capability. We are exploring technologies that show promise for supersonic low- as well as high-altitude flight in connection with cruise missiles."

The Defense Department's range of technology work in the strategic area, in Dr. Currie's view, is designed to do double duty: to preserve essential equivalence with the impressive Soviet momentum, and "to encourage the Soviets to negotiate future arms limitations by convincing them of the futility of attempting to surpass us." Neither of these objectives seems attainable unless the US succeeds in safeguarding what Dr. Currie calls this nation's priceless, albeit "ephemeral asset, the technological initiative." ■

THE B-1'S COST-EFFECTIVENESS

DDR&E, along with other elements of the Defense Department, the Air Force, and personnel from the other military services, recently completed a year-long study examining seven different bomber force options and the associated costs of operating them over a fifteen-year period "to shed light on [their] cost-effectiveness in an evolving threat environment" (*see May '75 issue, p. 42*).

Called the Joint Strategic Bomber Study, this largely classified analysis found "that if we are willing to assume that the threat will remain exactly as it is today, then we can get by with the B-52, except for the replacement need because of aging. On the other hand, if the threat materializes in the manner and to the extent projected by the experts, something like the B-1 will be needed and cost-effective," Dr. Currie told AIR FORCE Magazine.

One of the substudies associated with the Joint Strategic Bomber Study, he said, was USAF's research of the possible advantages of redesigning the B-1 as a purely subsonic vehicle. "The Air Force diligently studied several versions of a subsonic B-1, involving various fixed-wing angles, and concluded that starting at this late date we simply can't relive history. If we go to a fixed wing swept forward, we would get slightly better slow-speed efficiencies, but we then can't take the severe buffeting during a low-penetration dash.

"If we put the wing into some intermediate position, we clearly buy the worst of two worlds. The location of the engines as well as the type of engine—a big fan engine—would not be affected if we were to go to a subsonic design. On balance, we found that the B-1 should remain essentially unchanged from its present form. We have, of course, eliminated the variable inlet ramp and replaced it with a fixed inlet. This has brought down the speed from Mach 2.2 to below Mach 2—something we can afford to give up—but saved a good deal of money. If the threat changes, we can retrofit a variable inlet," Dr. Currie said.

The Case for Joint Readiness Training

ONLY REALISTIC PRACTICE MAKES PERFECT

BY LT. GEN. ERNEST C. HARDIN, JR., USAF
DEPUTY COMMANDER IN CHIEF, US READINESS COMMAND

IN THE absence of war, how does a nation develop combat-ready forces and the men to lead them? Finding the answers to this question is the paramount objective of the US Readiness Command.

Everybody believes joint training is important; almost everyone supports some level of joint readiness exercises. But in the current energy/economic crunch the inevitable question is one of relative importance: "Compared to what?"

Can't we train Army troops cheaply on their own reservations, achieving a modicum of "jointness" by having Air Force support dispatched from and recovered at its home stations? Can't we get most of what we're after through Command Post Exercises (CPXs) without using actual maneuvering forces? Can't we simulate more? Aren't there other low-cost training techniques that would help raise our confidence level?

Yes, these are all valuable training aids and yes, we should do them all. But no, we cannot depend on them to do the complete job, unless they are combined with exercises that include the following:

1. A realistic scenario with a full range of combat activity from strategic deployment to redeployment, and large enough to require the employment of all or most of the support available to the man with the M-16.

2. Army and Air Force combat and support units actually in the field reacting to plans and orders.

3. Major maneuver units exercising in a strange environment, not one they live in every day.

4. Evaluation at the unified command level, or at least by an agency not directly involved with the participating units.

My conclusion is that the US Readiness Command must conduct at least two medium-scale and one large-scale joint readiness exercise each year.

At our headquarters, we are quite aware of the defense establishment's severe budget restrictions. We strive constantly to reduce the cost of our training exercises without compromising their essential characteristics. It is possible, for example, to develop realistic exercise scenarios that combine features of the CPX to simulate division/wing-size forces while actually deploying brigade/squadron elements. We are looking at simulation as a valuable adjunct to our exercise program. But we're still convinced that all major forces must actually maneuver in a joint environment about every two years if they are to be judged ready.

USREDCOM: What and Why?

The USREDCOM mission, briefly stated, is to exercise operational control over combat-ready ground and air forces held in readiness in the United States to reinforce other US unified commands or to perform other contingency operations as directed by the Joint Chiefs of Staff. As US forces are withdrawn further from the western Pacific, and pressures mount to reduce our forces in Europe, USREDCOM's central reserve posture becomes even more important. We are charged with conducting joint training exercises to make certain that our assigned forces are really combat-ready, which means they must be prepared to deploy rapidly and to move into action smoothly alongside forces already in the theater.

Our component forces are drawn from the Tactical Air Command and the Army's Forces Command. Gen. Robert Dixon, TAC Commander, is Commander in Chief, Air Force Forces, USREDCOM; and Gen. Bernard Rogers of FORSCOM is Commander in Chief, Army Forces, USREDCOM. Thus, in terms of operational forces assigned, USREDCOM is the biggest of the unified commands. These forces include six of the Army's current thirteen divisions and several dozen squadrons of tactical fighter, reconnaissance, and special operations aircraft. They are based in the United States, not because we need them here, but from here we can speedily dispatch them to anywhere in the world they may be needed.

The critical capability we seek to develop in our joint training exercises is combat leadership in the command and control of joint forces. The services do a very good job in training leaders up to the Air Force wing and Army division

level. But above those levels we have devoted little attention to preparing leaders in the application of joint forces. We have always tended to ignore that kind of training until we were in a shooting war.

Likewise, individual and unit training of soldiers and airmen is the responsibility of the separate services. But the payoff in joint training exercises is to bring the fighter pilot and the platoon leader together to gain maximum results from diverse talents. The word for this process is *synergism,* the cooperative action of discrete agencies so that the total effect is greater than the sum of the parts. It takes skilled leadership to produce this teamwork, and the skill is developed only through practice in directing joint operations.

A basic aim of our joint training exercise program, then, is to lay to rest that old cliché that military leaders always are superbly prepared to fight the last war. As with most clichés, there is some truth in that old wheeze. We learn from experience, whatever our trade or profession. When that experience has been gained in the life-or-death alternatives of battle, it tends to make a lasting impression. Without new experiences to modify the old, a military leader will cling to what he learned under fire.

Joint Exercise Alternatives

Much of today's joint training is through the CPX. Opposing commanders and staffs work at desks in adjoining rooms. They are fed combat situations to which they initiate responsive actions until, as in a chess game, one or the other is backed into a corner and capitulates.

The best that can be said for the CPX is that it isn't expensive. But even the most elaborate CPX cannot reflect a true combat environment. In a CPX, an aircraft never aborts, troops never get lost, orders are never delayed or misinterpreted. It is an antiseptic kind of war, like that on the chess board. Only when the commanders and staffs direct and control real forces in a real field, forced to react to all the glitches, can they gain experience that relates to actual combat.

Over the centuries, it has not necessarily been the superior force but rather the force led by imaginative and inspiring leaders that won.

Most top combat leaders of World War II had proved themselves in maneuvers just before Pearl Harbor. Others learned through experience. We hope to identify and develop tomorrow's military leaders through well-planned and well-executed joint readiness programs today.

Another form of joint training is not exclusively the province of USREDCOM and the other unified commands. As I noted earlier, this is the relatively informal training relationship where one service helps another to perfect some specific skill, technique, or procedure. For example, an Army company, battalion, or brigade, training at or near its home station, might arrange for close air support missions to be flown from a nearby Tactical Air Command or Air National Guard base. Conversely, C-130 tactical airlift crews might call on the Army to provide loads rigged for airdrop for air resupply training. These are simple *ad hoc* activities and contain little free play, although the proficiency of one service is improved by help from another.

The joint readiness exercise, as planned and conducted in USREDCOM, is characterized by more or less equal participation from two or more services and maximum free play within broadly defined objectives. Generally speaking, the larger the exercise the more effective it is. When opposing ground forces are of brigade or division size, the exercise brings into play the full spectrum of air warfare, including air superiority, interdiction, and close support. Without that full range of air activity, the validity of any conclusions about the outcome of the ground war would be highly suspect. An exercise of this scope also uses numerous specialized units —intelligence, counterintelligence, psychological, electronic, and unconventional warfare—whose capabilities are seldom exploited in day-to-day training or in single-service exercises.

US Army troops leave their Bell UH-1 Huey to flush out the "enemy" during a USREDCOM joint exercise. Members of different branches working together "gain maximum results from diverse talents," the author declares.

Objective evaluation is important. In planning our joint exercises, we invite suggestions from the services and the JCS on concepts or hardware that might be included. In developing our scenario, we draw up a list of training objectives and we brief our evaluators and umpires to watch for them. In our post-exercise critique and the detailed written report that follows, we are free to criticize or commend the performance of the participants. Often our evaluation

report offers suggestions for alternatives or refinements to be tested in subsequent exercises, until new concepts emerge in a form suitable for adoption by the services.

Under the Defense Department's Total Force Policy, which designates the Reserve Forces of all the services as the primary source of manpower and equipment to augment the active forces in time of emergency, USREDCOM endeavors to incorporate Reserve Forces into its exercises whenever possible. This augmentation takes three forms: Participation by complete units, such as Air National Guard and Air Force Reserve fighter and airlift squadrons; elements that "round out" active units, such as a Guard or Reserve infantry or mechanized brigade that joins two active brigades to form a complete Army division; and individual Reservists who fill mobilization assignments that would bring our active units from peacetime to wartime strength. These elements must be combined from time to time to identify problems that affect their meshing and working together.

Air Force security policemen, using a Cadillac-Cage armored scout vehicle, set up a perimeter guard around an airstrip during Brave Shield IX at Fort Polk, La.

Another important aspect of joint training exercises is visibility. The credibility of our armed forces is directly related to readiness. A deterrent force deters only to the extent that it is respected by a potential foe. As our history shows, it is precisely when we were weak or unprepared that we have been challenged. So it is important to demonstrate readiness publicly and frequently.

The Budget Squeeze

Given all these points, it isn't hard to persuade either a military or civilian audience that joint training exercises are vitally important.

However, our armed forces are caught in a budget squeeze between inflation on the one hand and the compelling need to replace deteriorating and obsolescent equipment on the other. We must justify and rejustify every expenditure. The unrelenting pressure has carried us beyond cost-consciousness and fat-trimming to the point where we are being forced to trim some of the muscle.

The joint readiness exercise has felt the blade in the past two years. Each unified command has been affected, but I'm concerned with the cuts inflicted on USREDCOM. Some overseas deployment exercises must be performed periodically, regardless of fund limitations—for example, the REFORGER/CRESTED CAP series in which the US demonstrates its ability and determination to return to Europe those ground and air units that are part of the US contribution to NATO forces but are based in the US. No such mandated requirement exists for USREDCOM exercises, and since the fuel shortage hit us in the early winter of 1973–74, USREDCOM has canceled two exercises and scaled down another. We have conducted only four joint training exercises since October 1973, with 42,000 active-duty and Reserve Forces participating. By comparison, USREDCOM's predecessor, the US Strike Command, averaged seven joint exercises a year from 1962 to 1965. One of these, DESERT STRIKE, in May 1964, involved more than 100,000 men. Such exercises were suspended during the major phase of the war in Southeast Asia.

How long can we run our joint exercise program at idling speed before impairing the readiness of our assigned forces? In the Air Force, there is a direct relationship between proficiency flying and accident rates. If you cut down on the flying hours, the accident rate goes up. The Army cites comparable examples indicating that as proficiency diminishes, other problems arise—of morale as well as safety.

Field training exercises are confidence-builders, too, among the front-line soldiers our weapons systems and training efforts are geared to support. As one of them told me during an exercise last year, "If I'm going to war, I want to know what I'm doing—and I want the guys above me to know what they're doing, too."

No other military force in the world has the skill or the equipment to concentrate the firepower we do in support of front-line combat troops. Our technicians of close air support, operating in harmony with the organic firepower of our ground forces and their helicopter gunships, are unmatched. They have been tested and refined in the crucible of combat. But we will maintain that capability only by practicing it under close-to-combat conditions and by con-

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tinuously initiating new personnel to its intricacies under the guidance of our steadily dwindling number of combat veterans.

Because our forces today are relatively well-trained and combat experienced, some people, in and out of uniform, tend to take training for granted. Today we are weapons-oriented. We meticulously test new hardware until we know exactly what it can and cannot do. We conduct detailed flyoffs between competing aircraft designs, and even after a decision is reached, some question whether the testing was adequate. Yet the testing of combat manpower, which the equipment is intended to support, is largely neglected.

A Ray of Hope

There is, however, a possibility that the downward trend in joint readiness exercises may be halted, and perhaps turned slightly upward before long. The ray of hope has its source in efforts to relieve another, and related, pressure point.

The limiting factors in conducting USREDCOM exercises are twofold—money and fuel—and those come together in one indispensable requirement of joint training exercises—airlift.

Airlift provided by the Military Airlift Command is by far the most expensive feature of our exercises. Airlift is also indispensable to a realistic exercise scenario. You could transport ground forces by rail or truck. They could even travel on foot. But this is not how they would move from their US bases in a real-world crisis. They would go by air. Our forces must be alert and ready, organized in combat configuration to move into action the moment they land at their destination. That kind of transition cannot be simulated. It must be experienced by the men up and down the ranks, and practiced again and again to make sure that when the emergency arrives, the individual soldier and his unit will react instinctively.

It is equally important that the MAC crews and the MAC traffic system be tested frequently in strategic airlift operations. As MAC Commander Gen. Paul K. Carlton has stated, the number of hours that assigned MAC aircrews must fly to maintain proficiency is greater than that needed to support normal military operations in time of relative quiet, as at present.

MAC participation in joint readiness exercises offers an excellent solution to the problem of maintaining proficiency of the airlift system and the essential base from which wartime airlift surge requirements can be mounted. We are counting on this approach to obtain additional flying hours from MAC to support joint training exercises in the US and overseas.

The author, General Hardin, center, welcomes Gen. George S. Brown, Chairman of the Joint Chiefs of Staff, as an observer at Brave Shield IX in Louisiana. At right is Lt. Gen. James D. Hughes, Ninth Air Force Commander.

With the availability of our share of this additional airlift support, USREDCOM plans to conduct a minimum of three joint training exercises each year. Our next most pressing problem, after airlift and money, is to find the room to maneuver our ground forces, preferably where we can also clear the air space above for air-to-air and air-to-ground operations. USREDCOM aggressively supports the Air Force's development of the Continental Operations Range (COR) in the Nellis-Dugway-Fallon triangle in Nevada and Utah. The tremendous expansion of commercial and general aviation leaves us very few areas in the continental US for large-scale joint exercises. We need a similar effort to provide an area suitable for surface maneuver forces.

Whatever the obstacles, we in USREDCOM are confident that a way will be found to continue to carry out our essential joint training mission. The more ready our forces, the less likely it is that they will have to fight. To us, that's a mighty strong incentive. ■

THE DOMINO EFFECT

BY ED GATES CONTRIBUTING EDITOR, AIR FORCE MAGAZINE

With its force shrinking to 590,000 members, USAF girds for the consequences: RIFs, costly PCSs, retraining, promotion slowdowns, and others—not to mention impairment of operational capabilities.

EIGHT years is enough, USAF authorities insist.

Since FY '68, they have watched, with growing concern, the government's steady paring of military personnel strength. When manpower peaked that year, the Air Force had attained an active-duty force of 905,000 airmen and officers.

With the SEA draw-down, some consolidations and retrenchments were indicated, and in FY '69 the air arm of the US military establishment shed 43,000 members. Each succeeding year saw cuts ranging from 30,000 to 60,000 persons. Today, the Air Force has shrunk to approximately 610,000 members, a one-third reduction over the period.

Still another slice is "programmed" for FY '76, the government year starting next month. It will reduce USAF manpower to at least 590,000, though that figure could sink further if Congress, as it has done regularly in the recent past, authorizes and funds a still lower troop level. Some Air Force executives fear this may happen, although they are attempting to hold the line at the 590,000 figure and maintain it in future years.

The cuts to date have reduced USAF's military capability despite innovative personnel utilization actions. And still further erosion in manpower and combat strength? It will mean "a steady unilateral disarmament," according to Brig. Gen. Jack I. Posner, the Hq. USAF Director of Manpower. He and other Air Force authorities have hammered on this theme before congressional groups all spring.

But the erosion of combat muscle is not the only thing that disturbs Pentagon leaders; there's also the adverse impact on people. The turmoil, frustration, and lower morale generated by the consecutive years of manpower reductions is increasing. And Air Force is fast running out of ways to soften the impact on individuals that major force cuts touch off.

The actions to date have also upset skill distribution, created sudden imbalances, and generated involuntary retraining. More cuts below the projected 590,000-member level, particularly in the officer portion, will compound the already alarming RIF projections, dismantle new officer procurement schedules, and multiply permanent change of station (PCS) moves and expenditures, according to the office of the Deputy Chief of Staff, Personnel, Hq. USAF.

Since manpower cuts impact so heavily on a host of personnel activities, extensive planning precedes every reduction decision, Maj. Gen. Kenneth L. Tallman, the Director of Personnel Plans, pointed out.

To arrive at "directed" officer strength targets, Air Force uses a "loss management approach least disruptive to the lives of affected members," he told AIR FORCE Magazine. At first, it was only necessary to trim new procurement and offer a few early releases. Then other voluntary exit programs, such as waiver of retirement restrictions, were adopted.

Then came the involuntary actions, starting with the separation of flying-training eliminees instead of allowing them to fill nonrated jobs. More severe steps followed, leading to outright RIFs and mandatory ninety-day tours for many AFROTC products. Meantime, promotion opportunities worsened.

As the accompanying chart indicates, these voluntary and involuntary exit moves remain in operation as USAF prepares for FY '76, during which programmed strength falls to 490,000 airmen and 100,000 officers. That's the lowest manpower level in twenty-five years!

Demoralizing and Costly

Nearly seventy percent of the loss actions during the year will be "involuntary," the kind that demoralize. And what if Congress insists on still larger losses? That would mean major trouble, Hq. USAF authorities fear.

During the fiscal year now ending, the Air Force has endured a net cut of 5,800 officers, and in so doing has dug more deeply into groups already seriously depleted by reductions in previous years. There's less and less left to pare.

Each involuntary loss is costly, *e.g.*, the $15,000 in severance pay most RIFed members receive, plus new PCS moves to get each home and provide a replacement, and perhaps train the replacement. The mounting number of officers separating two and even three years ahead of schedule (*see chart*) also prevents a reasonable payoff to the government for sizable training investments.

A whopping 3,695 PCS moves this

F PERSONNEL CUTS

fiscal year are RIF-generated, and the projection is for 5,640 more during the year ahead. That figure will rise substantially if officer strength is cut well below the base of 100,000 the Air Force urgently wants to hold, General Tallman said. All this, of course, compounds the service's dilemma over travel, transfer, and moving costs generally.

The constant fear of a RIF notice is the most distressing circumstance a well-performing member must face. USAF's FY '76 plans call for up to a 2,100-officer RIF, to include the first 500 who must depart next month.

The Career Reserve Force, however, contains about 30,000 officers. Except for those in the eighteen- to twenty-year sanctuary, they live under the constant threat of removal short of retirement.

The Regular/Reserve Balance

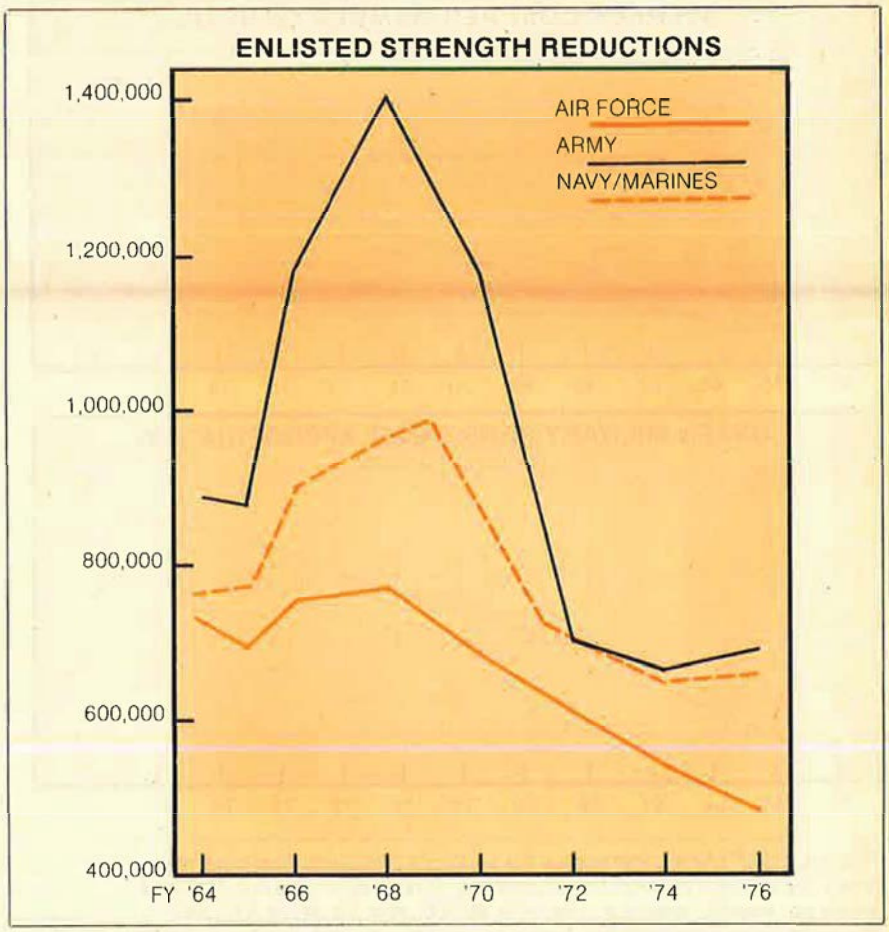
USAF's non-Regular officers—about 46,000 counting all year groups—have no job tenure and will remain expendable. The service has no plans to consider Regular officers for future RIFs, a decision that raises the question of enrolling new officers at the same time experienced and productive ones are checking out.

"Why should I be fired when I have experience in an important skill, a good record, and want to stay in?" a twenty-six-year-old non-Regular asked. He noted that the incoming crop of AFROTC, OTS, and Academy graduates are only four years younger, inexperienced, and must undergo expensive training before they can fill an assignment.

USAF's response is that it must continue "minimum procurement" to maintain a "viable balance of youth and experience." This approach, authorities insist, avoids valleys in the grade structure, prevents shortages of young combat officers, stabilizes the training flow, helps balance skills (as inputs go into shortage areas), and assures a reasonable supply for Regular augmentation.

They add that the augmentation program has achieved credibility and respectability; thus, subjecting Regular officers to RIF would destroy augmentation as a career incentive. "The Regular force should remain exempt from short-range involuntary management expedients," even if officer cuts rise above current programming.

Air Force does want authority to

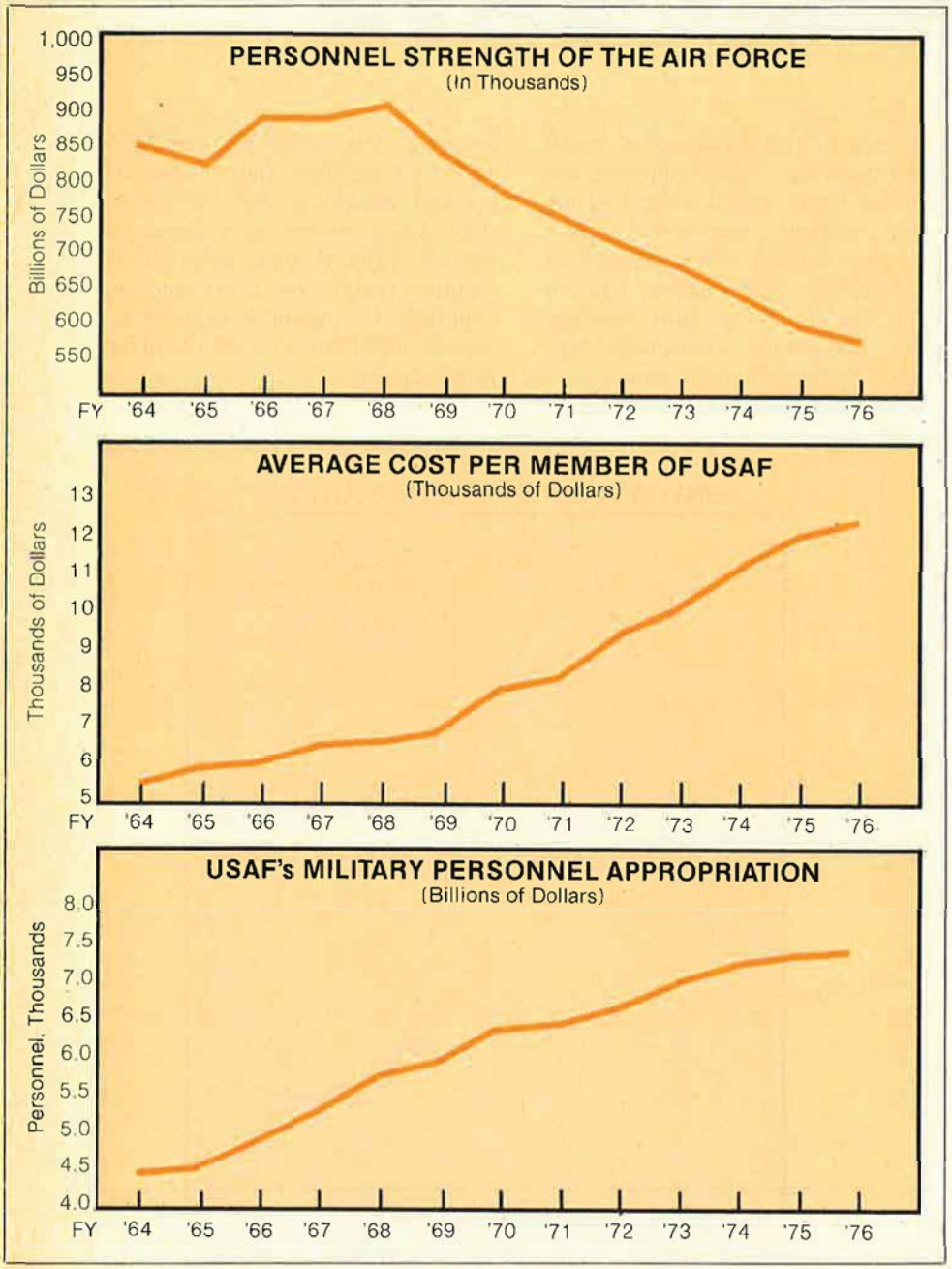


Air Force enlisted strength continues to fall, to a budgeted 490,000 next fiscal year, but the Army and the Navy/Marines have been allowed to level off. The chart also shows that Air Force has undergone the largest cut in enlisted manpower from pre-SEA levels.

force the early retirement of certain senior Regulars whose most productive days appear to be behind them. Such provisions are in the Defense Officer Personnel Management Act. If approved, USAF will employ the authority "sparingly."

The cutback in new officer procurement has slenderized the AFROTC and nearly skeletonized OTS. The former, once producing 4,500 officers annually, is down to a planned intake of 2,940 for FY '76. OTS, which pumped out 4,000 to 5,000 lieutenants a year with regularity, will graduate a mere 766 next fiscal year.

There are no plans to close OTS, officials said. And they hope the Congress will accept their requests to reinstate the Airman Education Commission Program, thereby letting at least small numbers of outstanding airmen pursue commissions.



This Hq. USAF chart underscores the service's personnel financing woes. When the Vietnam buildup began nearly a dozen years ago, the Air Force outlay per member averaged just over $5,000; now it's nearly $13,000. The government's answer has been to cut troop strength eight successive years—from 905,000 at the peak in FY '68, to 590,000 by next year. Air Force leaders contend that's enough, but will Congress go along? Aided by many USAF-initiated cost-cutting steps, the smaller service's total Military Personnel Appropriations has leveled off at about $7.4 billion annually.

The one officer source the service is not cutting to accommodate the force reduction is the Academy; instead, it is increasing from about 750 graduates next month to an estimated 950 in the class of 1976. Part of that increase is misleading, however, because the latter class was larger to begin with, and attrition has been less. In any event, USAF's emphasis is on "improving Academy production, increasing opportunities for attendance, and reducing the cost per graduate," AIR FORCE Magazine was told.

Though it is small consolation to officers caught in the RIF, their "separation benefits" normally add up to a better deal than typical persons without long service receive when losing their jobs with civilian firms. Five or six months' notice, travel pay, shipment of household goods, payment for accrued leave, a chance to "protect" their service and eventual retirement by enlisting or participating in the Reserves, and severance pay make up the military's "package." Not great, but it can ease the sting.

Hq. USAF, meantime, even with its carefully controlled loss-management program, still finds itself with a surplus of rated officers. The reason: a significant drop in rated requirements below what was previously programmed. The reduction process is getting under way as the service plans to turn out only 1,800 active-duty pilots in FY '76, and 1,700 the following year. This compares with 2,000 in FY '74.

The navigator surplus also will be curbed as new production drops to 900 next year and 800 the following year.

The Enlisted Force

The problems in trimming the enlisted force for eight straight years parallel those in the officer area, though they are less severe. The airman side is much larger, and reduced recruiting resolves much of the difficulty.

Another device management uses to control airmen strength is the "high year of tenure" (HYT), under which retirement becomes mandatory if the individual has not attained a specified grade at a given point. For example, a member who has not made tech sergeant (E-6) by his

twentieth year cannot reenlist. He does have his retirement, however.

But HYT has not been put to full use. It contains additional teeth the Air Force, if it chooses, could use to separate airmen who have not reached staff sergeant (E-5) by their eighth year of service. Should Congress approve enlisted severance pay, Air Force "would probably" invoke the E-4 high year of tenure rule, General Tallman said. Severance pay is the key here, as airmen at this point would not be eligible for retirement.

Enlisted severance pay remains pending in the now-bewhiskered Retirement Modernization Act that the Defense Department trotted out late in 1972. RMA provides lump-sum take-home money for airmen with more than five years of consecutive service. Some critics charge that once the services attain this pay authority, they may "clean house" by releasing large numbers of NCOs whom they have been reluctant to turn loose without any stipend.

Air Force rejects such charges, saying it will "not abandon its 'volunteers first' approach to meet future strength reductions," even if enlisted RIF pay authority materializes.

A serious result of USAF's succession of enlisted force cuts—from 765,150 members to the projected 490,000—is the promotion slowdown, which to no one's surprise has been substantial. Ironically, Air Force's enlisted retention record, traditionally the best of all the services, also contributes to sluggish promotions. There is less manpower turnover.

Fortunately, Air Force has avoided the RIF route with airmen. The 17,000 enlisted cut that it must lay on next fiscal year under the Pentagon's budget will "be met by reducing accessions and voluntary early departures," Hq. USAF told AIR FORCE Magazine. There will be no RIFs.

But what if Congress cuts below the budgeted 490,000 enlisted figure? Air Force is making no promises, but it could be a different ball game.

One way personnel officials have eased airmen manning woes posed by heavy force cuts is through CAREERS (Career Airmen Reenlistment Reservation System). It allows first-term members wishing to join the career force to reserve a retraining slot into a skill where jobs are available, should their present career fields become overcrowded. Most applicants are steered into shortage skills, and manning balance is attained throughout the airman structure.

Adding salt to USAF's wounds over its still dwindling manpower is the situation with the Army and Navy, whose cuts have bottomed out. Army, for example, is authorized 785,000 members, and it will hold that figure in FY '76 (at the same time USAF loses at least 21,500 more people).

USAF's budget presentations, justifications for the $7.4 billion it has requested in FY '76 personnel funds, and pleas for an end to further manpower slashes should be wrapped up by the time this article appears in print. The final congressional decisions may take three or four months longer.

Air Force's case boils down to this:

Eight straight years of strength cuts, beside their adverse impact on capabilities, have touched off RIFs, unprogrammed PCS moves, manning imbalances, reduced promotions, procurement curbs, and excessive retraining, all at an increasing rate. This adds up to severe turbulence that distresses members and their families, impairs duty performance, and confounds management.

Additional personnel cuts, the Air Force makes clear, will increase the size and severity of "involuntary actions" and heighten the level of "career instability." ■

TURBULENCE TRENDS

	Current Budget	
	FY '75	FY '76
Manpower Cut from Previous Year	5,815	4,534
Procurement Reductions	2,435	1,016
Delayed Entry EAD (ROTC)	1,700	1,600
Average Delay (Months)	12	12
Voluntary Early Releases	1,946	1,100
Years Released Early—Nonrated/Rated	3/2	3/2
Reduction in Force (RIF)	1,100	2,086
RIF-Generated PCS Moves	3,695	5,640

LOSS MANAGEMENT ACTIONS

	Fiscal Year					
	'71	'72	'73	'74	'75	'76 (est.)
Reduced Procurement	x	x	x	x	x	x
VOLUNTARY						
Early Separation	x	x	x	x	x	x
Easing Misc. Separations	x	x	x	x	x	x
Retirement Waivers		x	x	x	x	x
Transfer to Reserve/Guard			x	x	x	x
Ninety-Day Active-Duty Tours			x	x	x	x
INVOLUNTARY						
Separation of Flying Training Eliminees		x	x	x	x	x
Rollback of Separation Dates			x	x	x	x
Decreased Promotions				x	x	x
Non-Regular RIF				x	x	x
Mandatory Ninety-Day EAD Tours					x	x
PERCENT INVOLUNTARY	0%	1%	14%	64%	42%	69%

The early years of the strength reduction posed few problems, but by FY '71–72 the first "loss management" steps became necessary. Still, the resulting exits were virtually all voluntary. But as the draw-down continued, tougher measures were gradually adopted. This included RIF, the "action of last resort." The forecast for FY '76: sixty-nine percent of the departures will be involuntary. Any further cutting directed by the government will increase that figure.

The September "Anniversary" issue of AIR FORCE Magazine will be distributed to those attending AFA's 1975 Aerospace Development Briefings and Displays. In addition to this bonus readership, all advertisements in this issue will be prominently displayed in our "Industry Salutes the Air Force" exhibit at the entrance to Exhibit Hall. Closing for reservations is August 1. Why not join us? It is a good advertising buy!

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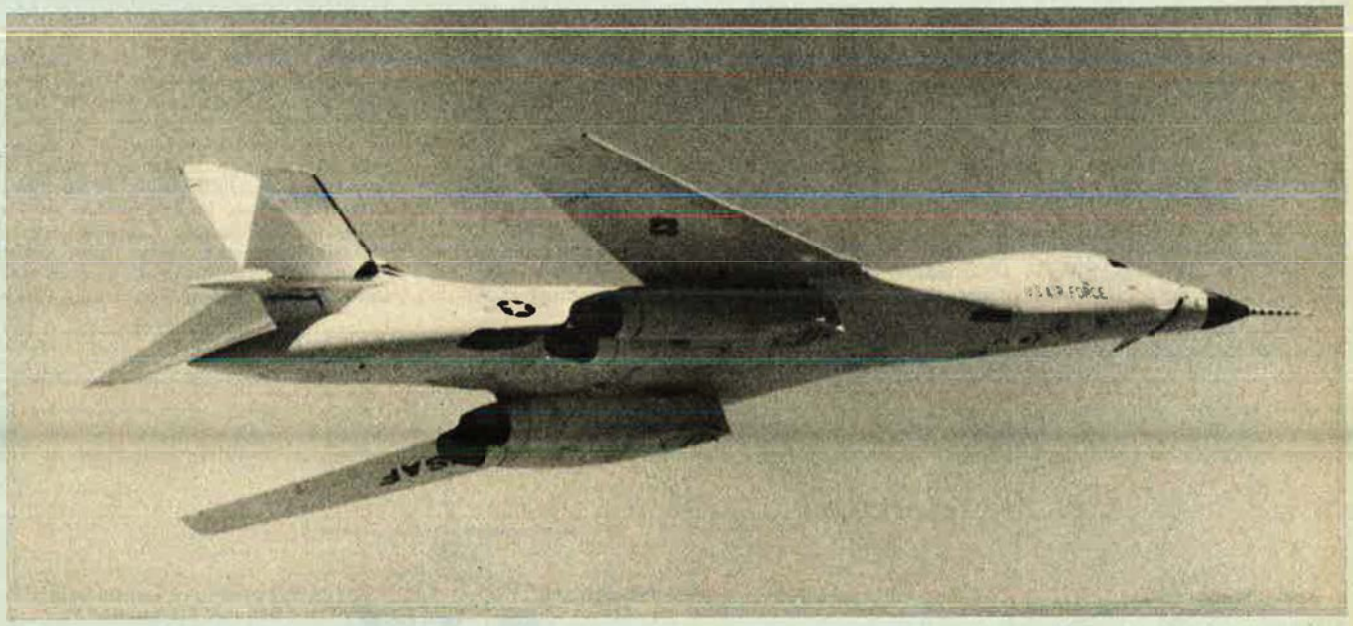


Rockwell International B-1 supersonic variable-geometry prototype strategic bomber, with wings swept back (four General Electric YF101-GE-100 turbofan engines)

ROCKWELL INTERNATIONAL

ROCKWELL INTERNATIONAL CORPORATION, NORTH AMERICAN AIRCRAFT OPERATIONS; Executive Offices: 1700 East Imperial Highway, El Segundo, California 90245, USA

ROCKWELL INTERNATIONAL B-1

The B-1 is the outcome of a succession of defence studies, begun in 1962 and leading to the AMSA (Advanced Manned Strategic Aircraft) requirement of 1965, for a low-altitude penetration bomber to replace the Boeing B-52s of USAF Strategic Air Command by 1980. It is the third and most flexible component of the US Triad defence system, which comprises also land-based and submarine-launched ballistic missiles.

To meet the B-1 requirement, the Department of Defense issued RFPs (Requests For Proposals) to the US aerospace industry on 3 November 1969, and from three airframe and two engine finalists it awarded research, development, test, and evaluation contracts on 5 June 1970 to North American Rockwell's Los Angeles Division (now the B-1 Division of Rockwell International's North American Aircraft Operations) for the airframe and to the General Electric Company for the F101 turbofan engine. The original cost-plus-incentive contracts were for five flying prototypes, two structural test airframes, and 40 engines; in January 1971, in which month the essential design of the B-1 was frozen, these quantities were reduced to three flight test aircraft, one ground test aircraft, and 27 engines. Procurement of a fourth flight test aircraft, as a preproduction prototype, is included in FY 1976 Budget proposals.

Completion of a full-scale engineering mockup of the B-1 was announced on 4 November 1971. This had been used during the period 18–31 October 1971 by the USAF's mockup review team, including key personnel from the B-1 Systems Program Office, Strategic Air Command, AF Systems Command, Air Training Command, and the General Electric Company. During the review period the team was able to resolve no fewer than 257 of a total of 297 Requests For Alteration (RFAs).

The B-1 prototypes are assembled in USAF facilities known as Plant 42 at Palmdale, California. Assembly of the first aircraft began in late 1972; this aircraft (71-40158) was rolled out on 26 October 1974, and made its first flight, at Palmdale, on 23 December 1974. This occasion was also the first flight of the YF101 engine.

The third B-1, which will act as testbed for the avionics systems, is scheduled to fly in March 1976, approximately four months before the second B-1 makes its maiden flight. The second aircraft is currently being used for proof loads testing; these tests will be completed during 1975, and it will then be converted to a flight test aircraft. A production decision is scheduled to be taken in November 1976, which would permit the delivery of production aircraft to begin in early 1978. The USAF hopes to order 244 B-1s, including prototypes, to replace B-52s now in service.

Designed to operate at treetop heights at near-sonic speed, and at supersonic speeds at high altitude, the B-1 has a radar signature about 5% as large as that of the B-52, carries nearly twice the payload, and requires shorter runways. The design incorporates the blended wing/body configuration developed previously for Rockwell's submission in the F-15 fighter competition. It also features a unique Structural Mode Control System (SMCS), to minimise the effects of turbulence on crew and airframe likely to be encountered during high-speed, low-level penetration flights. The SMCS is a sensor-controlled automatic system which utilises movable foreplane vanes, in conjunction with the bottom rudder section, to produce aerodynamic forces to compensate for or suppress motion in the forward fuselage, so ensuring that crew efficiency is not impaired in a turbulent environment.

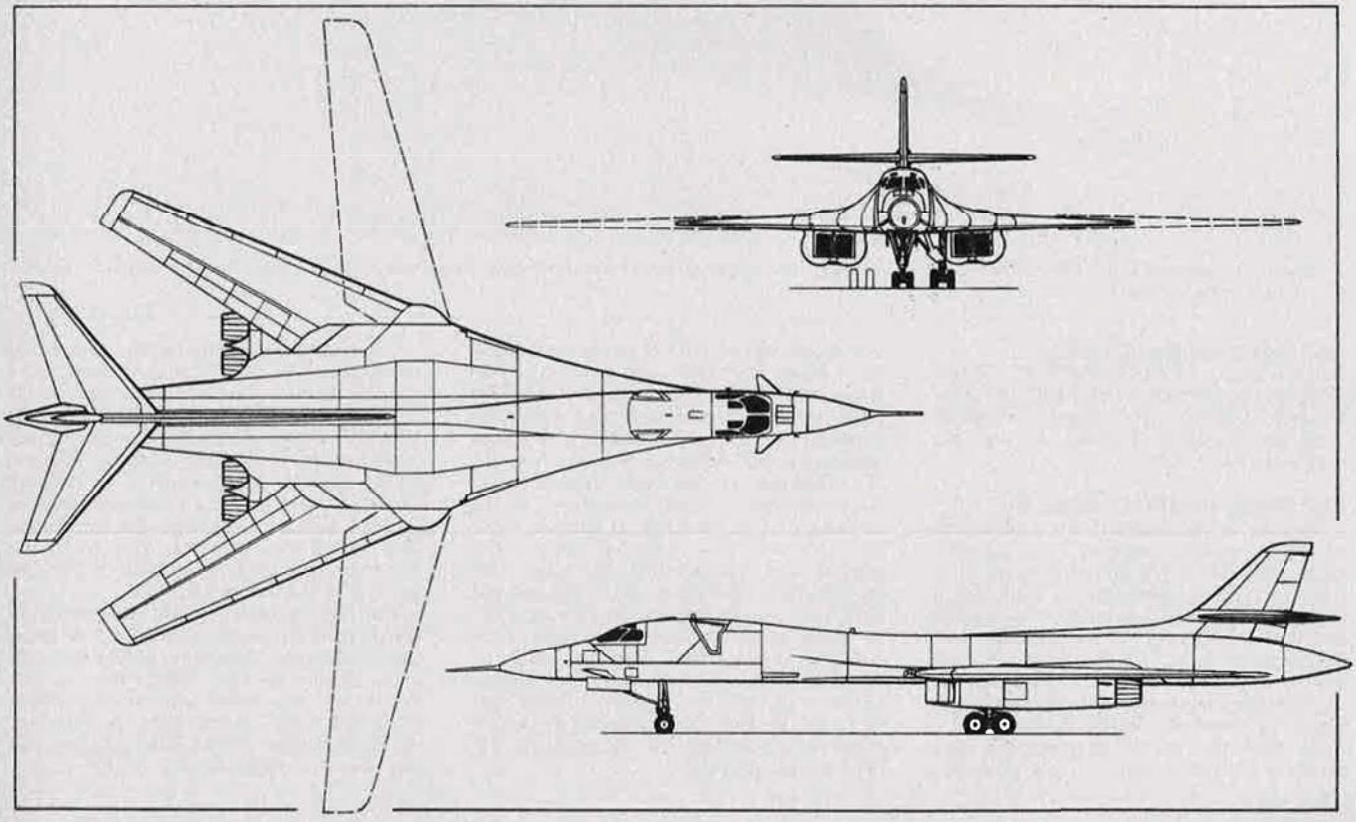
The principal materials used in the construction of the B-1 are aluminium alloys and titanium (41.3% and 21% by weight respectively of the aircraft's structure), the latter being used primarily in the wing carry-through structure, engine nacelles, and aft fuselage. The balance is made up of steel (6.6%); composites (0.3%); and glassfibre, polyimide quartz, and other non-metallic materials (30.8%). The entire structure is hardened to withstand nuclear blast. In terms of cash value, between 35% and 40% of the manufacturing work is subcontracted, and to date the B-1 programme has involved more than 5,000 manufacturers in 47 states. Major structural assemblies built in this manner are the tailplane, fin, leading-edge wing slats, trailing-edge flaps, and landing gear.

TYPE: Strategic heavy bomber.

WINGS: Cantilever low-wing fail-safe blended wing/body structure, with variable geometry on outer panels. The wing carry-through structure, which is sealed as an integral fuel tank, is mainly (about 80%) of diffusion-bonded 6AL-4V titanium, and is built by Rockwell International's B-1 Division at Los Angeles. The wing pivot mechanism is also of diffusion-bonded titanium, with a pin made from a single 6AL-4V forging on each side, in spherical steel bearings, above and below which are integrally stiffened double cover plates of machined titanium. Wing sweep is actuated by screwjacks, driven by four hydraulic motors; it can be powered by any two of the aircraft's four hydraulic systems, asymmetric movement being prevented by a torque shaft between the two screwjacks. Sweep actuators are covered by a leading-edge "knuckle" fairing which prevents a gap from opening when the outer panels are swept back. Aft of the wing pivot on each side are a hinged panel and two fixed fairings which blend the wing trailing-edges and engine nacelles. Each of the outer wing panels, which have 15° of leading-edge sweep when fully forward and 67° 30′ when fully swept, is a conventional two-spar aluminium alloy torsion-box structure, with machined spars, ribs, and one-piece integrally stiffened top and bottom skin panels. Wingtips, wing/body fairings, and some outer-wing skin panels are of glassfibre-reinforced plastics. The outer panels are built at Palmdale, except for the control surfaces, which are manufactured by the North American Aircraft Operations' Tulsa Division. Full-span seven-segment leading-edge slats located on each outer panel can be drooped 20° for landing and take-off. Six-segment single-slotted trailing-edge flaps on each outer panel, with max downward deflection of 40°. There are no ailerons; instead, lateral control is provided by four-segment spoilers on each outer wing, forward of the outer four flap segments, with a maximum upward deflection of 70°. Outer sections are locked in at speeds in excess of Mach 1. All control surfaces are actuated electro-hydraulically by rods, cables, pulleys, and bellcrank levers, except for the two outboard spoilers on each side. These are actuated by an electrical fly-by-wire system.

FUSELAGE: Conventional area-ruled fail-safe stressed-skin structure of closely-spaced frames and longerons, built mainly of 2024 and 7075 aluminium alloys. Built in six main sections: forward, forward intermediate, and (on first three aircraft only) crew escape capsule, all forward of the wing carry-through structure; and aft intermediate, aft fuselage, and tailcone, to the rear of this structure. Titanium used for engine bays and firewalls, tail support structure, aft fuselage skins, and other high-load or high-heat areas. Dorsal spine of steel/boron-filled/titanium sandwich construction. Nose radome of polyimide quartz; dielectric panels of glassfibre-reinforced plastics. Forward section (excluding nosecone), crew escape capsule, and engine nacelles are built by the B-1 Division in Los Angeles; remainder of the fuselage at Palmdale; and nosecone by Brunswick Corporation. Small sweptback movable foreplane, with 30° anhedral, on each side of nose, actuated by SMCS system accelerometers in the fuselage which "feel" up-and-down and side-to-side motion of the forward fuselage in turbulent conditions and compensate for or suppress it by relaying electrical signals which move the foreplanes and bottom segment of the rudder. Forward section of fuselage houses the nosewheel unit, radar, most other avionics bays, and part of the forward fuel tank. Forward intermediate section con-

Rockwell International B-1 supersonic variable-geometry prototype strategic bomber (Pilot Press)



The first prototype B-1 photographed at its roll-out, at Palmdale, California, on 26 October 1974

tains two weapons bays, fuel tanks, and has space for side-looking airborne radar (SLAR) and/or other avionics equipment. Aft intermediate section incorporates the third weapons bay, main landing gear units, and fuel tanks; and provides the main support structure for the engines. Aft section is occupied almost entirely by fuel tanks, and also provides support for the tail unit. Tailcone houses the rear electronics bay.

TAIL UNIT: Cantilever fail-safe structure, with sweepback on all surfaces; built under subcontract by Martin Marietta. Fin is a conventional titanium and aluminium alloy torsion-box structure, attached to the aft fuselage by a double shear attachment, bolts on the tailplane spindle, a vertical shear pin in the tailplane spindle fitting, and a shear-bolt joint on the front beam of the box. Aluminium alloy rudder is in three sections, of which the lowest one (below the tailplane) forms part of the SMCS system and is actuated by the motion sensors in the fuselage, acting in conjunction with the foreplane vanes to provide control in yaw. All rudder sections have 25° travel to left and right. Variable-incidence tailplane is operated differentially (±20°) for roll control, symmetrically (between 10° up and 25° down) for pitch control, the two halves moving independently on bearings on the steel spindle. Tailplane is of aluminium alloy, with leading- and trailing-edges, and tips, of glassfibre-reinforced plastics. Rudder and tailplane actuated hydraulically, with electrical fly-by-wire backup system for use in the event of a mechanical system failure.

LANDING GEAR: Electrically-controlled hydraulically-retractable tricycle type, with single-stage oleo-pneumatic shock-absorbers on all units. Nose unit retracts forward, main units inward and rearward. Menasco steerable nose unit, with twin Goodyear wheels and tyres, size 35 in x 11.5 in. Twin landing and taxying lights on nosewheel leg. Cleveland main units, each with twin tandem pairs of Goodyear wheels and tyres, size 44.5 in x 16 in, and five-rotor structural carbon brakes.

POWER PLANT: Four General Electric YF101-GE-100 turbofan engines, each rated at approx 17,000 lb (7,710 kg) st dry and 30,000 lb (13,610 kg) st with afterburning, mounted in pairs beneath the fixed centre-section of the wing, close to the CG, to provide optimum stability in low-altitude turbulence conditions. Wedge-shaped external-shock inlets, with lips which open outward to increase air mass flow for take-off. Internal inlet variable geometry, controlled by electronic sensing devices and a small computer, for high-speed flight conditions above about Mach 1.4. This comprises, in each inlet, vertically-orientated variable-angle ramps (one forward and one aft) to control the shock wave and locate it precisely within the inlet; and an electro-mechanically operated throat and cowl. Inward- and outward-opening dump doors in outer walls of each nacelle. Boundary layer bleed, to reduce drag, is provided via a two-position louvre beneath each engine. Inlet control system is programmed automatically by Mach number, with provision for manual override in an emergency. Fuel in eight integral tanks (two in forward intermediate fuselage, one in wing carry-through structure, one in each outer wing panel, two in aft intermediate fuselage, and one in rear fuselage). Computerised fuel transfer system, with manual backup, to maintain CG trim as fuel is depleted. Fuel is used from the mid-fuselage tanks first, followed by the wing tanks, and finally by the fore and aft tanks. Cross-feed provision to supply all four engines from either of the two main fuselage tanks. An additional 22,000 lb (9,980 kg) of fuel can be carried in a removable auxiliary tank in one or other of the two forward weapons bays. Receptacle in upper nose section, forward of windscreen, for in-flight refuelling; aircraft is compatible with KC-135A tanker.

ACCOMMODATION: Crew access is via a downward-opening door and retractable ladder under the fuselage, aft of the nosewheel unit. First crewman to board presses the APU-powered engine start switch on the nosewheel leg, so that by the time all members are seated the engines are at start-up revolutions ready for take-off. Four-man operational crew, on Aircraft Mechanics Inc seats, comprises pilot, co-pilot, offensive systems operator, and defensive systems operator. Fold-down seats are provided for fifth and sixth crew members (*e.g.*, flight instructor and systems instructor), if required; there are bunks on the cabin floor for crew rest on extended flights; and a toilet is provided. On the first three aircraft only, all crew members are accommodated in a 4½ ton AV-1 self-contained compartment that is designed to function also as an escape capsule. This is a heated, air-conditioned, and pressurised compartment (8,000 ft; 2,440 m environment) in which the crew can work without being restricted by personal parachutes. In the event of an emergency, requiring the crew to evacuate the aircraft, separation of the capsule is initiated by an OEA Inc severance system (incorporating a crew restraint assembly); a G & H Technology Inc explosive-cord system severs all electrical connections to the compartment. A Teledyne McCormick Selph energy transfer system maintains essential services within the escape capsule, which is then fired clear of the airframe by two Rocketdyne solid-fuel gimballed rocket motors. If separation is initiated while the aircraft is inverted, the escape capsule can be righted and stabilised by a Northrop Electronics manoeuvring rocket control system, using the Rocketdyne solid-fuel gimballed rocket motors. At a suitable altitude, and actuated by a mortar-deployed drogue 'chute, three Pioneer Parachute Apollo-type ring-sail main 'chutes (stowed in the roof) are deployed to lower the capsule to the surface. A Goodyear Aerospace system, using inflatable rubber bags, will then serve as an impact reducer on land. A separate Goodyear flotation system can be activated if the capsule falls into water. Aerodynamic control of the capsule during descent can be effected by the deployment of two side-fins at the rear, a spoiler at the front, and two side spoilers. The windscreen is bird-proof; the flight deck side windows serve as emergency exits; and all flight deck windows have an electrically conductive coating to restrict any contribution to the radar signature from inside the aircraft.

In October 1974 it was announced that, for budgetary reasons, the escape capsule crew compartment would not be incorporated in any fourth or subsequent B-1 aircraft built. Instead, a more conventional system would be employed, with crew members each having an individual ejection seat.

SYSTEMS: All systems and subsystems are either fail-operative or fail-safe, to ensure that no single system failure prevents accomplishment of the primary mission, and that no second failure in the same system prevents a safe return to base. Hamilton Standard air-conditioning and pressurisation systems. Four independent hydraulic systems, each 4,000 lb/sq in (280 kg/cm²), for actuation of wing sweep, control surfaces, landing gear, and weapons bay doors. Nos. 1 and 2 systems are powered by the two port engines, and Nos. 3 and 4 by the starboard pair. No pneumatic system. Sundstrand main electrical system has three 115kVA integrated engine-driven constant-speed generators, supplying 230/400V three-phase AC power at 400Hz through four main buses. Provision for fourth generator in prototypes. Four accessory drive gearboxes, one for each engine, mounted in pairs between the two engines in each nacelle. Westinghouse generator and controls subsystem. A Harris Intertype (Radiation Division) self-testing electronic multiplexing system (EMUX) is interfaced with the computer-based Central Integrated Test System (CITS) in the prototypes, to monitor systems performance and identify malfunctions on the ground and in the air. Two 400 hp Garrett AiResearch APUs, one in each nacelle between the two main engines, are started by hydraulic power from an accumulator; they provide self-start capability for operation from advance airfields (engine start switch mounted on the nosewheel oleo), and power a 15kVA emergency

Prototype B-1 refuelling from Boeing KC-135 tanker aircraft

generator to drive the essential bus. Quadruplex automatic flight control system (AFCS) controls flight path, roll attitude, altitude, airspeed, autothrottle, Mach holds, and terrain following. Flight director panel has heading hold, navigation, and automatic approach modes. Central air data computer; gyro stabilisation system; stability control augmentation system; and the Structural Mode Control System (SMCS). Vap-Air engine bleed air control system. Stewart-Warner (Southwind) fuel heat sink subsystem. Liquid nitrogen bottles for maintaining fuel tank pressure and for inflation of escape capsule flotation bags. Two fire extinguishers for each pair of engines.

ELECTRONICS AND EQUIPMENT: Standard GFE (government furnished equipment) includes Collins ARA-50 UHF/ADF; Collins ARC-109 UHF comm; Florida Communications PRC-90 UHF rescue beacon; Avco ARC-123 HF comm; Motorola APX-78 X-band tracking transponder; Stewart-Warner APX-64 IFF; Hoffman ARN-84 Tacan; Collins ARN-108 ILS; Hughes AIC-27XA-3 intercom; Sandia DCK-175/A-37A(V) code enabling switch and coded switch system control.

Boeing Aerospace acts as overall avionics systems interface contractor, and is also subcontractor for the nav/attack system and other offensive avionics. These include Raytheon AN/APQ-140 nose radar; General Electric APQ-144 (modified) forward-looking radar; Texas Instruments APQ-146 (modified) computerised terrain-following radar; Singer-Kearfott APN-185 Doppler radar; electro-optical viewing system (EVS) comprising Hughes forward-looking infra-red and Dalmo Victor low light level TV; two Singer-Kearfott SKC-2070 general-purpose computers (one for navigation, one for weapon aiming); IBM AP-1 mass memory unit; Litton LN-15S redundant twin inertial platforms; and Honeywell APN-194 radar altimeter.

The AIL Division of Cutler-Hammer has responsibility for defensive avionics in the B-1. Most of these have still to be specified in detail, but items under consideration include active and passive electronic countermeasures (ECM); electronic jamming or other counter-countermeasures (ECCM); radio frequency surveillance equipment; homing and warning systems; and other countermeasures such as expendable types (*i.e.*, chaff) or infra-red.

ARMAMENT: Three identical internal weapons bays in fuselage, two forward and one aft of the wing carry-through structure. Each bay is 15 ft 0 in (4.57 m) long and has hydraulically-actuated three-position doors. Each bay can accommodate up to eight 2,240 lb (1,016 kg) Boeing AGM-69A SRAMs (Short Range Attack Missiles) on a rotary launcher, or up to 25,000 lb (11,340 kg) of nuclear or conventional weapons, although the rear bay is more likely to be utilised for penetration aids. In addition, there are four underfuselage hardpoints, each capable of carrying two additional SRAMs or 10,000 lb (4,535 kg) of other ordnance. Max possible weapons load 115,000 lb (52,160 kg). Other stores which the B-1 is capable of carrying include the proposed BDM (Bomber Defence Missile), ALCM (Air Launched Cruise Missile), decoy missiles, or RPVs.

DIMENSIONS, EXTERNAL:

Wing span:	
fully spread	136 ft 8½ in (41.67 m)
fully swept	78 ft 2½ in (23.84 m)
Length overall:	
incl nose probe	150 ft 2½ in (45.78 m)
excl nose probe	143 ft 3½ in (43.68 m)
Height overall	33 ft 7¼ in (10.24 m)
Tailplane span	44 ft 10 in (13.67 m)
Wheel track (c/l of shock-struts)	14 ft 6 in (4.42 m)
Wheelbase	57 ft 6 in (17.53 m)

AREA:

Wings, gross: approx 1,950 sq ft (181.2 m²)

WEIGHTS AND LOADING:

Design max T-O weight: 389,800 lb (176,810 kg)

Design max ramp weight: 395,000 lb (179,168 kg)

Max landing weight: approx 350,000 lb (158,757 kg)

Max wing loading: approx 200 lb/sq ft (976 kg/m²)

PERFORMANCE (estimated):

Max level speed at 50,000 ft (15,240 m): Mach 2.0 (1,145 knots; 1,320 mph; 2,125 km/h)

Max level speed at 500 ft (152 m): approx 650 knots (750 mph; 1,205 km/h)

Cruising speed at 50,000 ft (15,240 m): Mach 0.85 (562 knots; 648 mph; 1,042 km/h)

Max range without refuelling: 5,300 nm (6,100 miles; 9,815 km)

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THE DE HAVILLAND AIRCRAFT OF CANADA LTD; Head Office and Works: Downsview, Ontario M3K 1Y5, Canada

DHC-7 DASH 7

The Dash 7 "Quiet STOL" airliner project was begun by de Havilland Canada in late 1972, following a worldwide market survey of short-haul transport requirements. The DHC-7 is designed to inaugurate Metro-

De Havilland Canada DHC-7 Dash 7 "Quiet STOL" transport (four 1,174 ehp UACL PT6A-50 turboprop engines)

flight STOL service between downtown STOLports having 2,000 ft (610 m) runways. United Aircraft Corporation has participated in the development of a quiet engine/propeller combination which will limit external noise to 95 EPNdB at 500 ft (152 m) from the aircraft during take-off and landing.

De Havilland Canada has built two pre-production aircraft for the flight test programme. The first of these was rolled out on 5 February 1975, and made its first flight at Downsview on 27 March 1975. A third airframe is undergoing static testing, and a fourth will be used for fatigue testing. Long-lead items have been ordered for the first batch of 25 production aircraft.

Certification of the Dash 7 is scheduled for late 1976. Production deliveries will start in the Spring of 1977, and output will reach a rate of four per month by 1978. Orders for the Dash 7 up to the Spring of 1975 were as follows:

AirWest Airlines (Canada)	2
Eastern Provincial Airways (Canada)	3
Rocky Mountain Airways (USA)	2 (plus 1 on option)
Widerøe's Flyveselskap (Norway)	4

The Dash 7 will be certificated by the Canadian Ministry of Transport to FAR 25; STOL performance will be approved under conventional FAR 25 and FAR 121 regulations, apart from a 7.5° glideslope and 35 ft (10.7 m) landing reference height adopted by the FAA for STOL aircraft.

TYPE: Four-engined short/medium-range quiet STOL transport.

WINGS: Cantilever high-wing monoplane, with 4° 30′ dihedral from centre-section. Wing section NACA 63A418 (modified) at root, NACA 63A415 (modified) at tip. Incidence 3° at root. Conventional all-metal two-spar bonded skin/stringer structure. Double-slotted flaps, extending over approx 80% of trailing-edge, are actuated mechanically for take-off, by irreversible screwjacks, and hydraulically for landing. Two inboard ground spoilers/lift dumpers and two outboard air spoilers in each upper surface, forward of flaps. Outboard sections can be operated symmetrically, or differentially in combination with the ailerons. Trim tab in each aileron. Pneumatic-boot de-icing of leading-edges outboard of the inner nacelles.

FUSELAGE: Conventional all-metal stressed-skin pressurised structure, of bonded skin/stringer construction. Basically circular cross-section, with flattened profile under floor level.

TAIL UNIT: Cantilever all-metal T-tail, with large dorsal fin. Fixed-incidence tailplane, and one-piece horn-balanced elevator with trim tabs. Two-piece vertically-split rudder, actuated hydraulically. Pneumatic-boot de-icing of tailplane leading-edge.

LANDING GEAR: Menasco retractable tricycle type, with twin wheels on all units. Oleo-pneumatic shock-absorbers. Hydraulic retraction, main units forward into inboard engine nacelles, steerable nose unit rearward into fuselage. Main-wheel tyres size 30 x 9.00-15, pressure 100 lb/sq in (7.03 kg/cm²); nosewheel tyres size 6.50-10, pressure 80 lb/sq in (5.62 kg/cm²). Larger, low-pressure tyres optional, with pressures of 70 lb/sq in (4.92 kg/cm²) on main units, 60 lb/sq in (4.22 kg/cm²) on nose unit. Anti-skid hydraulic braking system for all units. Small retractable tailskid under rear fuselage.

POWER PLANT: Four 1,120 shp (1,174 ehp) United Aircraft of Canada PT6A-50 turboprop engines, each driving a Hamilton Standard 24PF-303 fully-feathering reversible-pitch four-blade glassfibre propeller of slow-turning type (1,210 rpm) to reduce noise level. Fuel in two integral tanks in each wing, total capacity 1,480 US gallons (1,232 Imp gallons; 5,602 litres). Single pressure refuelling/defuelling point on underside of rear fuselage, aft of pressure dome. Pneumatic de-icing of engine air intakes; electrical de-icing for propellers. Oil capacity 6 US gallons (5 Imp gallons; 23 litres).

ACCOMMODATION: Flight crew of two, plus one or two cabin attendants. Seats for 50 passengers at 32 in (81 cm) pitch, in pairs on each side of centre aisle, with generous provision for underseat carry-on baggage. Outward-opening airstair door at rear on port side. Emergency exits on each side at front of cabin and on starboard side at rear. Baggage compartment in rear fuselage (capacity 2,200 lb; 998 kg), with external access on starboard side and internal access from cabin. Galley, coat rack, and toilet at rear of cabin. Optional arrangements include movable bulkhead for mixed freight/passenger loads with forward freight door on port side. Up to five standard pallets can be accommodated in an all-cargo role. Brownline quick-change cargo handling system available optionally. Entire accommodation pressurised and air-conditioned.

SYSTEMS: Cabin pressure differential 4.26 lb/sq in (0.3 kg/cm²). Two air-cycle systems, driven by engine bleed air, for cabin air-conditioning. Two independent hydraulic systems, each of 3,000 lb/sq in (210 kg/cm²). No. 1 system actuates flaps, rudder, wing spoilers, main-wheel brakes, and elevator boost; No. 2 system actuates landing gear, nosewheel brakes, backup main-wheel brakes, parking brakes, nosewheel steering, rudder, outboard wing spoilers, and elevator boost. Primary DC power provided by four Lucas 28V 250A 7.5kW starter/generators. 115/200V three-phase AC power at 400Hz from four 10kVA Lucas brushless generators for propeller and windscreen de-icing and standby fuel pumps. Lucas static inverters supply constant-frequency 400Hz loads, including engine instrumentation and navigational systems. Nickel-cadmium batteries for engine starting.

ELECTRONICS AND EQUIPMENT: Standard avionics equipment includes crew interphone system; cabin PA system; flight data recorder; flight compartment voice recorder; emergency locator transmitter; two independent VHF communications systems; two independent VHF (VOR/ILS) radio navigation systems; one LF (ADF) radio navigation system; one ATC transponder; one DME; one RCA AVQ-21 weather radar; autopilot; two flight directors; one marker beacon; two central air data computers; one radar altimeter; and two gyro compass systems (including RMIs). Provision for variety of optional equipment to customers' requirements.

DIMENSIONS, EXTERNAL:

Wing span	93 ft 0 in (28.35 m)
Wing chord at root	12 ft 6 in (3.81 m)
Wing chord at tip	5 ft 6 in (1.68 m)
Wing mean aerodynamic chord	9 ft 9¾ in (2.99 m)
Wing aspect ratio	10
Length overall	80 ft 7.7 in (24.58 m)
*Height overall	26 ft 2 in (7.98 m)
Tailplane span	31 ft 0 in (9.45 m)
Fuselage: Max diameter	9 ft 2 in (2.79 m)
Wheel track	23 ft 6 in (7.16 m)
Wheelbase	27 ft 6 in (8.38 m)
*Propeller ground clearance (inboard engines)	5 ft 3 in (1.60 m)
Min propeller/fuselage clearance	2 ft 5.4 in (0.75 m)
Propeller diameter	11 ft 3 in (3.43 m)

The de Havilland Canada DHC-7 Dash 7 was rolled out on 5 February 1975 and made its first flight on 27 March, at Downsview

Passenger door (rear, port):	
Height	5 ft 10 in (1.78 m)
Width	2 ft 6 in (0.76 m)
Height to sill	3 ft 7 in (1.09 m)
Emergency exit door (rear, stbd):	
Height	4 ft 5 in (1.35 m)
Width	2 ft 0 in (0.61 m)
Height to sill	3 ft 7 in (1.09 m)
Emergency exit doors (fwd, each):	
Height	3 ft 0 in (0.91 m)
Width	1 ft 8 in (0.51 m)
Height to sill	5 ft 1 in (1.55 m)
Baggage hold door (rear, stbd):	
Height	3 ft 2 in (0.97 m)
Width	2 ft 7 in (0.79 m)
Height to sill	4 ft 10 in (1.47 m)
Cargo door (fwd, port, optional):	
Height	5 ft 10 in (1.78 m)
Width	6 ft 2 in (1.88 m)

DIMENSIONS, INTERNAL:

Cabin, excl flight deck:	
Length	40 ft 0 in (12.19 m)
Max width	8 ft 7 in (2.62 m)
Floor width	7 ft 0 in (2.13 m)
Max height	6 ft 6 in (1.98 m)
Height under wing	6 ft 1 in (1.85 m)
Volume	1,910 cu ft (54.1 m³)
Baggage compartment (rear fuselage):	
Max length	8 ft 7 in (2.62 m)
Volume	240 cu ft (6.8 m³)

** will vary with aircraft configuration and loading conditions*

AREAS:
Wings, gross 860.0 sq ft (79.90 m²)
Ailerons (total) 23.22 sq ft (2.16 m²)
Trailing-edge flaps (total) 294.20 sq ft (27.33 m²)
Spoilers (total) 39.04 sq ft (3.63 m²)
Vertical tail surfaces (total, excl dorsal fin) 170.0 sq ft (15.79 m²)
Horizontal tail surfaces (total) 217.0 sq ft (20.16 m²)

WEIGHTS AND LOADINGS:
Basic weight empty (standard 50-passenger layout) 25,250 lb (11,453 kg)
Operating weight empty 25,860 lb (11,730 kg)
Max payload (50 passengers or cargo) 11,640 lb (5,280 kg)
Max T-O weight 43,000 lb (19,504 kg)
Max zero-fuel weight 37,500 lb (17,009 kg)
Max landing weight 41,000 lb (18,597 kg)
Max cabin floor loading 75 lb/sq ft (366 kg/m²)
Max wing loading 50 lb/sq ft (244 kg/m²)
Max power loading 38.4 lb/shp (17.4 kg/shp)

PERFORMANCE (estimated, at max T-O weight except where indicated, FAR 25 at S/L, ISA):
Max cruising speed at 15,000 ft (4,570 m) 244 knots (281 mph; 452 km/h)
En-route rate of climb, flaps and landing gear up:
four engines, max climb power 1,310 ft (399 m)/min
three engines, max continuous power 760 ft (231 m)/min
Service ceiling 22,200 ft (6,770 m)
Service ceiling, one engine out 14,200 ft (4,330 m)
Accelerate/stop distance 2,330 ft (710 m)
T-O to 35 ft (10.7 m) 2,330 ft (710 m)
Landing from 35 ft (10.7 m) at max landing weight 1,338 ft (408 m)
Landing field length (factored) at max landing weight 2,230 ft (680 m)
Min ground turning radius 29 ft 0 in (8.84 m)
Runway LCN, 32 x 11.50-15 low-pressure tyres, 30 movements 8
Range at 15,000 ft (4,570 m) with max passenger payload at 80% max cruise rating, IFR reserves 812 nm (935 miles; 1,504 km)
Max range at 15,000 ft (4,570 m) with standard fuel and 7,080 lb (3,211 kg) payload, 80% max cruise rating 1,237 nm (1,425 miles; 2,293 km)

OPERATIONAL NOISE CHARACTERISTICS (FAR 36, estimated):
T-O noise level 74 EPNdB
Approach noise level on 3° glideslope 91 EPNdB
Approach noise level on 7° 30′ glideslope 82 EPNdB
Sideline noise level 81 EPNdB

LIPNUR

LEMBAGA INDUSTRI PENERBANGAN NURTANIO (Department of the Indonesian Air Force, Nurtanio Aircraft Industry; Address: Husein Sastranegara Air Base, Bandung, Indonesia

LIPNUR LT-200

The Lipnur LT-200 is a two-seat light aircraft based on the design of the Pazmany PL-2 (see US section of the 1974–75 *Jane's*). It is intended for use as a military and civil trainer, and for club and private flying.

Construction of the first of two prototypes began in September 1973, and this aircraft (IN-201) flew for the first time on 9 November 1974. In the following month construction began of two modified and improved pre-production aircraft, and in early 1975 the Lipnur factory was setting up the necessary facilities for certification and eventual production. It is expected that about 30 LT-200s will be ordered initially for the Indonesian Air Force, Civil Flying School, and flying clubs, and that these could be completed within two years from the start of production. Additional production will be subject to market requirements.

First prototype of the Lipnur LT-200 light aircraft, based on the American Pazmany PL-2

The following description applies to the prototype LT-200:

TYPE: Two-seat light aircraft.

WINGS: Cantilever low-wing monoplane. Wing section NACA 63_2615. Dihedral 5°. Incidence 0°. Single-spar structure of 2024S aluminium alloy. Plain ailerons and trailing-edge slotted flaps of similar construction. No tabs.

FUSELAGE: Semi-monocoque structure of 2024S aluminium alloy.

TAIL UNIT: Cantilever structure of 2024S aluminium alloy. Single-spar fin and rudder, with sweepback. Single-spar all-moving tailplane, with servo tab.

LANDING GEAR: Non-retractable tricycle type, with oleo-pneumatic shock-absorbers on all three units. Single Goodyear 5.00-5 wheel and size 15 x 5 x 5 in tyre on each unit. Tyre pressure 30 lb/sq in (2.11 kg/cm²) on main wheels, 28 lb/sq in (1.97 kg/cm²) on nosewheel. Goodyear hydraulic disc brakes.

POWER PLANT: One 150 hp Lycoming O-320-E2A four-cylinder horizontally-opposed aircooled engine, driving a McCauley AGM 7250 two-blade fixed-pitch metal propeller with spinner. All fuel contained in two permanent wingtip tanks, total capacity 25 US gallons (20.8 Imp gallons; 94 litres). Refuelling point on top of each tank. Oil capacity 2 US gallons (1.7 Imp gallons; 7.5 litres).

ACCOMMODATION: Side-by-side seats for pilot/instructor and one passenger/pupil under one-piece rearward-sliding canopy. Cabin ventilated.

SYSTEMS AND EQUIPMENT: 14V 50A electrical system for communications, instruments, and lighting. Oxygen system. ARC 300 or Narco Com 111 radio, and blind-flying instrumentation, standard.

DIMENSIONS, EXTERNAL:
Wing span over tip-tanks 28 ft 6 in (8.69 m)
Wing chord (constant) 4 ft 2 in (1.27 m)
Wing aspect ratio 6.7
Length overall 19 ft 4 in (5.89 m)
Height overall 7 ft 7 in (2.31 m)
Tailplane span 8 ft 0 in (2.44 m)
Wheel track 7 ft 9 in (2.36 m)
Wheelbase 4 ft 1 in (1.24 m)
Propeller diameter 6 ft 0 in (1.83 m)
Propeller ground clearance 8½ in (0.22 m)

DIMENSION, INTERNAL:
Cabin: Max width 3 ft 4 in (1.02 m)

AREAS:
Wings, gross 116.0 sq ft (10.78 m²)
Ailerons (total) 10.5 sq ft (0.975 m²)
Trailing-edge flaps (total) 18.5 sq ft (1.72 m²)
Fin 5.7 sq ft (0.53 m²)
Rudder 4.7 sq ft (0.44 m²)
Tailplane, incl tab 18.0 sq ft (1.67 m²)

WEIGHTS AND LOADINGS:
Basic weight empty 902 lb (409 kg)
Max payload 380 lb (172 kg)
Max T-O and landing weight 1,447 lb (656 kg)
Max wing loading 11.6 lb/sq ft (56.6 kg/m²)
Max power loading 9.65 lb/hp (4.38 kg/hp)

PERFORMANCE (at max T-O weight):
Max never-exceed speed (structural) 161 knots (186 mph; 299 km/h)
Max level speed at S/L 133 knots (153 mph; 246 km/h)
Econ cruising speed at S/L 118 knots (136 mph; 219 km/h)
Stalling speed, flaps down 47 knots (54 mph; 87 km/h)
Max rate of climb at S/L 1,400 ft (426 m)/min
Service ceiling 15,000 ft (4,570 m)
Min ground turning radius 18 ft 6 in (5.64 m)
T-O run 545 ft (166 m)
T-O to 50 ft (15 m) 1,150 ft (350 m)

Beech PD 285 prototype two-seat training aircraft (100 hp Continental engine)

Landing from 50 ft (15 m)
920 ft (280 m)
Landing run 620 ft (189 m)
Range with max fuel
330 nm (381 miles; 613 km)

BEECHCRAFT

BEECH AIRCRAFT CORPORATION; Head Office: Wichita, Kansas 67201, USA

BEECH PD 285

Beech Aircraft announced in late 1974 that the company was building the prototype of a new single-engined trainer, designated PD 285. The first flight of this aircraft was made on 6 February 1975, when the company stated that a comprehensive test programme would be completed before a production decision was made.

Intended primarily as a low-cost trainer for use by Beech Aero Centers, the PD 285 utilises new construction techniques to reduce manufacturing costs and features a new wing. This originated from NASA research into high-speed supercritical aerofoils with high lift characteristics.

TYPE: Two-seat training aircraft.

WINGS: Cantilever low-wing monoplane. GAW-1 wing section. Constant chord. Considerable dihedral from roots. Full-span ailerons and trailing-edge flaps.

FUSELAGE: Cabin floor and lower panel area of honeycomb construction. An external tunnel on the undersurface of the fuselage houses the primary controls to simplify maintenance and provide maximum cabin volume.

TAIL UNIT: Cantilever structure with swept vertical surfaces.

LANDING GEAR: Non-retractable tricycle type with single wheel on each unit. Cantilever spring steel main gear struts. All wheels and tyres same size. No wheel fairings.

POWER PLANT: One 100 hp Continental four-cylinder horizontally-opposed aircooled engine, driving a two-blade fixed-pitch propeller with spinner. Fuel contained in wing tanks with refuelling point at each wingtip.

ACCOMMODATION: Side-by-side seats for instructor and pupil in enclosed cabin. Door on each side of cabin, hinged at forward edge.

EQUIPMENT: Includes electrical system, navigation lights, omni-flash beacon, and com radio.

SPECIFICATION: Beyond the single factor of a maximum T-O weight of 1,600 lb (726 kg), no details have been released.

AEREON

AEREON CORPORATION; Head Office: 1 Palmer Square, Princeton, New Jersey 08540, USA

AEREON 26

Aereon Corporation has built and flown a proof-of-concept research vehicle which is described as having the hull geometry of a lifting-body airship. Designated Aereon 26, its design began in August 1967, with construction of the prototype starting in the following month. The first flight in ground effect was made on 6 September 1970 and the first airfield circuits were recorded on 6 March 1971, at NAFEC, Atlantic City, New Jersey.

Only limited details of its construction and performance have been made available:

TYPE: Lifting-body research vehicle.

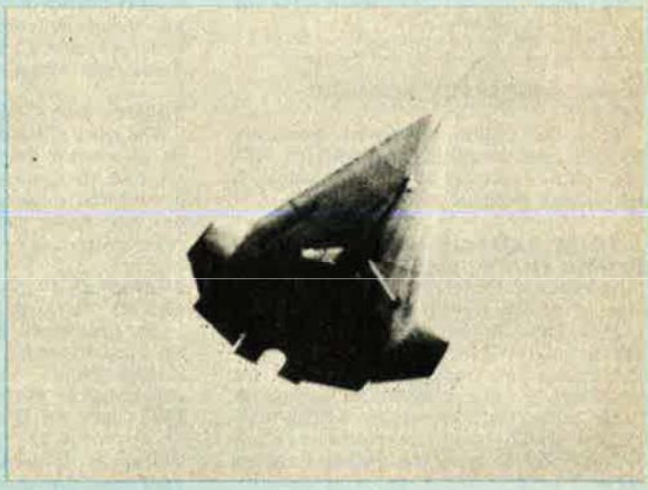
WING/BODY: Basic structure of welded aluminium tube which is entirely fabric covered except for the elevons and fixed centre-section of the aft body trailing-edge. Each elevon, which is of light alloy construction has a trim tab extending for the full span of its trailing-edge. Thickness/chord ratio 1 : 4.5.

TAIL UNIT: Comprises twin fins, rudders, and anhedral stabiliser surfaces. Construction similar to that of the wing/body, but with light alloy skins.

LANDING GEAR: Non-retractable tricycle type. Main units have side Vees and half axles. Rubber bungee shock-absorption.

POWER PLANT: One 90 hp McCulloch four-cylinder horizontally-opposed aircooled two-stroke engine, mounted centrally on

Although flown out of ground effect for the first time in March 1971, the Aereon 26 has remained a little-known proof-of-concept research vehicle for a lifting-body airship



Sukhoi Su-17 single-seat variable-geometry ground attack fighter of the Soviet Air Force

a pylon adjacent to the trailing-edge of the wing/body. Sensenich hand-carved two-blade wooden fixed-pitch pusher propeller. Fuel contained in a single tank mounted within the wing/body.

ACCOMMODATION: Single seat beneath jettisonable bubble canopy which is hinged on the starboard side.

DIMENSIONS, EXTERNAL:

Span, over anhedral surfaces
22 ft 3¾ in (6.80 m)

Wing aspect ratio 1.23

Length overall, excl data boom
27 ft 6 in (8.38 m)

Height overall 7 ft 3¾ in (2.28 m)

WEIGHT:

Basic operating weight 1,200 lb (544 kg)

PERFORMANCE:

Max never-exceed speed
110 knots (127 mph; 204 km/h)

T-O run 800 ft (244 m)

SOVIET AEROSPACE ALMANAC UPDATE

Since the Gallery of Soviet Aerospace Weapons was compiled for the March 1975 AIR FORCE Magazine, additional information has become available as follows:

TUPOLEV VARIABLE-GEOMETRY BOMBER (NATO 'Backfire')

As indicated by the artist's conception on page 64 of the March issue, the pilot and co-pilot have side-by-side seating. The main landing gear pods of **'Backfire-A'** have virtually disappeared from **'Backfire-B'**, leaving only shallow fairings under the wings, no longer protruding beyond the trailing-edge. Soviet Naval Aviation is expected to follow the Air Force in operating **'Backfires'** during 1975.

TUPOLEV Tu-16 (NATO 'Badger')

Production of this twin-jet intermediate-range bomber in China began in 1968, and was suspended after about 60 Tu-16s had been delivered. The Chinese Air Force deploys more than 400 of the older and smaller twin-jet Ilyushin Il-28s and may plan to equip some of them for a nuclear attack role.

MiG-23 (NATO 'Flogger')

There are indications that this variable-geometry fighter is to be operated also in an air defence role, carrying four air-to-air missiles on its weapon pylons to supplement its internal gun.

MiG-25 (NATO 'Foxbat')

Latest area of deployment for the **'Foxbat-B'** reconnaissance version of this Mach 3 combat aircraft is East Germany. The **'Foxbat-A'** high-altitude interceptor, carrying unidentified underwing missiles, continues to be based only within the Soviet Union.

SUKHOI Su-15 (NATO 'Flagon')

The latest **'Flagon-E'** version of this twin-jet all-weather interceptor, operational for the past 18 months, is now known to have a new and more powerful propulsion system, increasing speed and range, and uprated electronics.

SUKHOI Su-17 and Su-20 (NATO 'Fitter-C')

The designation **'Fitter-B'** is now known to have been applied only to the prototype variable-geometry version of the Su-7 ground attack fighter, displayed at Domodedovo in 1967. Both the domestic Su-17 and export Su-20 production versions carry the NATO code-name **'Fitter-C'**, though differing in equipment. Up to eight weapon pylons can be fitted under the wings and fuselage. Variations in rear fuselage contours also suggest that the Su-17 may have a different (and presumably more powerful) engine than the Su-20.

SUKHOI Su-19 (NATO 'Fencer')

Soviet designation of the new variable-geometry fighter-bomber known to NATO as **'Fencer'** is reported to be Su-19. It is already operational, carrying a variety of guided and unguided air-to-surface weapons, in addition to a twin-barrel 23 mm gun.

ANTONOV An-12 (NATO 'Cub')

In addition to the Il-28 and **'Brewer-E'** version of the Yak-28, the Soviet Air Force and Navy use a special **'Cub-C'** version of the An-12 transport for ECM duties. This retains the glazed nose and undernose radar of the basic **'Cub'** but has a 'solid' tail housing electronic equipment, instead of the normal gun position, and electronic pods faired into the forward fuselage and ventral surfaces.

ILYUSHIN Il-76 (NATO 'Candid')

Although all 85 Mya-4 (**'Bison'**) aircraft still serving in the Soviet bomber force could be modified into flight refuelling tankers for **'Backfire'**, it is considered more likely that a new tanker will be produced. There is evidence that a version of the Il-76 will be evaluated in this role.

SA-5 (NATO 'Gammon')

Operational since 1967, the Soviet strategic surface-to-air missile known in the West as SA-5 now has the NATO code-name **'Gammon'** and not **'Griffon'** as reported on page 74 of the March AIR FORCE Magazine. It provides point defence for areas of vital strategic importance.

From the B-1 to the F-16, the Air Force Test and Evaluation Center provides assurance that each new major weapon system can do the job it was designed for . . .

AFTEC Testing: Avoiding Advocacy

BY EDGAR ULSAMER
SENIOR EDITOR
AIR FORCE MAGAZINE

COMMON SENSE and sad experience make a compelling case for what has emerged as a central Defense Department management doctrine, the imperative to accomplish, "before major production starts, sufficient development and operational tests to prove design soundness, operational performance, and readiness for production."

The responsibility for operational testing and evaluation (OT&E) in the Air Force rests with the recently formed Air Force Test and Evaluation Center, headquartered at Kirtland AFB, N. M., and commanded by Maj. Gen. Richard G. Cross, Jr. The new agency, staffed by about 200 experts, had its genesis in DoD Directive 5000.3, covering test and evaluation policies, which specifies that from now on the services' operational test and evaluation functions "will be independent and distinct from the developing and using commands."

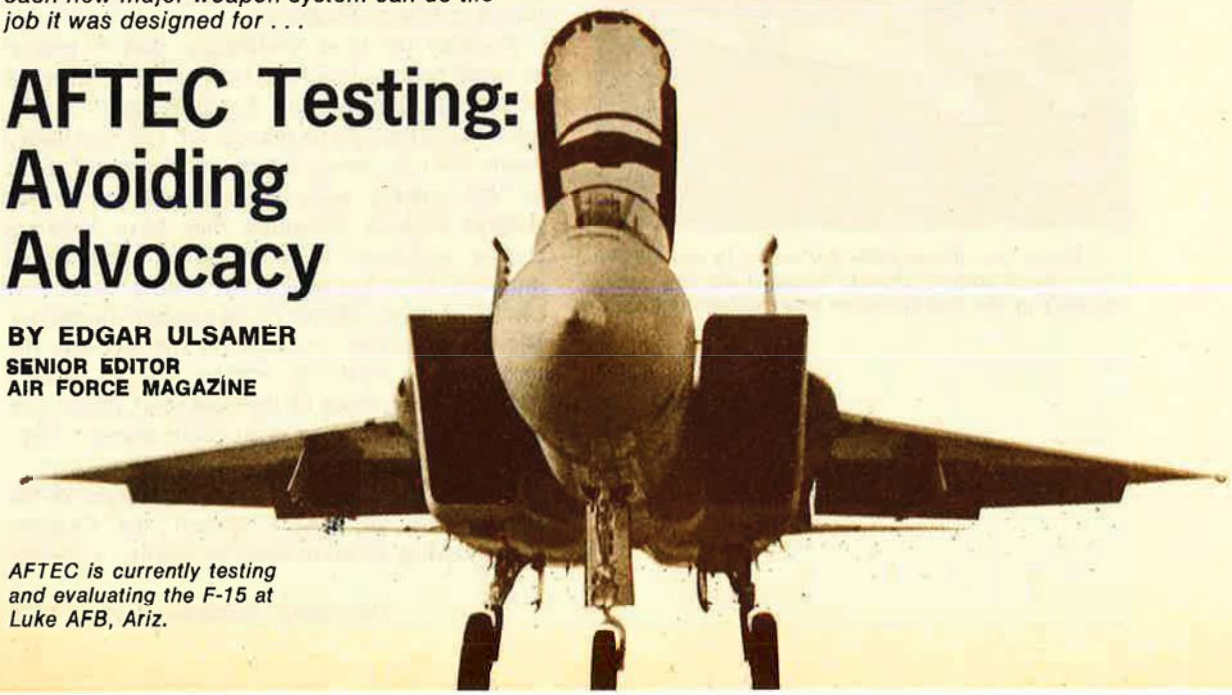
AFTEC's independence, in part, is derived from the fact that it reports directly to the USAF Chief of Staff, whom it represents in OT&E matters at the Defense Department's Defense Systems Acquisition Review Council meetings (DSARC). That Council reviews all major DoD development and acquisition efforts at key decision points, assesses the efficacy and results of the test program, and decides whether or not, and when, a proposed weapon system is to be produced and deployed.

The Center, automatically and by law, provides OT&E of all Air Force programs that involve expenditures of more than $50 million for research and development, or more than $200 million for procurement. In addition, AFTEC furnishes OT&E of programs designated as "major" by OSD or upon order of the Secretary or Chief of Staff of the Air Force. The Center either conducts operational test and evaluation with its own staff, augmented by experts from other commands, or it monitors the test programs of USAF's major commands. At this writing, AFTEC is managing the operational testing of thirty-five major programs and monitoring ninety-eight others.

Test Objectives

The reason for operational testing is to establish whether a proposed new system will be able to do the job the Air Force has in mind for it, using the associated concepts and tactics developed by the operating command. AFTEC, General Cross told AIR FORCE Magazine, is not in business to question how the user plans to operate a weapon system. "We don't have the expertise to evaluate or change doctrines and tactics, but we incorporate these factors—as formulated by the using command—into our test plans," he pointed out.

Operational testing normally takes place in two phases. Initial testing covers the period before the production decision is made, with the second phase following that decision. Initial operational testing often is in tandem with the Air Force Systems Command's developmental testing. In case of programs involving a prototype phase, such as the B-1 and F-16 Air Combat Fighter development, "we go piggyback with AFSC and combine as many tests, including flight tests, as possible. Our maintenance people start looking over the shoulders of the AFSC crews right from the start and, in fact, assist in performing maintenance," the AFTEC



AFTEC is currently testing and evaluating the F-15 at Luke AFB, Ariz.

AFTEC Commander Maj. Gen. Richard G. Cross, Jr., stresses that "all our thirty-five major programs are of equal importance to us. . . . We stay back in the wings and have but one task: to provide impartial and analytical evaluation."

Commander said. Cooperative testing, he added, doesn't impinge on the integrity of the test process, but saves time and money.

AFTEC's Testing Procedure

AFTEC's involvement in a specific program begins with the appointment of a test project manager who, in concert with various AFTEC specialists, outlines the test plan proposal and compiles estimates of the staff and resources required to carry it out. By design, "we depend to a considerable extent on personnel from the operating and supporting commands, like SAC, TAC, ADC, MAC, ATC, and AFLC," General Cross said. While assigned to an operational test program, people from other commands are fully integrated into AFTEC's test teams to keep the OT&E process—as directed by the Defense Department—"independent and distinct from the developing and using commands."

After the proposed test plan and its associated schedules and resource requirements have been reviewed and refined by AFTEC and the relevant major commands, they are submitted to the Air Staff, which then issues a test or program management directive. The AFTEC Commander appoints a Test Director who convenes key members of the test team to prepare a comprehensive draft test plan, which is then subjected to further review and reconciliation of differing views. Only after the test plan has passed this series of reviews does the actual testing get under way.

The idea of having people from the operating and supporting commands as an integral part of the test supports the DoD concept of performing OT&E with people of the type and qualifications expected to use and maintain a system once deployed. A side benefit for the using command is that it has the opportunity to initially assess the tactics it developed for the system, and to acquire the data to refine and change tactics as necessary. The final product of AFTEC's efforts is the test report, which is forwarded to the Chief of Staff. Information copies of the report are made available to the major commands.

Initial operational testing of the F-16 will involve two prototype aircraft. Phase II will begin with delivery of the first of twelve preproduction aircraft.

Evaluating Systems Costs

AFTEC, under its present charter, is responsible for the verification of the total cost of ownership. At the same time, the Center is not staffed, or funded, to provide independent cost analyses and, therefore, must depend on the Air Force Logistics Command, and the various SPOs (System Program Offices) and associated industrial contractors, for information and estimates of this type. "The Air Force recognizes the need for more accurate cost of ownership figures and is working on a number of fronts to improve current methods," General Cross told AIR FORCE Magazine.

TAC's new close air support aircraft, the A-10, is about to enter AFTEC's operational testing.

Possibly the most challenging part of testing manned systems involves the psychological stress of combat, which can't be simulated yet may decisively affect performance. AFTEC's primary means for calculating the effects of combat stress is "the combat experience of our test crews. Almost without exception they have Vietnam combat experience, and we think they are well qualified to judge whether a system under test can be operated effectively in combat conditions. We try, of course, to allow for the fact that the next war is likely to impose human factors different from those of the Southeast Asian war and recognize that we must think ahead," General Cross said.

In part, this thinking ahead culminated in the development of TAC's special Air Combat Maneuvering Instrumentation facility at Nellis

AFB, Nev., that is to be used jointly by all services and which, through extremely realistic simulation, "will show us some of the things we need to know about air combat interactions and combat psychology. It may not be quite the same as an actual engagement of an enemy aircraft, but, combined with the test crews' personal experience, it should enable us to assess the combat effectiveness of the weapons we test," he added.

AFTEC's test programs include joint efforts with other services. At this writing, eleven inter-service test programs with either the Navy or Army or both are in progress, according to General Cross. Among them are the ACEVAL/AIMVAL joint test, an Air Force/Navy program designed to evaluate the capabilities of air-to-air weapons, and a close air support project keyed to test the Army/Air Force command control and communications required for delivery of laser-guided weapons in forward battle areas. In the case of joint test programs, General Cross pointed out, "the creation of our agency is of itself advantageous because in the past such efforts didn't have a home in the Air Force. But now we act as the focal point for identifying and incorporating USAF resources needed to carry them out."

The Center Is Always Neutral

Among the Air Force programs under test by AFTEC are the B-1, E-3, E-4, A-10, F-15, and F-16. The only priorities accepted by the Center are those relating to schedules. "All our thirty-five major programs are of equal importance to us. Saying that one weapon system is more important than another would constitute a form of advocacy on our part. That's not our job. We stay back in the wings and have but one task: to provide impartial and analytical evaluation," General Cross told this reporter.

AFTEC's operational testing of the B-1 is concurrent with developmental testing to meet program schedules.

AFTEC is conducting extensive, independent operational testing of the AWACS brassboard aircraft, including a twenty-two-day interoperability test with NATO forces.

The Center is quite proud of its track record to date. In the case of the Air Combat Fighter, for instance, "about eighty percent of our recommendations are planned for incorporation into the production model. The reason that figure isn't even higher is that the other recommendations are either still in engineering validation or not solvable" within the constraints of the program, General Cross said. Those modifications of the F-16 program that were termed "required" by the Center were accepted and "some of those we classified as desirable are being considered," he added.

AFTEC's fundamental OT&E management philosophy is in keeping with what the Center expects from the Air Force weapons it tests, General Cross told this reporter: "Either we do the job with excellence or we don't do it at all." ■

All those people "out there"—millions of them—"weren't too interested in the Air Force" until ATC blue-suiters started visiting their towns in nine states. Solid community relations are resulting as they continue to travel . . .

DOWN THE ROAD TO FRIENDSHIP

BY MAJ. FRED MEURER, USAF
CONTRIBUTING EDITOR, AIR FORCE MAGAZINE

UVALDE, Tex., is the first place a driver heading west from San Antonio can get Coors beer. I stopped and had one. It really isn't that much better than Lone Star or Pearl.

But I hadn't driven the eighty miles or so from Lackland AFB to compare beers. Sitting in Uvalde's busy Town House Restaurant, I studied the clientele. Ranchers in Levis and boots. A few women—good, sturdy, down-home types. Two or three business suits, seemingly out of place, almost. The restaurant owner, sixtyish, steering customers to vacant tables.

I had come to Uvalde to talk to people like these. I wanted to find out how their attitudes toward the Air Force might have been affected by an ambitious community-relations program launched by Air Training Command in late 1973.

After Uvalde, I planned to backtrack to Sabinal, twenty miles behind me in the direction of San Antonio. I could also swing south of San Antonio to Devine, Tex., or southeast to Karnes City. I could even go to Wiggins, Miss., or Homerville, Ga., or Le Roy, Ill.

All those communities—and scores more—had, for the first time ever, been directly touched by the US Air Force. Many of the people in those towns had "seen" the Air Force for the first time in the persons of visitors from ATC bases.

"The only thing those people knew about us was what they read in the papers," Col. James A. Cook had told me before I left Lackland. "We were so close, yet so far away. Now, they really know what's on the other side of the hill in the Air Force."

Colonel Cook is Commander of Lackland's USAF School of Applied Aerospace Sciences. He is also Lackland's liaison officer to Uvalde under a program nicknamed "Project Howdy." He first visited the town of 10,764 residents in December 1973. Cal Newton, Executive Vice President of the Uvalde Chamber of Commerce, declared at the time that Colonel Cook was the first Air Force officer to visit Uvalde in Newton's seventy-year memory.

I took out the list of names

Colonel Cook had given me and hailed my waitress. "Do you know any of these people?" I asked, showing her the list.

"Well, let's see," she said. "I know Cal Newton and Howard Langford. And Joe Ammeran. And Betty Spurgeon. I know most all of 'em."

"Are any of them in here?"

She looked around. "No, I don't see any of 'em."

I thanked her, finished my Coors, and left in search of Cal Newton.

* * *

In May 1974, the Public Relations Society of America gave its coveted Silver Anvil Award to the Air Training Command. The accompanying citation pointed out that concern about prevailing negative attitudes toward the Air Force after the Southeast Asia war had prompted an active, expanded media liaison and community-relations program at ATC's fifteen bases, located in nine states.

"Personal visits by Air Force members to more than 240 communities at the grass-roots level . . . resulted in many new contacts and favorable reinforcement of existing relationships across the nation," the citation read.

At its National Convention last September, the Air Force Association presented its Citation of Honor to Gen. William V. McBride, former Commander of ATC, for establishing and motivating the program, "thus enhancing the public image of the Air Force."

Also last year, the Aviation/Space Writers Association gave its annual Orville Wright Award, sponsored by the Grumman Aerospace Corp., to Col. H. J. "Jerry" Dalton, Jr., ATC's Director of Information (now Deputy Director of Information, OSAF). Colonel Dalton, who with his staff at ATC conceived the idea for the expanded visitation program, was praised for his "outstanding individual service in broadening the scope" of the Air Force Information program.

* * *

A letter from Colonel Dalton to all ATC base Information Officers (IOs) kicked off the program on October 1, 1973. IOs were told to visit all communities located generally within a fifty-mile radius of their respective bases. They were to "advise news media representatives and local officials how they may obtain or provide information in case of emergency, and how they [can] obtain base tours, Air Force speakers, and Air Force participation in local civic activities."

Then came the zinger:

The ATC IOs had until December 31—ninety days—to visit *all* the communities in their assigned areas.

Maj. Jesse H. Burrow, Commander of the 3723d Basic Military Training Squadron at Lackland AFB, Tex., greets his former high school English teacher, Irene Adams, as she arrives at the base for "Sabinal Day."

They were to follow up the visits with letters or more visits.

"It was a tough thing we levied on them," Colonel Dalton told me. "We knew, though, that if we gave them until the following May, for example, they might not start until March or April. The problem was that the program would keep the IO on the road and out of his office a lot, but we were trying to make up for years of neglect. We had been concerned too long only with the cities and towns directly adjacent to our bases."

Growth of Millions

By December's end, the fifteen IOs had visited 242 "new" communities. They talked to hundreds of people, immediately collecting sixty-six requests for Air Force speakers and forty-four for base tours. ATC estimates the program enlarged the command's primary civilian audience in the nine states from about 3,800,000 people to 9,500,000.

"The average civilian has no concept of the amount of management we do in the Air Force, and we delude ourselves if we think he does," Colonel Dalton affirmed. "Through this program, we show them that we're doing an important job; that we're a strong deterrent force; that we do the job honestly, effectively, and economically; and that we're concerned about how we use the taxpayer's money."

Colonel Dalton suggested that I talk to Col. Harold C. Detling for his views on how civilians were accepting the program. Now Staff Judge Advocate for Hq. ATC, Colonel Detling had until recently been Staff Judge Advocate at Lackland AFB, where he became involved in the visitation program.

* * *

It must be admitted that Lackland has more inherent assets to throw into such an expanded visitation/community-relations program than does the average base. Lackland has more senior officers. It has its own band. It can organize a parade at the drop of a hat. And with its diverse functions ranging from basic training for airmen to basic training for dogs, it has a lot to show visitors.

Maj. Gen. Robert W. Maloy, now Vice Commander of ATC, until last August was Commander of the Air Force Military Training Center at Lackland. He jumped at the program when General McBride introduced it to his base commanders in late 1973. Lackland was assigned twenty-six towns, and General Maloy refined ATC's directives to include the following actions at Lackland:

- He appointed twenty-two key staff officers—including himself—to be responsible for the individual towns. This took the burden off the IO and enabled Lackland to complete the initial task more effectively within the ninety days.

• He allowed each liaison officer to dedicate a "day" for "his town" at Lackland, inviting residents to the base for a briefing, tour, lunch with basic trainees, and a parade in the visitors' honor.

• He dubbed the Lackland program "Project Howdy."

Colonel Detling, then Staff Judge Advocate at Lackland, took Devine, Tex., as "his" town and visited the city of 2,900 in November 1973. After a morning spent meeting and chatting with townspeople, Colonel Detling spoke to a joint luncheon meeting of the Lions Club and the Devine Chamber of Commerce.

"I thought my talk would take twenty minutes or so," he said, "but the audience was so receptive that I talked for an hour and five minutes. I spoke of General Brown's [then Air Force Chief of Staff, now Chairman of the Joint Chiefs of Staff] desire to bring the Air Force story to the people, emphasizing why we need an Air Force, the strategic Triad concept, the value of the Air Force as a national resource—particularly in returning highly skilled, better educated people to civilian life—and the feedback of airpower tax dollars into the civilian economy. From there we progressed to Air Force social actions, human relations, equal opportunity, and rehabilitation programs, and on to what we do at Lackland."

Mutual Admiration

Colonel Detling said he went to Devine "kind of expecting to get shot down," but he fell in love with the town and its people. "They made me an honorary mayor," he said proudly, and "I still go down there on Saturday mornings for a cup of coffee even though I'm no longer stationed at Lackland. I bought a car in Devine, although it cost me more than it would have in San Antonio."

When he arranged for "Devine Day" at Lackland, the city brought twelve busloads of people, "including the top three grades in high school. Boy, were they surprised to find out we care about people in the Air Force. The line separating the military from civilians was completely erased."

The author, Maj. Fred Meurer, this month is completing a ten-month assignment with AIR FORCE Magazine under AFIT's Education With Industry (EWI) program. He is an AFROTC Distinguished Military Graduate of Texas A&M University, and holds a bachelor's degree in journalism. Major Meurer, a career Information Officer, was recently selected for promotion to lieutenant colonel.

Colonel Detling believes "it's the job of every blue-suiter" to mingle with civilians. He said he checks on how well other ATC bases are progressing in the program by talking to his legal officers and base commanders when he makes staff visits.

"It takes the top man pushing the program to make it successful," he remarked. "Once a program gets going, it takes people at high levels to keep it flamed.

"It has really been fun," he went on, "but more important, who knows what influence is out there behind a plow somewhere?"

* * *

To my disappointment, I never did meet Cal Newton in Uvalde. He was out of town on business. I talked to his secretary, Betty Spurgeon, who remembered "Uvalde Day" at Lackland fondly.

"We chartered a bus," she said, "and had people from all walks of life on it—farmers, ranchers, school teachers, and school kids, not just civic leaders."

Maj. Gen. John P. Flynn, a former POW in North Vietnam who had succeeded General Maloy as Commander, greeted them at Lackland.

"We were so impressed with General Flynn's talk about Air Force training and rules," Mrs. Spurgeon said. "We're anxious to get him out here to Uvalde as a speaker." (General Flynn did speak at a Uvalde Chamber of Commerce function March 1.)

One highlight of the Lackland visit was when "we went through the dormitories, or barracks, whatever you call them. But they're too nice to call barracks. They were so spotless!

"The young kids from high school were rather quiet driving to Lackland, but they were so elated afterwards that they talked all the way back," she recalled. "Everybody wants to go back again."

Other people I talked with in Uvalde, home of Texas Governor Dolph Briscoe, echoed her comments. I gave up looking for negatives, and—since Cal Newton wasn't around—decided to head for Sabinal.

* * *

Probably Sabinal's greatest claim to fame these days is that Johnny Rodriguez, the country and western recording star, is a hometown product. Sabinal's wide—and short—main street was practically devoid of any of the town's 1,554 inhabitants in the bleak winter weather as I drove up to the unpretentious city hall. Entering, I asked the secretary, whose desk plate identified her as Jen Shane, if Mayor Ivy was in.

"No, but he'll be right back," Mrs. Shane replied. "You must be from AIR FORCE Magazine." The people at Lackland apparently had passed the word that I was coming.

"Let me make a few phone calls," Mrs. Shane said. "Some of the people want to meet you. We have coffee and cookies in the back room."

By ones and twos they came into the high-ceilinged meeting room. Soon about twenty people were seated around a table talking to each other, laughing, talking to me, laughing some more, and reliving their *two* "Sabinal Days" at Lackland, the first one in February 1973. Among them was Mrs. Isobel Rodriguez, Johnny's mother.

Mrs. Marjorie Angermiller is probably the jolliest City Councilwoman in the world. "I learned enough at Lackland that if I was younger, I would have enlisted in the Air Force right then," she chuckled. "Golly, it was cold that day. We were watching the parade, and the general sent out and got us all blankets."

"Tax Money Well Spent"

"We were a little apprehensive at first, but those Lackland people really put us at ease," someone said. "That briefing on all the careers in the Air Force that showed

all the things you can get into was really great."

Mrs. Irene Adams, a retired school teacher, remembered her delight when Maj. Jesse H. Burrow met the Sabinal delegation at Lackland. Major Burrow, Commander of the 3723d Basic Military Training Squadron, is a Sabinal High School graduate.

An "Air Force Now" crew was at Lackland to film "Sabinal Day" festivities. I had seen the Commanders Call film and was now peppered with questions about it. The local movie theater plans to show it as a trailer as soon as it can get a copy.

Sabinal's Mayor Eddie Ivy is a plumber. "We're sort of sleepy out here, and I guess we weren't too interested in the Air Force before this," he said. "We sure learned a lot. That was one time for sure that our tax money was well spent. The second time we went to Lackland we just invited ourselves."

"It's just good public relations," said Mrs. Shanc.

The happy reminiscence went on and on. I left after about an hour with a sincere invitation from Mayor Ivy to visit again anytime I was in the area. There was no doubt that anyone in the Air Force is a friend in Sabinal.

* * *

Lackland has the most visible program among ATC bases, but others are going full bore. Some have followed Lackland's lead and are using senior officers to visit towns in the continuing effort.

At Keesler AFB, Miss., for example, the Information Officer, Lt. Col. James Howell, admitted he was reluctant to participate at first because "I had to stop everything I was doing and start visiting my [seventeen] towns." He added, however:

"When I saw the response from the people I visited, I became enthusiastic. They really appreciated somebody taking the time to come over and see them. Results have been outstanding and now I back the program 150 percent. It's worth a million dollars."

ATC has briefed all other major commands on the operation, and at least one of them, the Air Force Logistics Command, has adopted the expanded visitation/community-relations program. Coincidentally, General McBride—who initiated the program in ATC—is now the AFLC Commander, but AFLC got the ball rolling before his arrival.

Col. Gerald J. Hickman is Director of Information for AFLC, which controls six large bases. "The initiative came from my predecessor, Col. Art Lynn, after he heard the ATC briefing," Colonel Hickman said. "There is a great body of unarticulated support and good will in those towns, and this is our chance to relate to it."

Colonel Detling, the ATC Staff Judge Advocate who often returns to "his" town, Devine, for a cup of coffee on Saturdays, perhaps best summarized the program's potential:

"Small-town people across the nation are important stockholders in the defense business and probably are justified in feeling that the military is too busy or too big to care about them and their community. The Air Force belongs to them, too. We will be where we should be when every Air Force installation in the country has completed an expanded community-relations program." ■

Col. Travis R. Etheridge, "Project Howdy" liaison officer to Sabinal, visits Jimmy Connell in his Western Auto store. On "Sabinal Day," Mr. Connell put a sign on the door proclaiming, "Closed—Gone to Lackland."

Mayor Eddie Ivy, bottom right, and other Sabinal visitors watch patrol dogs in action with Maj. Gen. Robert W. Maloy, now ATC Vice Commander.

Salvage from the Vietnam War may not be enough to justify its costs to this country, but we should not forget the unprecedented competence developed by . . .

USAF AND THE VIETNAM EXPERIENCE

By Gen. T. R. Milton, USAF (Ret.)

Now that it's all over, and South Vietnam has gone down the drain, what do we do? What do we salvage, in pride, in feelings of accomplishment? What have we to show for the years of fighting, the POWs, the 55,000 US dead?

At first glance, not much. Such celebrations as there were in this bitter and divisive war have long since been held as the returning POWs had their brief moment. There have been no ticker-tape parades this time. No political careers have been founded on Vietnam, except, that is, for those who, with similar behavior, would have been given a rough time by the media and the voters in any previous war. And, curiously enough, the Vietnam affair has gone full circle, with the US providing equipment and South Vietnam doing the fighting at the end, as it was at the beginning of our real commitment.

While there had been a US Military Assistance Program in existence since the French withdrawal from Vietnam, it all began, really, in October 1961. That was when President Kennedy sent his military adviser, Gen. Maxwell Taylor, author of *The Uncertain Trumpet* and bitter critic of the Eisenhower era's reliance on strategic military power, to Vietnam to take a look. Taylor was accompanied by Walt Whitman Rostow, the President's National Security Adviser, and an assortment of staff officers from State, AID, the CIA, the JCS, ARPA, and wherever. One was Maj. Gen. Ed Lansdale, a hero of the Philippines' fight against the Huks and later Diem's adviser in Vietnam. As the Thirteenth Air Force Commander, I was another, appointed to the group to represent either the Commander in Chief Pacific or the Air Force Chief of Staff. I was never sure which. There were others, some well-intentioned and objective, a few simply homing in on a new source of money.

The year 1961 was a curious one. The real tension was in Berlin, not Southeast Asia, as the cold war became very cold indeed. Southeast Asia was simply viewed as a test of a new counterinsurgency game the US was going to play. The Special Forces with their Green Berets were the new glamour boys of the military and the special favorites of the President himself.

And so, while General Taylor and his group headed for Vietnam, National Guard units were being called to active duty—with no protests, just tearful and patriotic home-town farewells—against the threat of another war in Europe. That was the real, and serious business, of the military. Counterinsurgency was still just a political/military diversion.

Well, that was the beginning. Now we have the end, and what's left is all that went between. Out of all those years in between, we will find what salvage there is.

Let's begin by looking at where the Air Force was in 1961.

It was mainly SAC: the theater air forces were trying to be little SACs with the primary and almost the only mission being the nuclear one. Day after day the F-100s went to practice LABs delivery techniques or, as the '100 jocks said, "bomb the moon." And, from time to time they would, in utter frustration at their circumscribed mission, engage in a little unbriefed air combat maneuvering. The high fighter accident rates in the early 1960s stemmed from a lot of causes, but boredom was certainly one of them.

SAC had for years been the elite force, on guard against World War III. Its procedures, its facilities, its size, not to mention its priorities, all made for an image of the first team. Everyone, and everything else, was simply in support of, or secondary to, SAC. The war in Southeast Asia changed all that as the Air Force, not individual commands, became the important thing.

The first tactical air strikes flown in Southeast Asia are, for the most part, best forgotten. It took a while for the *moon bombers* to get back up to speed in delivering conventional ordnance. And SAC's first B-52 iron-bomb strikes in SEA are also best forgotten.

Let's remember instead the increasingly professional performance of everyone as the war dragged on. Let's remember the magnificent teamwork of SAC tankers and TAC fighters; of the mechanics and loading crews working all hours in the tropical heat; of the Wild Weasel crews who, with incredible courage and skill, took out the SAMs. And let's remember the Aerospace Rescue and Recovery Service, whose selfless exploits went beyond anything we had seen in World War II or Korea, and the extraordinarily accurate work of the B-52s in North Vietnam.

These are the kinds of things to remember. These and the fact that the US military did not lose that war. There was no Dien Bien Phu for US forces in Indochina. The one that General Giap planned for us at Khe Sanh was turned, by US airpower, into a graveyard for North Vietnam soldiers. It was an object lesson, just as the December 1972 bombing of the North was an object lesson in how the war might have been won, and won long ago, if only there had not been such political inhibition.

Well, at long last it's over. But the one thing that cannot be taken away from us is the kind of Air Force we brought out of that war. In terms of experience and sheer competence, it is beyond anything we have ever had.

And while that may not be enough salvage from Vietnam, it is still a hell of a lot. ■

Model ML-1. The latest member of IBM's family of militarized computers.

The Advanced System/4 Pi Model ML-1 evolved from the 4 Pi technology base, in place since 1965. The result of this technology has been System/4 Pi computers for a variety of military and space programs such as A-7, F-111, EA6B, A-6, F-15 and Shuttle. It's IBM's solution – here today – for the next generation of avionic processing requirements. Using a typical avionic instruction mix, the Model ML-1 can perform more than 400,000 operations/sec.

This new general-purpose, stored program, digital computer is a militarized processor that utilizes large scale integration (LSI) circuitry and advanced packaging techniques. Tied to the LSI technology are high volume manufacturing methods that produce low-cost, high-reliability logic circuits and monolithic memories. What's more, microprogrammed control makes the Model ML-1 readily adaptable to a wide variety of applications such as guidance and navigation, weapons delivery, digital flight control and communications.

While the Model ML-1 retains commonality with other System/4 Pi computers, it takes full advantage of the newest technology developments and offers a variety of options. Users can choose hardware floating point, core or monolithic memory, various microprogrammed instruction sets, proven support software packages, and others.

And it's all wrapped up in a compact little package – a half ATR case weighing 28 pounds with up to 32K words of storage. The fact is, the Model ML-1 offers the latest in advanced technology and cost effective computing capability in minimum size, weight and power.

To learn more about this highly sophisticated processor and how it can be personalized for your applications, write or call the Director of Avionics Marketing, IBM, Federal Systems Division, Owego, New York 13827. Telephone: (607) 687-2121.

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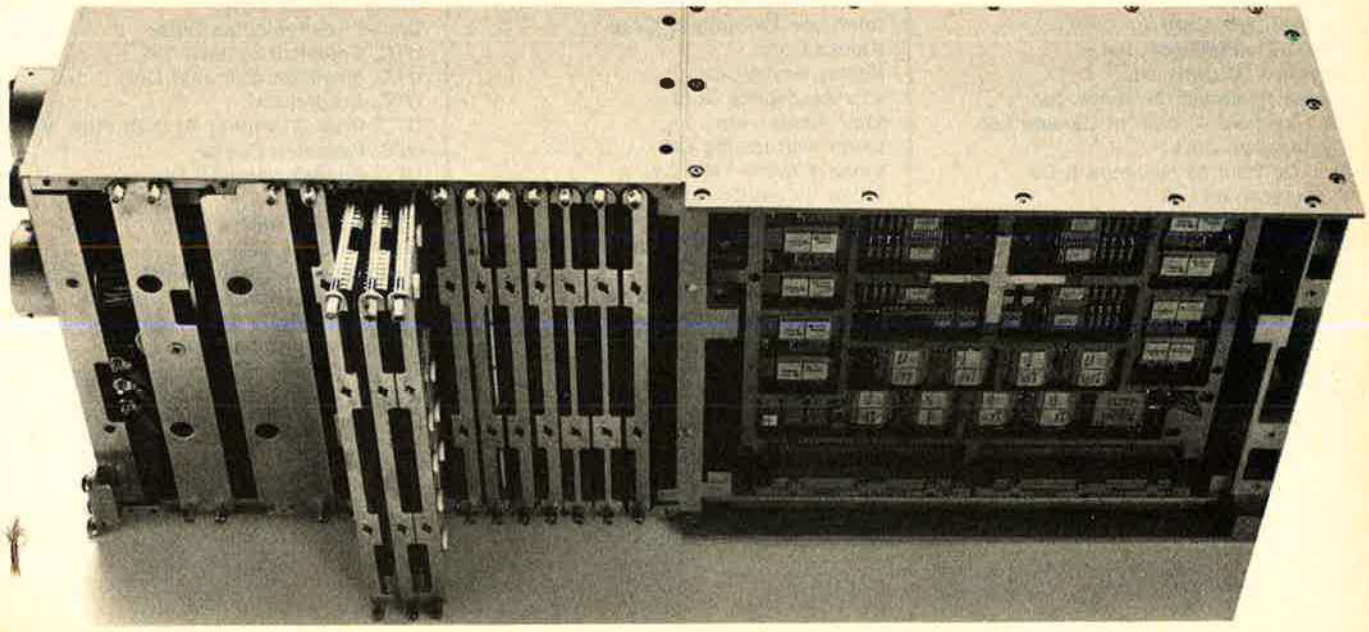

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KOREA: A TWENTY-FIFTH ANNIVERSARY

At 0400 hours on June 25, 1950, the North Korean army struck across the 38th Parallel into South Korea. Two days later, the US Air Force, which had been cut to a strength of 400,000 with a starvation budget of $4 billion, was thrown into action in support of South Korean forces. Reprinted here from our August 1950 issue is a report from the field on the performance of the USAF, in the face of incredible handicaps, during the first month of the . . .

AIR WAR IN KOREA

TOKYO *(by wireless)*: So far, the Korean War is being run from the hip pocket. It isn't the slick, push-button affair the press had promised for the next war, with all the latest in soldier comforts and streamlined secret weapons to get it over with quickly and easily. And it isn't the kind of war where air alone can stop a well entrenched ground army that had the time-honored military advantages of surprise, mass, movement, and offensive in its favor. It is well to understand all this at the outset.

For make no mistake about this show over here. It is the old slugging match: the rain and the mud and torturous mountain roads. Choppy dirt runways and impossible flying weather haven't changed at all since Italy or New Guinea, Africa or Burma. If anything, Korea is even worse, and many veterans of old Pacific campaigns are beginning to think they never had it so good as back in the Solomons.

And if battle conditions haven't changed since World War II, unfortunately neither have the frontline shortages that cost us so dearly in the early stages of the last war. In point of fact, we are nowhere near as capable on the battlefield at this moment as we were in 1945—in spite of fast new F-80s, which are performing superbly. It is unfair to the plane to expect it to make up in quality what is lacking in quantity—not only of planes, but of everything else that goes with them. This is a situation that seems little understood in the States, or even here in Japan, the base of our operations against North Korea.

The word that reached Tokyo on the night of June 27, announcing that General MacArthur had been authorized to commit US Air Force units in defense of South Korea, was immediately followed by predictions of a seventy-two-hour pushover. Reporters, rushing to get to the front, had already decided it would be all over before they even had time to dig old war correspondents' uniforms out of Stateside attics. Then, as the days wore on and North Korean tanks and troops swept deeper and deeper into South Korea, disillusion and even shocked surprise set in because the Air Force single-handedly had not been able to stop the enemy cold. The fact that American ground troops were later committed was viewed by some critics as a blunt admission that air had failed.

The Facts—However Stark

The truth is this: There is not the slightest reason to apologize for the air show in Korea. On the contrary, our air units have done a simply magnificent job *with what they had.* For *there* is the joker. And this is as good a time as any to face a few facts, however stark: First of all, the general public, and even many members of the Air Force, are prone to think of American airpower as the invincible weapon we had forged as of August 7, 1945. We remember "maximum effort"

BY CHARLOTTE KNIGHT

FAR EAST CORRESPONDENT, AIR FORCE MAGAZINE

strikes with hundreds of planes committed in a single action; we recall the almost fantastic accomplishments of air engineers, who were practically able to build advance airstrips while planes were coming in; and in our minds are stories of forward fighter control centers being set up in a matter of hours; of radar, mobile GCAs, radio beacons, transmitters, and all the electronic devices that enable us to lick foul weather, being flown to the battlefront and put into immediate operation; and, finally, we recall vast airborne armies that could drop and encircle an enemy practically in a matter of minutes. And we have been wondering why we haven't yet seen these things in Korea.

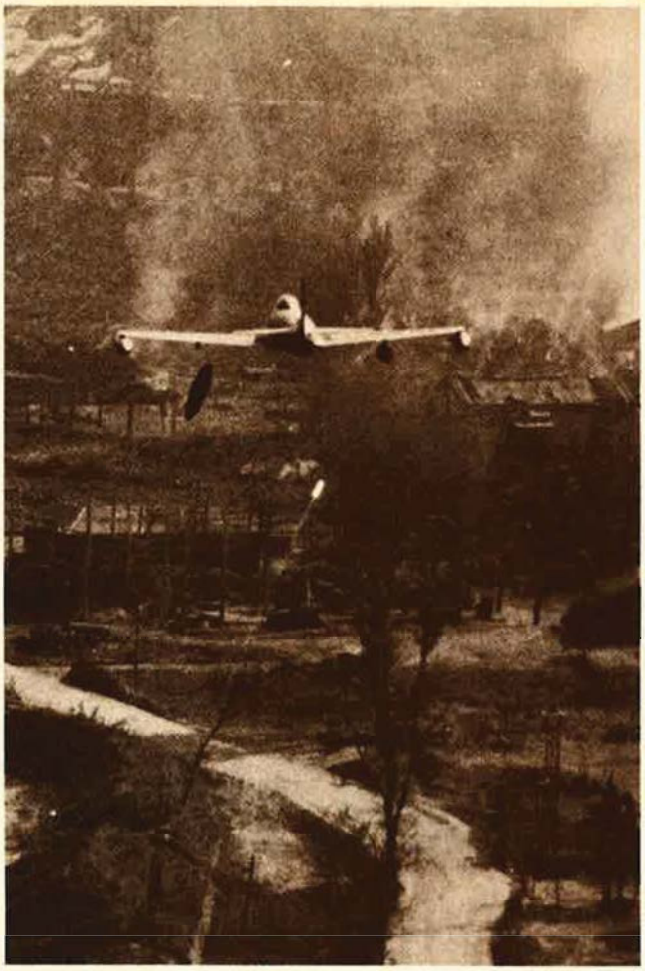
But memories can play tricks, and while we remember the power of this once great force, we are all too likely to forget what has happened in the past five years while a handful of crusaders have hammered away at Congress, at the Administration, and at the public in a hopeless effort to prevent our Air Force from being rendered impotent. We forget the sudden demobilization, the great rush to get the boys home, the deactivation of so many groups that we were left without even a token defensive force. We forget planes we deliberately junked, hundreds we pickled, thousands of tons of radio, radar, and construction equipment we bulldozed into the sea off Guam and Okinawa because we didn't have the men around to look after it. We forget the warnings of Finletter and Symington and a few others who kept telling the nation we were going to find ourselves caught short.

"I Have Watched Korea Written Off"

Well, it happened—in Korea—and a little sooner than we thought. We didn't win a three-day war there because we simply didn't have the planes and equipment necessary to win a war. They weren't in Korea, they weren't in Japan—and perhaps the next few weeks will tell whether they are even in the US.

For the better part of the last four years, I have lived here in the Far East and have watched this thing happen: I have seen our Far East air units being whittled away, I have watched our forces being withdrawn from Korea, I have seen our only airborne division being sent back to the States. In short, I have witnessed the whole Far East, both militarily and politically, gradually being written off as an area of unimportance to the security of the United States.

And I have seen the tragic results of this policy in Korea during the past few weeks. Since this show started, I have made three trips to Korea and have seen firsthand the conditions of which I write. The first trip was made in a Fifth Air Force troop carrier plane from a base in southern Japan. We were forced to sit on the base for thirty-six hours waiting for weather to clear before our transports could take off, simply because there were no navigational aids set up in Korea. And this was almost two weeks after the war began. We landed at the most advanced Korean air terminal held by the Americans; the strip was a wet, sticky mass of Korean mud, comparable to none other in the world. There was no control tower, no Operations office, no



An F-80 Shooting Star drops napalm on Communist supplies. The tactical workhorse early in the Korean War was joined by F-84s and F-86s in December 1950.

shelters to protect recently unloaded critical cargoes from the steady July rains. If the weather suddenly closed in, there were not even any flarepots to mark the strip, ringed on all sides by ragged mountains. Fortunately the field was open when we set down.

At Ground Force Headquarters in town, we saw battle maps and were shown how far the enemy lines had advanced while the air had been grounded. In the town where headquarters personnel were billeted, we felt at firsthand the critical lack of food and supplies. And if the boys were "hurting" at headquarters, it was trivial compared to what they were enduring in the front lines some miles above the town. There the boys didn't have anything they needed—neither food nor tanks, nor artillery, nor desired air support.

Those were bad days and nights in the Osan-Pyongtaek area, when the situation was so "fluid" that whole battalions found themselves encircled and cut off, when Communist tanks and trucks and armored vehicles closed in under cover of darkness or overcast skies that made close support impossible.

And on the few clear days we had, there was still no effective forward fighter direction. As a result of this, jets that had flown to the battle area from Japanese

The author, Charlotte Knight, had been in the Far East four years and had flown three B-26 combat missions over Korea as an AIR FORCE Magazine correspondent when she filed this report a month after the war erupted. In a 1947 article from Korea, she had described the 38th Parallel as "our most dangerous boundary," citing Communist-inspired factions "capitalizing on the internal unrest, on the general confusion and economic ills" besetting the country. Miss Knight, who also covered atomic bomb testing at Bikini for AIR FORCE Magazine in 1947, was living in New York City at last report.

bases, 350–400 miles away, were forced to consume precious fuel, stooging around for their targets. We couldn't help wondering where were the famous "Rover Joes"—air-ground liaison teams—of World War II. In fact, where were *all* the refinements of tactical air warfare we had developed by the end of World War II, and which were now so desperately needed.

Prepared—But for the Wrong Job

I left Korea that first time, depressed and confused, for I had not witnessed the kind of fast-moving air warfare I had hoped to see. I returned to Tokyo full of blunt questions to put to the air commanders running the show.

"Look," they pointed out with some vehemence, "you don't seem to realize that the primary mission of all our air units here in Japan was one of occupation and *defense* of American bases. We simply do not have the material necessary to launch *offensive* warfare. Eighteen months ago, Washington started *cutting* our forces—not building them up.

"And yet you want us to build forward airstrips practically overnight the way we did at Lingayen Gulf," they continued with emotion, "but do you remember just how long it was after World War II began before we reached that stage? What you fail to realize is that we are not five years better prepared than we were in 1945; we are about where we were in 1943. Considering this, our showing in Korea has been wonderful."

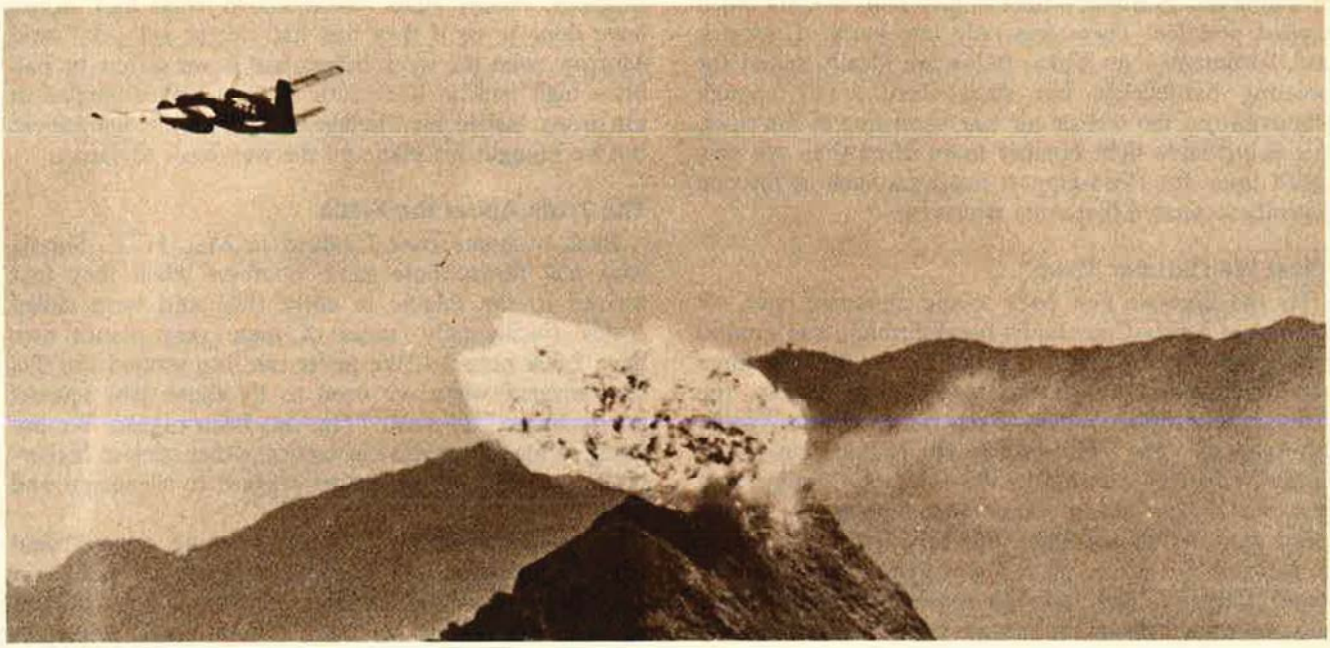
"And I can tell you this," added Lt. Gen. George Stratemeyer, CG, FEAF, "if it had not been for the Air Force during those first days of battle, there would be no South Korea today. Air had the stabilizing effect, and slowed up the enemy long enough for our forces to make contact before it was too late."

"We will work it out and quickly," said another air officer, "but you can't expect a quick, smashing victory at this stage until we have time to build up to the point where it will count."

Within a week, I saw concrete evidence of rapid progress toward this stabilization. On my next two trips to Korea—two combat missions in Fifth Air Force B-26s—it was encouraging to note that forward tactical control centers were operating beautifully, if rather belatedly; that napalm bombs were scoring burning successes against reported sixty-ton Russian tanks; that advance airstrips, from which air support planes could operate, were already under construction. Things were on the upswing all round.

A Rare Clear Day

My first combat mission came on the second of two rare clear days in a row, and the Fifth and Twentieth Air Forces made them count with the maximum sorties of the war to date. The day before, American ground forces had been in a bad spot in the Chonan Sector, and to make it worse, a big North Korean tank column was on its way down the road below the town. Suddenly, just after 1200 hours, the weather broke, and the



A B-26 Marauder blasts an enemy observation post with napalm. With tactical aircraft in short supply early in the war, "this dependable light bomber . . . gets called upon for close-support missions," the author reported.

An F-80 operating in what the author called "impossible flying weather" from "a wet, sticky mass of Korean mud."

air forces were able to catch the Communists flatfooted. Between 1500 and 1600, a total of 140 sorties had been flown, and the tank column stopped cold. Confirmed: twenty-five tanks destroyed and fifteen damaged, ninety-seven trucks destroyed and an equal number damaged. The best air effort to date.

Lt. Col. John Murphy, TAC Air Controller, reported, "The Army was tickled silly. I sold two million dollars worth of Air Force stock to the ground forces in a couple of hours."

The following morning, I flew with a flight of four B-26s in a plane piloted by Lt. Jack Enoon on an interdiction mission deep behind enemy lines. Our target was a bridge on the Chongmichon River. Each plane carried 1,000-pound GP bombs, and such is our air superiority in that region at the moment that we were able to make four separate bombing runs on the target, dropping one bomb at a time to give bombardiers much needed practice. There was only one burst of ack-ack and, fortunately, no Yaks. B-26s are ideally suited for isolating battlefields, but since there aren't enough planes to run the tactical air war according to the rules, this dependable light bomber more often than not gets called upon for close-support missions, such as the one urgently requested that same afternoon.

"Best We Clobber Them"

By the time we flew back to our Japanese base, we learned of a new Communist breakthrough, and ground commanders yelled for Air. So back we went, this time with instructions to get our target from Angelo, the Forward Controller. When we reached the front, Angelo informed us over VHF that North Korean tanks and troops were concentrated in the town of Chungju and best we clobber them. There was nothing we would rather do, and so our flight, this time led by Lt. James H. Morrow (in whose plane I was flying) turned north, found Chungju, flew over its scores of thatched roof huts, continued down a mountain valley, banked sharply behind a hill, and came down another valley for the bomb run. Lt. Frank Bullieas, lead bombardier, got the tank-lined main street in his sight, and dropped our bombs—260-pound frags. With the other three planes in the element dropping on his signal, we peppered the town and left the Communists a lot of headaches and wrecked tanks. Mission beautifully accomplished.

It had been a good day—and a lucky one. Many of them are not. This particular outfit has suffered the heaviest losses in the current air war, most of them the result of "cordwood" missions, so called because planes fly down these Korean valleys so low that the Communists have been throwing everything at them, including sticks. At fifty-foot levels, with steep mountains on either side, it is almost impossible for a B-26 to take evasive action against armies of well hidden guerrilla troops lining every slope. Strangely enough, most of our B-26 losses are attributable to small-arms weapons, mostly rifles. "God knows what they would have done to us if they had had decent ack-ack," said Morrow, who the week before had flown so low he had hit a high tension line south of Osan. Wire tangled in his props, lashed his fuselage, and broke his windshield but he brought his plane all the way back to Japan.

The Truth About the F-80s

Back at home base I talked to Maj. H. E. Shook, who had flown these same bombers when they first arrived in the Pacific in early 1945 and were called A-26s (incidentally, some of these very planes now have 2,000 hours). "We never ran into ground fire this concentrated when we used to fly those jobs against the Japanese," he said. "This has been rugged. We are going to have to revise our tactics; either stick to higher-level stuff, or insist on fighter support to silence ground fire."

As a matter of fact, we are learning a great deal about capabilities and limitations of all our planes in this type of guerrilla combat. The war is being fought off the cuff, and so we can't follow classic principles concerning the most effective employment of airpower—principles that dictate that in the absence of enemy air

forces, the primary responsibility of tactical airpower is to operate against communications lines behind the front. When ground forces are in the spot ours have been the past few weeks, you'll use any plane you've got to help out, regardless of what the tacticians and designers had in mind. By making the best of what we have, we are putting planes through paces previously unheard of, particularly in the case of the F-80.

This is the Shooting Star's first combat test, and it shows up as a new kind of fish. On the whole, they are doing an incredible job. We have operated them over distances and in weather that two or three weeks ago would have curled the hair of both USAF and Lockheed. We are learning that they can take punishment previously considered suicidal. I have seen jets make it back to their Japanese bases with great shell holes in their fuselages, with wings partially sheared off, or engines shot up.

Talk for a bit to any of the jet boys at one of these bases and they'll tell you how Lt. Robert Olsen strafed a locomotive northwest of Seoul, which blew up in his face and put a sixteen-inch hole through his left wing. He made it back to Suwon, discovered he didn't have any brakes so he pulled his gear up and landed without a scratch. Or they'll tell you about how Lt. Ed Clembeck flew into a cable on a rocket run. It caved in his nose and tore up his right wing, but he flew home. Or again, they'll tell you how good the F-80 is on instruments, like the day Capt. John Salyards led his flight back from a mission to discover the weather closed in over his base. There was a 150-foot ceiling, visibility of only one-sixteenth mile. GCA was working three other craft in, and Salyards had no fuel left to wait. With the aid of his radio compass, knowledge of terrain, and terrific luck, he and his flight inched their way in (if you can call 300 mph inching), broke off, and landed safely. "Don't sell the F-80 short," warned every F-80 pilot I talked to. "We who fly 'em are completely sold, but even so we won't try to claim the Shooting Star is primarily a close-support plane. They were made to operate best at thirty thousand feet—not *thirty;* they were also designed to fight against aircraft equally fast, not slow-moving Yak 9s. Trouble with this war is that the damned enemy is inconsiderately fighting us with obsolete weapons."

GI Ingenuity Again

The greatest limitation of the F-80 as an offensive weapon is still the fuel problem. They have flown missions 500 miles from Japanese bases and made it back, but this is straining and leaves little time over the target. Fortunately, one of this war's first major improvisations is now producing marvelous results—namely the locally designed and manufactured elongated wingtip tanks that have two more middle sections than the Lockheed type, and which carry enough fuel to give F-80s at least forty-five additional minutes over the target. This has helped a lot—and the forward strips in Korea, if the situation ever stabilizes, will help even more.

As for tactics, we have also learned a lot in a short time. Initial results against the Yaks were discouraging, but the boys have learned to correct the errors of inexperience. They say that if you bounce a Yak before he sees you, he's gone, but it is true he can turn in a faster circle and get out before you can come around.

On low-level strafing jobs, pilots discovered they'd been taught to fire their rockets *too close* and *too low* against tanks. Most of the battle damage was coming from their *own* ricochets. They have learned that firing rockets further away and from a steep angle results not only in escaping their own blast but in greater accuracy. Even more important, this has increased rocket effectiveness because it allows time for the rocket motor to give the missile itself much greater velocity by the time it hits. Rockets that used to bounce off heavily armored Soviet-type tanks when fired at close range now split them wide open if fired further away. We are learning the good points and bad points about the F-80; but the fact remains that although F-80s have been lost due to other causes, *to date* no Yak has shot down a single F-80. This is most important, and the men who fly them, while admitting the F-51 is a better close-support plane, would still rather have the advantages of jet speed and altitude against the day when North Korea decides to throw a force of Russian jets into the fray.

Because it has greater range, can carry a heavier bomb load, and can take more time to pick out tactical targets, the F-51 is much better suited to covering Korea ground warfare, as its performance so far has proved. But we don't have enough of 'em, and we don't have enough of anything else.

In one sense, these first few weeks, although tragic, have been the best break the United States could have had. It could have been worse—much worse—and if it has done nothing else, the Korean War has shown us again the folly of unpreparedness. God willing, it is still not too late to take advantage of this lesson. ■

Orphans were evacuated in Korea, too; these in January 1951 from war-torn Seoul to southern Korea. A flight nurse gives candy to some of the 1,000 children moved.

WEIRD, WONDERFUL WARPLANES

Unorthodox in appearance and flying qualities, they were designed in the hope of bringing the US up to speed in fighter development.

BY COL. WALTER J. BOYNE, USAF (RET.)

IT'S HARD to believe that the record-breaking McDonnell Douglas F-15 Eagle traces its ancestry directly to the XP-67 of the early 1940s—a woeful failure that provided pilots more puckers than performance.

The XP-67 was McDonnell's first fighter, a sleek, slender, twin-engine plane that looked transonic on the ramp. It was one of a unique crop of weird and wonderful World War II experimental pursuit planes from Vultee, Curtiss, Northrop, and others, and its offspring would one day form the backbone of the free world's air forces.

These pursuits, unorthodox in flying qualities as well as appearance, owed their existence to a small group of young Air officers who clearly saw in 1940 that long years of low budgets had placed the United States far behind other nations in fighter development.

Europe's Messerschmitts and Spitfires were faster, better armed, and far more combat-capable than anything we had, including not only our pride and joy, the P-40, but also the hot, new YP-38 and YP-39, which were entering service test. What was needed was a 1940-style "great leap forward," a souped-up research and development cycle that would leapfrog an entire generation of fighters by providing new engines, new airframes, and, most of all, new ideas.

Programs like that called for big money and hungry contractors, and for the first time since 1918 really big money was becoming available for aircraft development. There was no shortage of hungry contractors, for the depression had left them lean and mean, scrapping for business, with appetites whetted by hors d'oeuvre orders from France, England, China, Japan, and even Russia. All that was needed was a catalyst.

Maj. (later Maj. Gen.) Edward M. Powers, Chief of the Engineering Section in the Office of the Chief of the Air Corps, headed a team of experts that provided this in February 1940, with a document revolutionary for its time, "Request for Data R-40C." Powers intended for R-40C to generate at least 100 new aircraft designs, ranging from small conventional types to tail-first pushers built around highly experimental engines, and with speeds ranging from 425 to 520 mph. The designs were to be developed in a three-phase program, with primary emphasis on preliminary engineering data. The best of the proposals would be translated into mockups and wind-tunnel models, and, if sufficient promise were shown, into experimental aircraft.

The request went out on February 20, 1940. Industry response was wildly enthusiastic. Every conceivable approach was used, from brochure-lifts on dusty old proposals to Buck Rogers ventures whose performance figures weren't taken seriously by either designers or customer.

Powers had structured a simple but sophisticated evaluation process, in which designs were placed in one of three classes, based on the relative degree of orthodoxy. They were then compared as to performance, engineering, and operational characteristics to arrive at a total "Figure of Merit" score. A further twist of this early-day quantitative technique

The highest "Figure of Merit" in analyzing designs of proposed fighters went to the Vultee XP-54, center right, while the Curtiss XP-55, top, ranked second. Third was the Northrop XP-56, bottom, and the McDonnell XP-67, center left, was twenty-first. None flew more than a few times.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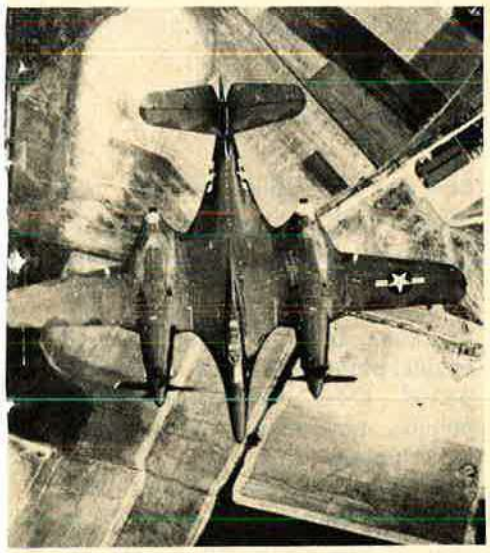


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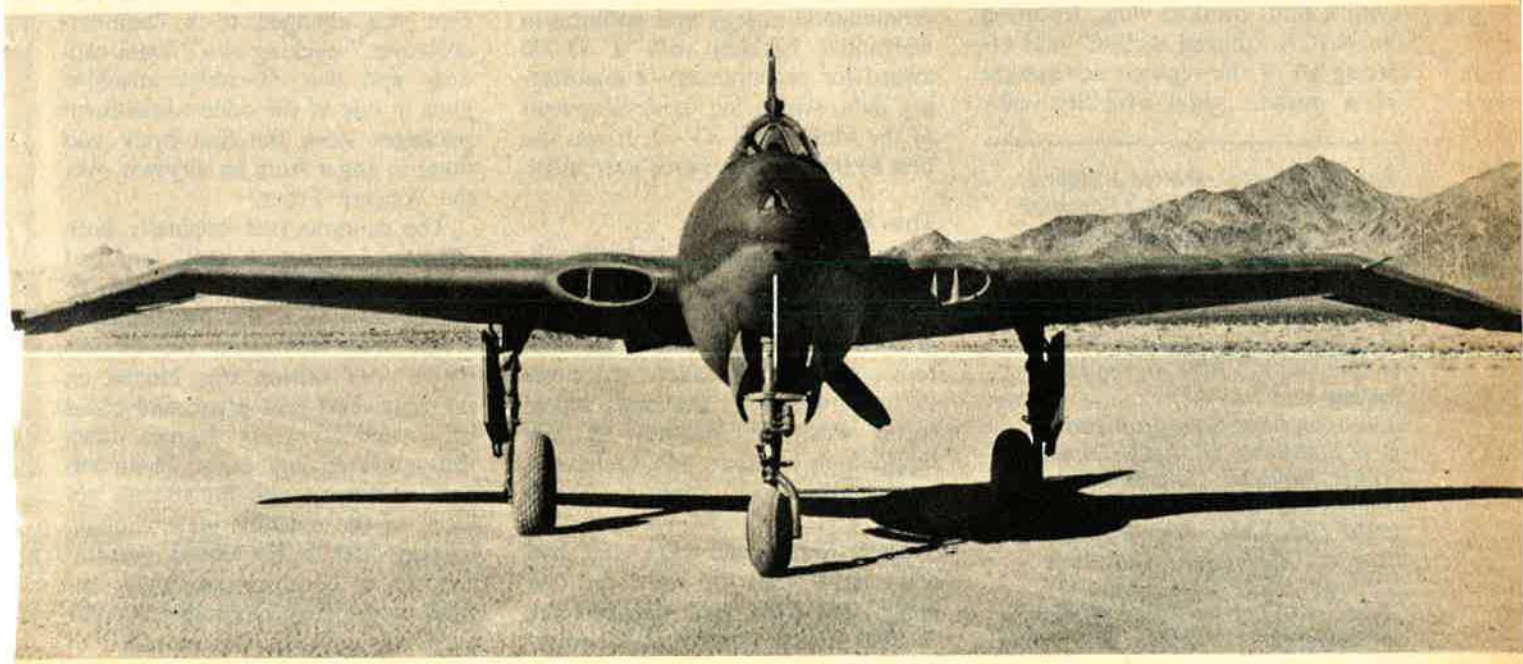

factored in cost, in order to arrive at a "dollar per point of merit" figure.

The three principal drivers of the distinguished Board of Review that considered the designs were Maj. (later Lt. Gen.) Kenneth B. Wolfe, Maj. (later Col.) Howard Z. Bogert, and Powers himself. These three men, whose influence was widely known within the service and in industry, received little public acclaim.

armament installation, and lower drag characteristics.

Another pusher, the tail-first Curtiss XP-55 "Ascender," was the second aircraft selected for development, and it was even more radical than the Vultee. ("Ascender," by the way, is one of the very few double entendre nicknames that got past the prim airplane-naming section of the Pentagon.) Slim, with an arrow-like planform, the XP-55 probably

rassing several manufacturers who had planned to use it. The good news was that the equally untried Lycoming 2,200-horsepower XH-2470 would be installed instead. Vultee's Vice President Richard Palmer (who had designed Howard Hughes' record-breaking H-1 racer) cheerfully predicted a new top speed of 520 mph.

It's tough to develop a new plane, a new engine, and fit them into a

Engineering changes more than doubled the XP-54's design weight, and the resultant speed loss doomed the aircraft.

Despite high hopes for the Curtiss XP-55, two of the three aircraft built crashed. The other is in storage.

Fortunately for the nation, they were bright and farsighted, with the guts to make hard decisions and to sometimes take a chance.

And it was all pretty chancy, for the designs that made the finals were totally different from anything ever flown before in America. The long-snooted, twin-boom, pusher prop Vultee XP-54 "Swoose Goose" won the contest easily, garnering a Figure of Merit of 817.9 out of a possible 1,000. It was a pretty little airplane with a thin, cranked wing, featuring an NACA "ducted section" and offering all of the reputed advantages of a pusher: good visibility, easy

had more true potential than any of the other designs.

The third choice was Northrop's Model N2B flying wing, which would evolve into the beautiful but dangerous XP-56 "Black Bullet."

And where was McDonnell? Nowhere. Its proposed Model I wound up in twenty-first place, trailing even tame entries like a Continental-powered P-39 derivative. But the design had a certain flair, and the company had Jim McDonnell, whose monumental energy and enthusiasm warranted backing with a $3,000 award for procurement of engineering data, which led to development of the McDonnell XP-67. It was the best $3,000 the Air Force ever spent.

The XP-54

Paper designs never weigh much, but Vultee's 8,500-pound entry was still pretty hefty in 1940, when a grossed-out P-40 weighed less than four tons. The twin-tailed fighter was to be powered by the new, super-secret Pratt & Whitney X-1800 liquid-cooled engine and to have a top speed of 510 mph at 20,000 feet.

There was good news and bad news right from the start, the bad being that P&W had dropped the X-1800 engine, considerably embar-

new war all at the same time, and urgent requirements for an interceptor forced drastic changes on the engineers. A totally new airplane emerged, with exactly the same configuration, but with a supercharged engine, pressurized cabin, and an expected gross weight of 19,347 pounds, more than twice the original estimate.

It soon became obvious that this ten-tonner would never be a point-defense interceptor, so the concept was changed to a "bomber-destroyer," packing two 37-mm cannons and two .50-caliber machine guns in one of the oddest armament packages since the first brick was flung in anger from an airplane over the Western Front.

The cannons had originally been designed for ground attack, and had a relatively low muzzle velocity. To get a decent shot at a bomber from a safe range and speed, the XP-54's entire nose section was hinged on the nosewheel gear pivot, and could be rotated from six degrees down through three degrees up. There was nothing wrong with the muzzle velocity of the machine guns, though, so they had to be moved simultaneously to a correspondingly opposite angle from the cannon. A compensating gunsight was intended to

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The author, Col. Walter J. Boyne, who retired from the Air Force in 1974, is a professional aviation historian and Curator of Aeronautics for the National Air and Space Museum, Smithsonian Institution. He flew B-50s, B-47s, B-52s, and KC-135s during his career, and was Commander of the 635th Services Squadron and a C-47 instructor pilot at U-Tapao RTAB, Thailand. *Colonel Boyne thanks Maj. Gen. Marcus F. Cooper, USAF (Ret.), Maj. Gen. Edward M. Powers, USAF (Ret.), Col. Russ Schleeh, USAF (Ret.), John W. Myers, and the Air Force Museum for assistance in writing this article.*

sort all this out in combat, permitting shells to be lobbed in howitzer fashion. Other similar busy design solutions were to follow.

The pressurized cabin presented leakage problems, neatly solved by the engineers, who sealed the canopy shut. This made entrance difficult, so the pilot's seat functioned as an elevator, lowering electrically to ground level. The pilot strapped in, pressed a button, and ascended in seated majesty to the cockpit, where the California sun rendered temperatures unreal.

If ventilation was a problem, emergency egress was a bear. Pushing the down elevator button didn't help, as the pilot couldn't forget the big swinging propeller and two huge vertical fins directly behind. As pyrotechnic ejection seats weren't available yet, Vultee engineers came up with an elaborate mechanical swing-down seat built like a New England ducking chair. It threw the pilot down and hopefully clear, and mercifully never had to be used.

There were many other "improvements," most of them weighing a lot, but finally enough engineers were shot to permit a thirty-one-minute first flight on January 15, 1943, at Muroc. Test pilots didn't dislike the airplane, and there were not too many airframe problems during the sixty-four-hour test program, but it was downright disheartening to go from a production P-51A to an experimental fighter that was slower, shorter-ranged, and with a far touchier engine.

The 8,500-pound, 510-mph hot-rock proposal had emerged as an 18,232-pound clunker with a 381-mph top speed. It was a good-looking airplane, but instead of being a leap ahead, it was at least a year behind.

The second XP-54 made a terrific sixty-mile cross-country flight from the plant at Downey, Calif., all the way to Norton at San Bernardino, where it needed an engine change. It never flew again, and the Swoose's goose was finally cooked.

Curtiss XP-55

The canard-like XP-55 was totally different from previous Curtiss products, coming at a time when the famous old company dominated fighter production with long lines of P-40 variants, and was fielding many advanced projects, including the XP-46, XP-60, XP-62, and XP-71. After good service on practically every front, the P-40 was phased out in favor of P-47 production. At the same time, the Curtiss follow-ons were being rejected, one by one. Part of the problem was poor design and part bad management, but the real cause was that the North American P-51 and Republic P-47 were developed faster and better than Curtiss could create new aircraft.

(One of the great ironies of the war years, and still a matter of controversy with loyal old North American employees, is that a *substantial* part of the XP-51's basic design data had been purchased from Curtiss for a dismally small price.)

Small wonder, then, that the XP-55, which had begun as a relatively low-key effort, began to assume great importance with top Curtiss management. The project had gotten off to a bad start when the preliminary wind-tunnel reports revealed radical stall characteristics ominous enough to turn off AAF engineers. Curtiss had faith in the design and built a full-scale flying model, the Model 24B, whose performance air-started AAF interest. Three prototypes were ordered, each to be fitted with the relatively mild Allison V-1710-F engine, instead of the ill-fated P&W X-1800 originally specified.

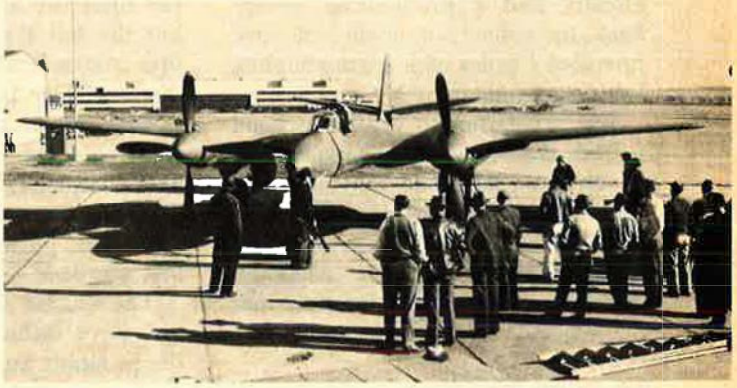
First flight was on July 10, 1943, with J. Harvey Gray at the controls. Having flown the Model 24B extensively, Gray was familiar with the design, and the first few flights went well. There were the usual minor mechanical problems, and takeoff roll turned out to be excessive, but the airplane was delightful to fly. Tests proceeded routinely until November 18.

Gray was into his third stall of a series, gear and flaps down, when the XP-55 pitched forward onto its back and began to fall in the very same stable, inverted, vertical descent predicted by wind-tunnel tests. The engine quit cold, and Gray stayed with it for 16,000 feet of quiet terror before bailing out.

The two remaining prototypes were modified, but neither pilots nor engineers recognized that they had encountered a new phenomenon, the "deep stall," that would not be fully understood until the advent of the T-tailed, sweptwing jet airliner, and then not until more than one had augered in.

The entire XP-55 program suffered from aerodynamic uncertainty, and official Air Forces flight-test reports signed by Lt. Frank G. Morris and Maj. Everett W. Leach emphasize this. Leach commented that "the most serious limitation on maneuverability is a psychological one, and results from undesirable stall behavior and unknown spin characteristics." Like an amorous porcupine,

One Northrop XP-56 flying-wing crashed prior to takeoff. The other was abandoned after a few cautious flights.



Odd flying characteristics led to the McDonnell XP-67's downfall, but it was the forefather of the F-4 and F-15.

the XP-55 was treated very carefully.

The plane's flying qualities were excellent in almost all other regimes, and the unimpressive 377.5-mph top speed was really all that could have been expected from the 1,275-horsepower Allison. When the jet engine loomed on the horizon, E. M. "Bud" Flesh, the XP-55's designer, saw immediately that it would significantly improve performance and even contribute to the solution of some of the stability problems. As the wings already had a pronounced sweepback, the conversion might well have provided Curtiss with a commanding lead in jet fighters.

But it was not to be. The second fighter crashed in a demonstration at Wright Field, and the third was sidelined; it is now in storage at the National Air and Space Museum in Washington, D. C., awaiting, hopefully, eventual restoration and exhibition.

Northrop XP-56

Northrop's long years of flying-wing development resulted in its selection to build the XP-56. Besides having one of the most advanced configurations in the contest, with the phantom P&W X-1800 selected to drive twin coaxial counter-rotating pusher propellers, the XP-56 was to be built entirely of magnesium, using a heli-arc welding process that was a highly prized Northrop innovation.

Wind-tunnel tests again gave rise to serious stability questions, and very early in the game the XP-56 began to be assessed in terms of its importance to the supersecret XB-35 program.

John W. Myers was test pilot on the September 6, 1943, hair-raising first hops of the XP-56, now powered with the air-cooled Pratt & Whitney R-2800 radial engine. The first flight was a gentle liftoff at about 140 mph; the second was a nightmare. He let the "Black Bullet" accelerate to about 170, when it bucked, with its right wing dropping while the nose swung violently to the left and down, not good moves from twenty-five feet in the air. It took both hands on the stick to maintain control, and Myers wished he had a third one so that he could chop the throttle. He finally spiked it on the salt flat.

Northrop strapped four square feet of surface area to the vertical fin and was ready for additional tests a month later. Myers, a five-goal handicap polo player, wore a specially decorated polo helmet for the series of taxi runs and liftoffs, a precaution he was to be thankful for.

The center of gravity was critical on the close-coupled fighter, and Myers was heading back to the fuel trucks for a refill when his left tire blew. He was in instant big trouble, as directional control evaporated and the Northrop yawed ninety degrees to the left before sliding sideways and backwards. Myers tried to blow the right tire and subdue the beast, but the tail skid bumped, the prop tips crumped, and the right wing tip dug in. The plane tumbled backwards, nose to tail for one-and-a-half turns, coming to rest upside down and completely destroyed. Halfway through the sequence the cockpit separated, throwing Myers out, helmet on, back broken, but alive.

The second XP-56 was flown in kid glove fashion a few times, and the program was abandoned; it, too, now rests in the National Air and Space Museum.

McDonnell XP-67

The sexy, sinuous XP-67 had a much longer row to hoe than the other experimental fighters, for in those early years the McDonnell Aircraft Co. was very small, with a limited design staff and a tiny production work force. The plane had very advanced aerodynamics, in which true airfoil sections were maintained throughout the nacelles and fuselage; the resultant flowing graceful lines would both create and conceal flaws that ultimately would result in rejection by AAF test pilots.

After a mammoth wind-tunnel program had failed to solve the drag and cooling problems caused by the shark-mouthed air scoops that ran from the nacelle into the leading edge of the wing, the XP-67 was nevertheless deemed ready to fly on January 6, 1944, some twenty-seven months after the contract had been signed. Flight characteristics proved to be surprisingly pleasant, but test pilot E. E. Elliot terminated the ride after fifteen minutes when coolant temperatures began to shoot up.

Three flights later, Elliot almost bought it, for the main center bearing of the left engine burned out just after takeoff, the right tachometer promptly failed, and the canopy blew off, leaving him with a slender number of options, the most attractive of which was bailing out. He chose to stay with it, making a squeaker emergency landing. It wouldn't be the last one.

Cols. Marcus F. Cooper and Osmond J. Ritland (both to become major generals) were dispatched to fly the XP-67 and see if the program should be continued.

Cooper liked the sleek-looking bird pretty well at first; the takeoff roll was excessive, and acceleration to the 140-mph single-engine speed was uncomfortably slow, but it seemed stable around all axes. Then certain awful truths began to manifest themselves as he tried high G turns and began poking closer to the stall. The XP-67 would suddenly feel very tail heavy, the nose tending to tuck up, and strong buffeting would occur at speeds far above the predicted stall. Cooper didn't want to be the first to find out that the plane wouldn't recover from a spin, so he would fly into the buffet, sense the pitch-up, and then accelerate out of it.

Ritland agreed with his analysis that there was more development to be done than time allowed, and the program ground to a halt.

Elliot had one more confrontation with the fire-prone engines. On September 6, 1944, on a functional test flight, he took off from Lambert Field, St. Louis. The right engine caught fire during the climb-out, and Elliot brought it back once again for an emergency landing. He touched down crosswind to keep the flames from the fuselage, but in a final twist of fate, the right brake failed, turning the XP-67 sharply to the left and presenting the growing fire to the wind. Elliot jumped out unhurt, but the plane burned almost in two, ending the project once and for all. But McDonnell had been launched, and the legacy of Phantom Is, Banshees, Phantom IIs, and Eagles can be traced directly back to the XP-67.

As it turned out, none of the weird and wonderful warplanes of R-40C ever flew in combat, but they did provide research into areas that were valuable to later jet fighters and bombers. More than that, they were part of a great rejuvenation that turned American aircraft manufacture from a virtual custom-built cottage industry into the most formidable industrial complex in the world. ■

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ARNOLD AIR/ANGELS CONCLAVE:

A Busy Time In Louisville

Photos by Cadets Ramon Mata and Ken Alexander

SOME 1,200 Arnold Air Society (AAS) and Angel Flight representatives met for their National Conclave in Louisville, Ky., March 18–22, in the twenty-seventh annual get-together for the AAS and the twentieth for the Angels.

"The Conclave is sort of a little AFA National Convention, but with a lot more business sessions," said Lt. Col. William G. Morley, USAF (Ret.), AAS/Angel Flight Executive Administrator. AFA sponsors both groups nationally.

In those business sessions, the AAS/Angel Flight adopted as national projects for the coming year support of both the American Cancer Society and handicapped children. During the past year, they worked in behalf of the American Red Cross and the Civil Air Patrol. The AAS at the California State University at San Francisco, for example, rewrote the CAP training manual for that area.

The AAS also adopted use of the PPBS (Planning-Programming-Budgeting System), patterned after Air Force procedures, to manage national financial matters and programs on a five-year planning basis. Efficient financial management was emphasized by institution of an annual $100 US Treasury Bond Award to the most successful manager.

Brigham Young University was chosen as AAS National Headquarters for the coming year, succeeding the University of Oklahoma. Oklahoma State University will complete its two-year term as National Headquarters for the Angel Flight in the coming year with Angel Flight Brig. Gen. Patje Henneke in command.

A panel of judges selected Marti Taylor of the University of Evansville (Ind.) as Angel Flight "Little General" to represent the AAS in a myriad of protocol functions during the year. She succeeds Rae Louise Anderson of Utah State University.

James H. Straubel, AFA Executive Director, was named Honorary National Commander of the AAS for 1975–76. Among his predecessors have been Gens. Henry H. "Hap" Arnold, James H. Doolittle, and Curtis E. LeMay; actors Bob Hope and Jimmy Stewart; and cartoonist Milton Caniff.

Attending the Conclave as banquet speakers were Gen. Russell E. Dougherty, Commander in Chief of SAC, and Lt. Gen. Howard M. Fish, Deputy Assistant Secretary of Defense (International Security Affairs). Brig. Gen. James R. Brickel, who had been Deputy Director of Information, OSAF, until March, made his first formal appearance as AFROTC Commandant.

A highlight of the Conclave was a seminar on "Women in Aviation," moderated by Anna Chennault, Vice President for International Affairs of the Flying Tiger Line. Discussions centered around aviation-oriented careers with executive-position opportunities being pursued by women today. Panel members were Betsy Allen, Piedmont Airlines; Maj. Nancy Buzard, an Air Command and Staff College faculty member, Maxwell AFB, Ala.; Joyce Case, Beech Aircraft Corp.; Mary Hankinson, Allegheny Airlines; Rosemary Murray, Pan American World Airways; Mary Jo Oliver, Federal Aviation Agency; and June Rollings, WKYT-TV, Lexington, Ky.

Martin M. Ostrow, AFA Chairman of the Board, presented several AFA awards, including the "Outstanding Angel Flight Area Commander" prize to Mary Schmitz of Memphis State University, and a $300 AFA scholarship to Mary Jo Gross, an AFROTC cadet at the University of Kentucky.

Chosen as the "Outstanding Area Commander" from among the seventeen AAS areas and receiving the Society's ceremonial saber was Cadet Danny D. Marrs of Kansas State University, commander of a four-state region. Cadet Marrs will join SAC as a missile officer this fall.

Representing the Link Foundation were Dr. Frank E. Sorenson, trustee, and Executive Secretary Anice Duriaux, who presented a $1,500 graduate fellowship in aerospace engineering to Cadet Keith W. Hoffman of the University of Oklahoma. The Link Foundation also gave flight training scholarships of $750 each to Angels Susan Athey of Virginia Polytechnic Institute and Cynthia Hershey of Purdue University.

The Angel Flight from the University of Akron received the coveted recognition of Maj. Gen. Bennie L. Davis, Commander of the Air Force Recruiting Service, for its efforts in supporting USAF recruiting.

The Angel Flight from Louisiana Tech University entertained at the awards banquet with a music and comedy show.

Cohosting this year's Conclave were the AAS squadrons and Angel Flights from the University of Kentucky and the University of Louisville. The 1976 Conclave in Philadelphia will be hosted by the AAS/Angel Flight at the University of Pennsylvania in conjunction with units at other universities in the area. ■

James H. Straubel, AFA Executive Director, accepts a plaque recognizing him as Honorary National Commander of the Arnold Air Society from Cadet Brig. Gen. Paul A. Foster, National Commander of the AAS.

Anice Duriaux and Dr. Frank E. Sorenson gave Link Foundation grants to Cadet Keith W. Hoffman, left, Cynthia Hershey, second from right, and Susan Athey, right.

Anna Chennault, center, who led a "Women in Aviation" seminar, and Mary Hankinson receive mementos from Marilyn Goodwin, Angel Flight Operations Officer, and Patje Henneke, the Angels' National Commander.

Marti Taylor beams after being selected Angel Flight "Little General." The University of Evansville coed succeeds Rae Louise Anderson of Utah State.

Brig. Gen. James R. Brickel, AFROTC Commandant, chats with Gen. Russell E. Dougherty, CINCSAC, a Conclave speaker.

Airman's Bookshelf

Allied March on Rome

The Race for Rome, by Dan Kurzman. Doubleday, New York, N. Y., 1974. 488 pages with notes, bibliography, and index. $10.

Although Dan Kurzman has admirable passages about unusual operations like those of General Juin's Gaumiers or General Walker's 36th Division troops in slashing across rough mountain terrain, his handling of field actions is badly warped by his efforts to picture the Allied commanders as out for personal glory and derelict in their duty. It is hard to accept his contention that Rome was not worth capturing as an alternate to splitting the German Tenth and Fourteenth Armies. One persists with the feeling that the course the generals took in marching on Rome probably was preferable to concentrating their full attention on trying to destroy those well-supplied Nazi armies, still far too strong to be separated and cut to pieces.

In spite of many pages of bibliography and notation of hundreds of interviews, Kurzman appears not to have discovered the role of the Army Air Forces in what took place, who the air commanders were, how they operated, and what obstacles they had to overcome. His reference to American airpower is limited to civilian losses from strikes on Rome marshalling yards and to occasional Allied casualties from close-support operations.

His account of top-echelon differences between Roosevelt and Churchill in the broad aspects of the war makes good reading, and he brightens his pages with much delightful human interest material. The title of his book, however, should have been *Survival in Rome* or something like that, because his real focus is on what happened in the city. His treatment of what went on there from late 1943 to the liberation by the Allies in June 1944, taking up a fourth more pages than the race for Rome, is profoundly moving drama. The various skeins of shattered social and political groupings are unraveled and rewoven in a connected story. He presents the trauma of the agonized Jews, the harassed partisans, the discredited and still dangerous Fascists, the thwarted and divided Communists, the bewildered clergy, the desperate spies, and futile police in an atmosphere of confusion, betrayal, torture, and want. Rome itself, with its squalor and decadent luxury, its monastic severity and abandoned nightlife, and its marvelous past is a character in the account.

A few weeks after Mussolini was deprived of power and the dissident Fascists, taking orders from General Badoglio and the King, were having difficulty asserting their authority in Rome, the landings of the Allies at Salerno caused Badoglio and the King to flee south, leaving the anti-Fascists, Royalists, Italian Army deserters, and the Vatican group struggling for control. Then, of course, the Germans entered the city, adding fear to chaos.

Kurzman vitalizes what is going on by realistic stories of typical individuals who went through the trauma of Nazi occupation and factional enmities. The cruelties of the two Fascist police chiefs, Pietro Koch and Pietro Caruso, and the slaughter by the Nazis of 335 hostages in the Ardeatine Caves are memorable passages for that sort of violence.

The personal background of the Nazis and of the Pope and his assistants are as humanly portrayed as that of the other dramatis personae. There is a good profile of Pope Pius XII in his ambivalent position of receiving the Nazis, yet expecting them to liquidate him.

Once engrossed in this Dantesque realism, it is hard to lay the book down.

—Reviewed by Dr. John M. Baker, Col., USA (Ret.).

Friendly Propaganda

The Chinese Red Army, by Gerard H. Cory. Schocken Books, New York, N. Y., 1974. 168 pages with bibliography. $8.95.

Books about Communist China are written at three levels—learned, popular, or propagandistic. They also display one of three general attitudes—hostile, disinterested, or friendly. This is a propagandistic and friendly work. It also suffers greatly from a superficiality that, given its subject and length, could not be avoided. The style and intellectual level are, in this reviewer's opinion, about that of a Sunday supplement.

The book addresses two different categories of subject matter. One deals with such general topics as are indicated by these chapter headings: The Chinese Communist Soldier; The Crucible; The Army and Politics; and The Army for the 'Seventies. Other chapters deal with campaigns and battles, Tibet, Korea, India, and confrontation with Russia.

It is rather curious to the American reader that the 1958 affair in the Taiwan Strait is mentioned only twice, and then in the most casual terms. It is true that this artillery duel was comparatively short in duration and produced relatively light damage and casualties, but it has a larger place than these facts would indicate.

It brought about the actual participation of US air and naval units, heavily increased material support (including the delivery to Quemoy of eight-inch, self-propelled artillery), and the threat by the President of nuclear weapons use.

For the Chinese Communists it was the test of the Soviet Union's willingness to help, which began the open disenchantment that ended only in the Russian withdrawals of support in 1962. In its demonstration of American willingness to take part, the Strait crisis was a clear assertion of Washington's determination to honor its treaty commitments.

In fairness it must be said that the author does not attempt to conceal his sympathies. He warns, "Some may argue that I have presented the Chinese in too favorable a light." The text is, on balance, very friendly, although errors and deficiencies get some notice. The Korean account is pretty much the conventional wisdom about MacArthur and an attack on those who would derogate (who are they?) the Chinese soldier.

The Indian study owes much to Neville Maxwell's account of the 1962 affray, which has some standing and support among students of

Asian affairs. The material dealing with the Sino-Soviet split and military confrontation are, for this reader's taste, somewhat lurid and one-sided. This situation as it enters importantly into current American policies and foreign operations gets no real attention, but again this is the curse of superficiality.

Another problem in addressing Chinese affairs is that of timeliness. The book was published in 1974, but it went to press too late for any correction of a table which purports to name (for obscure reasons) the commanders of the eleven military regions. On about January 1, 1974, Mao Tse-tung shifted them about and now only one is in command of the region shown.

One should not deny any man his day in court. If Mr. Cory feels as he so obviously does, he has every right to speak. Equally, those who disagree with him may speak. Quite apart from any differences over interpretation, the critic has a concern over content and method.

The presentation here is short on facts that complicate any discussion or debate on the People's Republic. Any halfway serious student of Chinese affairs would see the critical biases very quickly. The novice would be well advised to seek elsewhere for a disinterested discussion of the battles, the armament, and the political and social roles of the PLA.

—Reviewed by Col. Angus Fraser, USMC (Ret.).

Defense of the American Soldier

Against the Tide, by Lt. Col. Peter B. Petersen, Arlington House, New Rochelle, N. Y., 1974. 238 pages plus appendices and index. $9.95.

In this work, Colonel Petersen reports on the data and findings of four major research projects he pursued during a six-year period. He acquired his data for these projects by administering the Job Analysis and Interest Measurement questionnaire to: (1) students at the Engineer Officer Candidate School (Fort Belvoir, Va.); (2) a second group of OCS students, and then three years later to these same persons as junior officers; (3) enlisted infantrymen in his battalion, both while they were in Vietnam and after they returned to the United States; and (4) Army officers in the 1972 Army War College class. He later ran comparisons with a total of six subgroups (including each of those already mentioned plus two others).

In addition to reporting the results of these studies, Colonel Petersen devotes a chapter to very brief commentary on forty-three contemporary works on "The American Soldier of the Vietnam War," ranging from Ward Just's *Military Men* to Andy Stapp's *Up Against the Brass*. Petersen feels that the bulk of this contemporary literature presents an unfair picture of the American soldier of the Vietnam era by generating four basic misperceptions: military training changes normal personalities into robots or Machiavellian manipulators; Vietnam combat made returning soldiers a detriment to society; career Army men "are autocratic hardheads incapable of employment in a free society"; privates are portrayed as "pawns," junior officers as "naïve," and senior officers as careerist manipulators. Petersen's essential claim is that his research negates all four of these misperceptions and his results constitute "An Argument in Favor of the American Soldier," the subtitle of his book.

As an "argument," Petersen's writing is episodic at best, repetitively concerned with the technical aspects of his methodology, and perhaps claims too much for his findings. It is not likely that this work will "turn the tide" in favor of the American soldier, partly because it suffers from an ailment which Petersen himself points out: "A problem in connection with many research projects that are conducted in a military environment is that few individuals read the results. . . ." His rather stilted writing style and his concern for reporting methodological details will discourage many readers before they skip on to his summaries. In spite of these shortcomings he provides much attitudinal data that could be extremely useful in the military training enterprise.

Finally, it is necessary to point out a seeming inconsistency in Petersen's concluding reasoning. He claims to have provided empirical data in defense of the American soldier against "misperceptions," yet his ultimate solution is to make recommendations "to solve problems within the Army that tend to generate these misperceptions." One would think that to correct a misperception it is only necessary to provide a correct perception, not to change that which is being perceived.

—Reviewed by Col. Malham M. Wakin, Professor and Head, Department of Political Science and Philosophy, USAF Academy.

New Books in Brief

Notes of a Lost Pilot, by Jean Beraud Villars, translated by Stanley J. Pincetl, Jr., and Ernest Marchand. This journal of a French World War I fighter pilot was published originally in France in 1918. Written with skill and sensitivity, it captures the flavor of air combat in that war. The book is beautifully designed, with striking illustrations by Charles Faust. Shoestring Press, 995 Sherman Ave., Hamden, Conn. 06514, 1975. 285 pages. $12.50.

Silent Victory: The US Submarine War Against Japan, by Clay Blair, Jr. The author of this encyclopedic history of submarine warfare in the Pacific is a former *Time* and *Life* correspondent and one-time editor-in-chief of *The Saturday Evening Post*. He also served in subs during World War II, and is an authority on undersea warfare. Blair pulls no punches in his account of US failures, as well as successes. He concludes that if the Combined Chiefs of Staff had better understood submarine warfare, Japan could have been defeated earlier, and by blockade alone. J. B. Lippincott, New York, N. Y., 1975. 1,071 pages with notes, appendices, and index. $24.95.

These recently published *Adelphi Papers* will be of interest to students of military/political affairs: "Nuclear Forces for Medium Powers: Part I: Targets and Weapons Systems," by Geoffrey Kemp, 41 pages; "Nuclear Forces for Medium Powers: Parts II and III: Strategic Requirements and Options," by Geoffrey Kemp, 34 pages; "The Alliance and Europe: Part I: Crisis Stability in Europe and Tactical Nuclear Weapons," by Wolfgang Heisenberg, 41 pages; "The Alliance and Europe: Part II: Defence with Fewer Men," by Kenneth Hunt, 42 pages; "The Alliance and Europe: Part III: Weapons Procurement in Europe—Capabilities and Choices," by Roger Facer, 48 pages; "The Alliance and Europe: Part IV: Military Doctrine and Technology," by Steven Canby, 42 pages; and "American Foreign Policy in the Nixon Era," by Anthony Hartley, 35 pages. Copies may be ordered from The International Institute for Strategic Studies, 18 Adam St., London WC2N 6AL, England. $1 each postpaid. ■

The Bulletin Board

By John O. Gray
MILITARY AFFAIRS EDITOR, AIR FORCE MAGAZINE

More CHAMPUS Cuts Ahead

Those twenty-nine "changes" to the CHAMPUS program announced in February and March—military people call them "cuts"—are not the end of it.

Those "were the easiest ones to make. . . . We have a bunch of others, at least the same number, perhaps even more . . ." which will appear in a new federal directive on CHAMPUS now under preparation, a Pentagon source disclosed. CHAMPUS is the federally operated medical care program for the 7,800,000 active-duty dependents, retirees, and their dependents.

With CHAMPUS costs soaring, the February–March cuts will save Defense an estimated $10 million in the final quarter of FY '75. Most, however, provide only tiny savings; *e.g.*, deleting coverage of perceptual and visual training, which triggered many protests, will save only $75,000.

The only significant savings in the recent cuts, Defense said, are in the new rule requiring that contractors processing medical bills must use Medicare regulations in determining reasonable fees. This will save an estimated $3.8 million per quarter.

Congress originally provided $489 million in FY '75 CHAMPUS funds, but inflation and other factors raised the projected outlay by $85 million. Shaving $10 million via the twenty-nine "changes" reduces the shortage to $75 million. Accordingly, to keep CHAMPUS alive this spring, Defense medical chiefs recently urged Congress to make available $75 million previously appropriated for weapons projects.

Adding to future CHAMPUS problems is the fact that only 900,000 persons eligible for the program have been using it. More publicity, perhaps via the upcoming CHAMPUS directive, may expand participation—and costs. Hence the emphasis on adding "changes."

"Inversion" Approach Altered

The Pentagon has adopted a new approach to solving the retired pay "inversion" dilemma—tie "saved-pay" language to the Retirement Modernization Act (RMA). The change was suggested by the Administration's Office of Management and Budget.

The inversion problem began with last October's active-duty pay raise. And, without action, it will worsen next October when the next raise—it may be held to five percent—is scheduled.

Honorees at March 27's "Salute to the USAF Noncommissioned Officer" at Scott AFB, Ill., pose with Chief Master Sergeant of the Air Force Thomas N. Barnes, guest of honor and speaker. Sponsored by AFA's Scott Memorial Chapter, the event drew more than 325, including MAC Commander Gen. Paul K. Carlton and representatives from almost all base organizations. From left are SMSgt. Wayne Workman and TSgt. Chet Pinder, NCO Association, which received recognition for its involvement in the 1975 Special Olympics for retarded children; Sergeant Barnes; CMSgt. Theodore N. Constantine, manager of the Scott Officers' Club; SMSgt. Mike Morrissey, MAC Band Superintendent; and MSgt. Robby D. Frank, a leader in the POW/MIA awareness program. Scott Chapter President Hugh L. Enyart presented $50 to support the special olympics. (Photo by W. R. Talley)

Defense authorities originally sought a simple "save-pay" statement that would allow members to retire with annuities not less than those paid persons retiring earlier with similar grades and service.

But OMB has changed that to provide that a member would receive "at least as much pay as he would receive if he had retired at some earlier point in his career." For example, an O-4 might stay on active duty a few more years after becoming retirement-eligible. On eventual retirement, perhaps as an LC, he would receive at least as much pay as he would have gotten had he retired before as a major and received CPI raises.

Defense says this will eliminate a "personalized inversion," but not a "generalized" inversion. The new approach would be less costly to the government and less popular with future retirees.

The RMA, other than for the new inversion language, is expected to remain unchanged from the original retirement overhaul package Defense concocted two-and-one-half years ago. It still contains the controversial Social Security "offset" and gradual reduction from fifty to thirty-five percent in the basic retirement formula.

When Congress ignored RMA and other Defense-backed legislation last year, the measures were returned to the Pentagon. The next step is resubmission to Capitol Hill, but this has dragged on; by mid-April, most Defense proposals had yet to clear OMB. One that had cleared was the plan authorizing involuntary mobilization of 50,000 Reservists for short periods other than in an emergency.

In the meantime, legislation introduced by members of Congress would, if enacted, guarantee that no retiree would receive less in retired pay than those of the same grade and length of service who retired earlier. The legislation would

be retroactive to October of 1967.

The new inversion approach should speed clearance on the RMA, though congressional hearings before July are unlikely.

Other key personnel measures which at press time had still not arrived on Capitol Hill included (1) the now-aging Defense Officer Personnel Management Act (DOPMA); (2) the Reserve Retirement Modernization Act (which would allow retirement at reduced rates before age sixty); and (3) a military per diem and mileage rate increase. A per diem increase bill for government civilians was nearing final congressional approval in late April.

Pending in the Pentagon was a legislative proposal to allow retirees to stop contributing to the Survivor Benefits Plan if their beneficiaries die. The plan would also shorten from two years to one the time a retiree must be married before his widow can collect survivor benefits.

California AFA President John Lee, left, and Mrs. Lee, right, are welcomed by Lt. Gen. Kenneth W. Schultz, SAMSO Commander, and Mrs. Schultz, at a civic leader reception at USAF's facility in El Segundo, Calif.

Reports persist that the government will soon advance a specific plan to eliminate the one percent "add-on" federal-military personnel receive with each retired pay raise. In the House, Rep. David Henderson (D-N. C.) introduced a bill to abolish the add-on, but with a guarantee that CPI raises would occur within two months, rather than the present five, after people qualify for them.

House Armed Services hearings on DOPMA are expected to be held in June, a Committee source said.

Executive Pay Hikes Urged

A recent government report makes a strong case for prompt increases in top executive, legislative, and judicial salaries. Affected would be:

1. The 2,400 members of the executive agencies, federal judiciary, and Congress. Their salaries are frozen at different levels from $36,000 to $60,000.

2. The 14,700 civil servants whose annual pay is frozen at $36,000. This includes the GS-16 through GS-18 "supergraders" plus 4,464, or nineteen percent, of the top three-step GS-15s.

Lifting those ceilings would also remove the $36,000 salary lid on the basic pay of generals and admirals.

The salary freezes began in 1969. Since then inflation has soared and executive pay in the private sector and the pay of other federal employees have increased sharply. The report claims that positions in private enterprise "equivalent to the Civil Service supergrades" (GS-16 to GS-18) now pay $45,000 to $71,000.

The report, prepared by the General Accounting Office for the Senate and House, rips into the present system and the "salary compression" resulting from the long freeze. And the pay ceilings also adversely affect future retirement earnings, because federal pensions (other than the military's) are based on the three highest salary years.

The freeze also drives high-caliber people out of government, the report states.

"Leave Selling" Controversy

"It's another cut in military benefits." That's what numerous enlisted members of all the services are saying about the Pentagon's plan to slash "leave selling." It calls for halting lump-sum payments for unused leave at each reenlistment. Instead, enlisteds would, like officers do now, receive one payment at separation or retirement. The reductions, over a full career, could add up to several thousand dollars.

When the Defense Department gets the proposal to Congress, chances of enactment are considered good by Pentagon officials. However, payments at each reenlistment have been in effect for twenty-nine years and have come to be regarded by most members as part of a person's total compensation.

Elmer B. Staats, the Comptroller General who heads the General Accounting Office, figures the move will save the government $150 million annually in reduced leave outlays.

The Defense Department, at Staats's urging, said in January that it would develop a legislative proposal that "will make enlisted entitlement to payment for unused accrued leave approximately equivalent to the entitlements of the officer corps." Actually, Defense is not hurrying. By late April the services had yet to "coordinate" on the proposal, an authority told AIR FORCE Magazine.

Enlisted members, meantime, have pounced on Defense's statement about making enlisted leave payments "approximately equivalent" to officers'. Defense's own budget figures show that the average lump-sum payments in FY '75 range from about $500 for an E-4 to $2,000 for an E-9. Officer payments range from about $3,000 for O-4s to $6,000 for generals.

"There's no way that is 'approximately equivalent,' " one NCO growled.

Assistant Defense Secretary (Manpower and Reserve Affairs) William K. Brehm did say that the Department may crank into the legislative plan "some sort of a 'save-pay' provision" for persons near the end of a current hitch.

GAO, the government's watchdog on federal spending, called its study of the leave payment question the "Need to Eliminate Incentive for Accumulating Military Leave."

The Pentagon last July launched a campaign to get service people to use more of their leave, so that "selling it back" would be less costly. But Mr. Brehm told GAO the move wasn't reducing lump-sum payments significantly. Defense's total lump-sum leave payments have exceeded $400 million each of the past three fiscal years.

New "People" Study Launched

Hq. USAF has formed a large study group to find ways to improve the job performance and quality of life in the Air Force. Called the Management Improvement Group, the *ad hoc* unit is headed by Maj. Gen. Kenneth L. Tallman, the USAF Director of Personnel Plans. Membership includes Hq. USAF officers and NCOs plus others TDY from

commands and field units. It has set up offices at Bolling AFB, D. C.

General Tallman said the study was not formed in response to any organizational or personnel problems, but because "it's simply good management to seek ways to more fully develop our present work force."

A spokesman said the far-reaching study will examine such areas as the work environment, professional development, personal communications, and family environment. The unit's mission, he said, "is to identify actions that will provide a foundation for human resources development on a long-term, sustaining basis. Its activities will be a full-time effort lasting several months."

"Palace Chase" Helps Reserves

The early transfer of about 17,000 active-duty members to the Air Reserve Forces during the past few years has played an important role in keeping Reserve components' manpower near normal.

And "Palace Chase," the vehicle members take to switch to the Air Reserve or Air National Guard, will remain open during the 1976 fiscal year. The transfer goals will remain the same as this year—150 officers and 4,200 airmen—and officials expect to attain both of them.

From FY '72 through FY '74, some 620 officers and 12,300 airmen made the switch. Transferees must serve two years in the Reserves for each unserved year in the Regular establishment.

Air Guard strength, now some 94,000, is scheduled to increase about 1,000 in the near future. The Air Reserve, now about 46,000, hopefully will expand to 53,000 in the immediate years ahead. AFRES has beefed up its recruiting force. Its most critical skill shortages—loadmasters and flight engineers—continue in its Associate C-5 and C-141 airlift units.

Despite manning difficulties, however, AFRES for the first time was recently able to pronounce all its flying units "combat ready." The number of flying units in both components—ninety-one in the Air Guard and fifty-three in AFRES—will remain unchanged in the next fiscal year.

All in the family for the Greimans. All four have joined the Illinois ANG. Recruiter for the 126th Air Refueling Wing SSgt. Leslie Muchow with, from left, Leroy, Bill, Cindy, and Mae.

The influx of experienced pilots via the Palace Chase program has helped ease the components' reliance on new flyers direct from Air Training Command. In the fiscal year ahead, AFRES plans to get only twenty-one new pilots and four new navigators from USAF flying training schools.

Early Retirement, Anyone?

Restrictions on retirements have been waived, and Headquarters is hoping for a large outpouring of volunteers, airmen as well as officers. Each officer who voluntarily retires means one less RIF among younger officers, and airmen volunteers will help ease the growing possibility of enlisted RIFs.

Groups that can now seek early retirement from July 1975 through June 1976 include: (1) promotees after only six months in the new grade; (2) members overseas with twelve months or less to go on a tour; and (3) airmen with service commitments resulting from training. Officer service commitments may be waived also, although not entirely for members who have completed a professional military school or an AFIT-sponsored education course.

Air Force must undergo a net reduction of at least 5,800 officers and 17,000 airmen in FY '76. The voluntary early retirement project is just one of many efforts the service is making in that direction. No additional officer involuntary retirement schemes are on the horizon (other than those already in force for non-Regulars), Headquarters said. Army has been considering pressuring certain Regular officers into retirement.

Crucial Selections Under Way

The first week of this month could be crucial for some of the 6,400 active-duty Reserve officers being considered for Regular commissions in four specific year groups. Selection—only small percentages will be selected—means immunity from those new RIFs that are just around the corner. The selection board, which convened June 2, considered these numbers of eligibles: four-year group, 3,460; seven-year group, 2,420; ten-year group, 515; and sixteen-year group, five.

Too Many Holidays

US federal and military employees normally get off on the nine US holidays—when they are stationed in this country. But many of the 675,000 civil servants and service members serving abroad enjoy more days off than that, via a combination of US and local holidays.

A recent GAO study notes, for example, that "most DoD employees" in Spain got twenty-three holidays in 1973. Some in Brazil enjoyed twenty-four. In the Philippines, the number ranged from nine to twenty days, depending on which of the eleven US agencies the employees worked for.

Holiday policies differ widely among agencies and often are vague, the study found. GAO wants the Administration to get a better handle on the problem.

Civilian Cuts in USAF Only

Programmed cuts in the size of the other services' civilian employee forces have ended. The Navy, in fact, is scheduled to expand by some 3,500 workers, mainly in Navy shipyards. But USAF is scheduled to drop another 10,000 civilians in FY '76, with Logistics Command losing the lion's share. It will probably mean a small RIF.

Army and Navy/Marine Corps civilian strengths are holding around 335,000 and 322,000, respectively. Even the Defense agencies (*e.g.*, Defense Supply Agency) are slated to hold their present combined level of 73,000 workers. These plans are subject to congressional approval.

Affirmative Action Plan Launched

Base personnel shops recently received a package of instructions

Ed Gates . . . Speaking of People

Turning the Spotlight on Alcohol Abuse

Increasing numbers of those USAF members with heavy drinking habits are no longer keeping the matter to themselves or resisting help; rather, they are voluntarily stepping forward for treatment. Or their superiors and associates are nudging them in that direction. The medics, who have been known to overlook certain patients' overimbibing, are identifying numerous problem drinkers for in-service help.

These changes spring from Air Force's Alcohol Abuse Control Program, which, though in operation nearly a decade, first received strong top-level backing in 1973.

The previous year, only 592 USAF people underwent antialcohol treatment, although authorities estimate that four to five percent of the force may have drinking problems. This compares with various estimates that four to eight percent of the entire US population may experience such difficulties.

With USAF's drive gaining momentum, the number of members who began antialcohol treatment at bases last year reached 3,250. And the statistics for recent months indicate a much higher participation rate for 1975, according to Lt. Col. R. E. Strickland, Chief, Drug and Alcohol Abuse Control Branch, Hq. USAF.

He and his associate, Maj. William S. King, noted that of the 3,250 Air Force people who began local rehabilitation treatment last year, 1,177 came forward on their own. Of the others, 1,473 were identified by commanders and supervisors, 162 by medical officers, and 438 by "the law-enforcement community."

More and more people are starting to admit that they have a problem and want help, Colonel Strickland and Major King said. The officers, though pleased with this progress, feel there's a long way to go. After all, if four percent of the USAF membership has drinking problems, that's nearly 25,000 persons.

Actually, any figure is a guess. There's really no way of knowing the exact extent of the problem, though Colonel Strickland doubts that it's any worse than in the past. The important thing, he told AIR FORCE Magazine, is that the Air Force leadership has turned the spotlight squarely on the problem and significant dividends are showing up.

The dividends are in the form of improved performance and conduct. Getting an electronics technician back to full-time duty; returning an experienced pilot to flying status; helping any member overcome a possible alcohol-related failing such as writing bad checks—these are some of the payoffs in the alcohol abuse drive.

Put another way, helping members overcome drinking woes is basically good business for the Air Force. And, as a secondary thrust, the effort is humanitarian.

The fact that an officer or an airman drinks is not USAF's concern. It's when overconsumption impairs his work or behavior so that a problem surfaces that Air Force steps into the picture. Colonel Strickland and Major King say that the Air Force is "not antialcohol," as some critics have charged.

Headquarters has encouraged commands to remove some of the trappings and gimmickry that have enhanced liquor sales at base clubs, such as their "happy hours." But it has not invoked sweeping curbs such as closing all club bars throughout duty hours, though several commands have done so on their own.

Top management, meantime, recently conducted a joint Air Staff/major command alcohol workshop, and it has fired out new messages giving commands more guidance and instructions on the overall program.

Perhaps the most significant message yet went to all major air commanders in late March over the signature of Chief of Staff Gen. David C. Jones. "There still exists a tendency," he said, "to ignore the [alcohol] problem or to protect the individual from the consequences of irresponsible drinking." He wants an end to it.

In other words, the local commander who closes his eyes when he learns that one of his troops is drinking more than he can handle is not extending any favors; chances are he's doing the person a disservice.

"Our policy toward alcohol abuse is simple and straightforward—help people help themselves," the Chief said. "The emphasis," he continued, "is on identifying and assisting those with drinking habits who are creating problems for themselves and for the Air Force. To this end, we must take the initiative in providing them with early preventive assistance."

General Jones also made clear that the problem drinker "who refuses assistance or does not respond to treatment" may soon be ex-Air Force. The message also called on commanders to expand their information and counseling services.

In April, another all-commands communication from Hq. USAF announced a new phase of the overall project, called the Concerned Drinker Program. It sets up procedures for persons to volunteer in confidence for assistance before they actually get into trouble.

Base rehabilitation treatment varies by individual, though it normally keys on help from medical officials and professional counselors. Some members shake their problems by this arrangement. Some join local Alcoholics Anonymous groups for continuing therapy.

Persons requiring more intensive treatment are sent to one of the Air Force's nine Alcohol Treatment Centers, located at the following bases: Wright-Patterson, Ohio; Eglin, Fla.; Lackland and Sheppard, Tex.; Travis, Calif.; Scott, Ill.; Wiesbaden, Germany; Lakenheath RAF, U. K.; and Clark, P. I.

Last year, 817 Air Force members were patients at the treatment centers for varying periods, and about three-quarters of them eventually returned to duty. The others were discharged. A few who returned to duty later slipped back into their former habits.

While it is difficult to pin a specific savings figure on the salvage efforts, authorities estimate the cost of operating the treatment centers is repaid about fourfold by the saved productivity of those returned to duty.

The Air Force has moved faster on the sensitive alcohol abuse issue than the military establishment generally, but the Defense Department is not ignoring the matter. It recently engaged Systems Development Corp., a respected behavorial research organization, to conduct an in-depth study of the services' programs to control alcohol abuse and recommend areas for improvement. Air Force officials are looking forward to making good use of the findings when the study is completed later this year. ■

The Bulletin Board

spelling out exactly how they will carry out the Air Force Equal Opportunity Affirmative Action Plan.

AAP, an outgrowth of the service's five-year-old Equal Opportunity Program, concentrates on several military personnel "objectives" where "positive results," primarily for minority and women members, will be achieved. They include commissioning opportunities, on-the-job training, education, retraining, personnel utilization, airman promotions, separation actions, and awards and decorations.

The instructions for separation actions, for example, "Insure that separation procedures are applied fairly without regard to race and sex."

For retraining, the guidelines declare that minority airmen will be "afforded an opportunity to retrain from skills with a high concentration of minorities to skills with a low concentration of minorities."

Required follow-up actions, detailed reports on progress and participation rates, etc., are included for each objective.

Short Bursts

For **family housing utility costs** in all the services in FY '76, the Pentagon originally budgeted $260 million. But as FY '76 drew near (it starts next month), the estimate—because of soaring costs—has been hiked to $321 million. If there is a favorable side to all this, it concerns occupants of government housing. They don't have to pay utility bills.

Who said military people, because they've done a bit of traveling during twenty to thirty years in uniform, stay put when they retire? Not so. The USAF Finance Center, the dispenser of retiree pay checks, says it receives **15,000 address changes a month!**

Air Force launched its annual **Savings Bond Campaign** last month, in the wake of statistics showing declining purchases among both military and civilian employees of the four services. During the second half of last year, USAF military participation dropped to thirty-one percent, ahead of Navy but far behind Army's forty-five percent. Among civilian employees, Army led with fifty-six percent, and USAF was second with nearly fifty-four percent. Reverse the trend of slumping participation and sign up, Headquarters is urging all hands.

With more **women entering the Air Force**—the target is 48,000 by FY '78—the matter of uniform and accoutrements assumes more importance. Like jewelry. USAF has long prohibited wearing necklaces, pendants, earrings, and bracelets with the uniform. Now it's made a concession: "small white pearl earrings" are OK with the evening dress outfit.

While each new service member "executes a contract with the government to support and defend the Constitution," the person receives no contract in return. So declares the National Association for Uniformed Services, an Arlington, Va.-based organization of 40,000 members representing all the military services. NAUS particularly wants **contracts that clearly cover salary and entitlements** such as medical care, food, clothing, housing, and retirement provisions. It is one of many organizations protesting threatened cuts in commissary operations.

Veterans Administration aides recently checked up on the 1,000 living **Spanish-American War veterans** (out of 392,000 who participated in that war seventy-eight years ago), and learned that 180 live in California. The oldest, Morton Nelson of Whitestown, Ind., is 105. One ninety-eight-year-old plays golf regularly, and one old-timer declined to talk about a possible increase in his VA pension.

Headquarters has a significant **message for officers seeking high office** and star rank: Air Force "provides the opportunities" for advancement, *e.g.*, education, training, and professional schools, but it's up to the individual to take advantage of them.

Defense Secretary **James R. Schlesinger** will speak at the 17th graduation of the Air Force Academy, June 4.

Air Force wants to stamp out the **apparently widely held notion** that less-than-honorable discharges are automatically upgraded six months after separation. The only route for seeking a cleaner discharge is via application to the USAF Discharge Review Board, to which there are about 1,500 appeals annually.

SMSgt. Melvin A. Lackey, a sector supervisor for the USAF recruiting effort in the Jackson, Miss.-Montgomery, Ala., area was named Air Force Recruiting Service's Outstanding Senior NCO for 1974. And with good reason: He obtained an incredible 875 enlistments, against a goal of 276.

Separation from the Air Force for pregnancy is no longer involuntary. It's now up to the women—they will stay in service unless they request to leave. In either event, they are entitled to care in military hospitals (but not CHAMPUS care). One very important change resulting from the new policy: Departees will no longer receive separation pay, which for officers goes up to $15,000 (there is no enlisted separation pay authority).

The **Community College of the Air Force** has extended eligibility in its study programs to enlisted Air Force Reservists and Air Guardsmen in units and mobilization assignments.

Senior Staff Changes

RETIREMENTS: B/G John F. **Barnes;** L/G Ernest C. **Hardin,** Jr.; M/G Jeanne M. **Holm;** B/G Evan W. **Schear;** B/G Clifford **Schoeffler.**

CHANGES: Col. (B/G selectee) Anderson W. Atkinson, from Chief, Pacific Div., J-3, Jt. Staff, OJCS, Washington, D. C., to Asst. Dep. Dir. (Comd. & Control), J-3, Jt. Staff, OJCS, Washington, D. C. . . . **B/G Bruce K. Brown,** from Dep. Dir. (Strat. & Gen. Ops.), J-3, Jt. Staff, OJCS, Washington, D. C., to Dep. Dir., J-3 (NMCC), Jt. Staff, OJCS, Washington, D. C. . . . **B/G William L. Nicholson III,** from Asst. Dep. Dir. for Force Dev. & Strat. Plans, J-5, Jt. Staff, OJCS, Washington, D. C., to Dep. Dir. (Strat. & Gen. Ops.), J-3, Jt. Staff, OJCS, Washington, D. C., replacing B/G Bruce K. Brown . . . **B/G John M. Rose, Jr.,** from Cmdr., Def. Log. Svcs. Cen., DSA, Battle Creek, Mich., to Cmdr., Def. Property Disposal Svc., DSA, Battle Creek, Mich. . . . **B/G (M/G selectee) Robert E. Sadler,** from Dep. Dir., Comd. Control & Comm., DCS/P&R, Hq. USAF, Washington, D. C., to Dir., J-6, Jt. Staff, OJCS, Washington, D. C. . . . **B/G Leland C. Shepard, Jr.,** from C/S, JUSMAG, Seoul, Korea, to DCS/Personnel, MAC, Scott AFB, Ill. . . . **B/G Garry A. Willard, Jr.,** from DCS/Plans & Ops., AFLC, Wright-Patterson AFB, Ohio, to Dep. ACS/J-3, UNC/US Forces, Seoul, Korea . . . **B/G Charles D. Youree, Jr.,** from Asst. Dep. Dir. for Politico Mil. Affairs, J-5, Jt. Staff, OJCS, Washington, D. C., to Dep. Dir. for Politico Mil. Affairs, J-5, Jt. Staff, OJCS, Washington, D. C. ■

PLAN NOW TO ATTEND . . .

AFA's 1975 Annual National Convention and Aerospace Briefings and Displays

September 15, 16, 17, 18
Washington, D.C.

AFA's 1975 Annual National Convention and Aerospace Briefings and Displays will be held at the Sheraton-Park and Shoreham-Americana Hotels, September 15-18. Accommodations are limited at the Shoreham-Americana Hotel and will be used primarily by other organizations meeting in conjunction with AFA's 1975 National Convention.

All reservation requests for rooms and suites at the Sheraton-Park Hotel should be sent to: Reservations Office, Sheraton-Park Hotel, 2660 Woodley Road, N.W., Washington, D.C. 20008. Be sure to refer to AFA's National Convention when requesting reservations. Otherwise, your reservation requests will not be accepted by the Sheraton-Park.

AFA's National Convention activities will include luncheons for the Secretary of the Air Force, and the Air Force Chief of Staff and the Air Force Anniversary Reception and Dinner-Dance. The National Convention will also include AFA's Business Sessions, Symposium, and several other invitational events, including the President's reception, the Annual Outstanding Airmen Dinner, and the Chief Executive's Reception and Buffet Dinner.

We urge you to make your reservations at the Sheraton-Park Hotel as soon as possible to insure obtaining your reservations. Arrivals after 6:00 p.m. require guaranteed payment for the night of arrival.

'THEY COULD HAVE

Flanking Benny Goodman are, from left, Air Force Secretary John L. McLucas, Gen. David C. Jones, Chapter President Bill Bailey, and Gen. George S. Brown.

J. Gilbert Nettleton, left, Twelfth National Air Force Salute chairman, and Air Force Secretary and Mrs. John L. McLucas heed a point from Dottie Welker.

Floyd D. Hall, Chairman and Chief Executive Officer of Eastern Airlines, accepts a Milton Caniff memento from Martin M. Ostrow, AFA Board Chairman.

THE "King of Swing," Benny Goodman, was the feature attraction at the Iron Gate Chapter's Twelfth National Air Force Salute, held in the Grand Ballroom of New York City's Americana Hotel on Friday evening, March 21. The music of the "Swing Years" brought an evening of nostalgia to some 900 guests who packed the dance floor and crowded the bandstand (*see photo*) just as they did in the late 1930s and early '40s.

The guest of honor was Sen. Stuart Symington (the first Secretary of the Air Force). Also on hand were the Chairman of the Joint Chiefs of Staff, Gen. George S. Brown and Mrs. Brown; Air Force Secretary John L. McLucas and Mrs. McLucas; Air Force Chief of Staff Gen. David C. Jones and Mrs. Jones; DoD Director of Defense Research and Engineering Malcolm R. Currie; and Air Force Association Board Chairman Martin M. Ostrow and Mrs. Ostrow. Present, too, were Gen. and Mrs. Samuel C. Phillips; Gen. and Mrs. Robert J. Dixon; and Gen. and Mrs. William V. McBride.

More than 250 ranking military, congressional, and civilian guests from Washington flew to New York aboard a Chapter-chartered plane to join aerospace leaders and New York society in this annual black-tie, fund-raising event. The major beneficiaries are the Air Force Assistance Fund (Air Force Aid Society, Air Force Village, and Air Force Enlisted Widows Home) and the Aerospace Education Foundation.

The Chapter's top award, the Maxwell A. Kriendler Memorial Trophy, went to Senator Symington in recognition of his outstanding support of aerospace power for the preservation of world peace; and to J. Raymond Bell, former Chapter President and Chairman of three Salutes, in recognition of his distinguished service to the Iron Gate Chapter. The Kriendler Trophy is named in memory of the Chapter's founder and innovator of the Salutes.

Most out-of-town guests elected to remain in the city and attend a United Nations Sunday Brunch hosted by J. William Bailey, President of Overseas National Airways and President of the Iron Gate Chapter.

The Thirteenth National Air Force Salute is scheduled for New York City in late March of next year.

—JOHN GRAY

DANCED ALL NIGHT'

Observing that "the dance floor is empty," Benny Goodman brought the crowd of some 900 at the Iron Gate Ball surging forward in the style of the 1930s and '40s to get a closer look, and better earful, from the "King of Swing." Goodman and his band played the tunes that he has made popular over the past four decades.

J. Raymond Bell, past Chapter President, accepts one of two Maxwell A. Kriendler Memorial Trophies honoring the Chapter's founder, from Bill Bailey, the current President.

Gen. Robert J. Dixon, Commander of Tactical Air Command, chats with Mrs. George S. Brown, wife of the Chairman of the Joint Chiefs of Staff, during the gala festivities.

Sen. Stuart Symington, the first Air Force Secretary, holds a Maxwell A. Kriendler Trophy presented by Mac's brother, Peter Kriendler, left. Senator Symington was guest of honor.

By Don Steele
AFA AFFAIRS EDITOR

THE HARRY S. TRUMAN CHAPTER, MISSOURI . . .

cited for consistently effective programming in support of the mission of AFA, most recently exemplified in its dinner-dance salute to the Air Force Communications Service.

Jon R. Donnelly, President of the Richmond, Va., Chapter, admires a plaque naming him a Jimmy Doolittle Fellow of the Aerospace Education Foundation, AFA's education affiliate. Chief Master Sergeant of the Air Force Thomas N. Barnes was guest speaker at the Chapter's dinner meeting and awards program. Seven of the ten Chapter members who contributed $100 each toward the Doolittle award, shown with Mr. Donnelly, are, from left, Kenneth A. Rowe, Chapter Secretary Robert E. Noziglia, Nell November, Wilmer L. Goodrich, W. Park Lemmond, Jr., Willard G. Plentl, and Chapter Vice President William E. Haymes. Goodrich, Plentl, and Rowe are Past Presidents of the Chapter. Contributors not shown are Billy F. Holcombe, Judge William E. Spain, and Reginald H. Pettus. (Photo by Robert A. Flournoy, Virginia ANG.)

AFA President Joe L. Shosid was the featured speaker at the Harry S. Truman Chapter's recent dinner dance, headlined a "Kansas City Style Salute to the Air Force Communications Service." The evening's program was also highlighted by a brief visit and remarks from Missouri Gov. Christopher S. Bond. The K. C. Dixieland Band of the Rockets, led by Chapter President Howard McHenry, left, provided entertainment. Shown with Mr. McHenry are, from left, Charles Church, Chapter Board Chairman; Mr. Shosid; Maj. Gen. Donald L. Werbeck, Commander, Air Force Communications Service; Brig. Gen. Alvin J. Moser, Commander, 442d Tactical Airlift Wing; and Ray Peterman, Chapter Treasurer. In recognition of the Chapter's continued outstanding programming and activities—such as the dinner dance itself, the Chapter's Paul R. Stoney Scholarship Awards Program for airmen at Richards-Gebaur AFB, its Distinguished Service Awards Program for military personnel at the base, and its presentation of fifty state flags to the Harry S. Truman Memorial Library—AFA President Shosid named the Harry S. Truman Chapter as AFA's "Unit of the Month" for June.

Claude Witze, center, Senior Editor of AIR FORCE Magazine, was guest speaker at the recent annual Ladies' Night dinner meeting of AFA's Grand Strand Chapter of Myrtle Beach, S. C., held in the Myrtle Beach AFB Officers' Open Mess. Getting together at the affair are, from left, Chapter President Col. Storm C. Rhode, USAF (Ret.); Maj. Gen. James F. Hackler, USAF (Ret.); Mr. Witze; Col. Douglas N. White, USAF (Ret.), Myrtle Beach City Manager; and Col. Michael G. Fillman, Commander, 354th Tactical Fighter Wing, at Myrtle Beach AFB. (USAF Photo)

Col. Donald Hawkins, Director of the Defense Mapping Agency Aerospace Center in St. Louis, and Donald Kuhn, President of AFA's Greater St. Louis Chapter, kick off the April AFA membership drive by putting the finishing touches to an outdoor display at the Center. Colonel Hawkins is volunteer cochairman of the Chapter's membership committee.

More than 300 Junior ROTC cadets from three Panama City, Fla., high schools were guests at a field day at Tyndall AFB cosponsored recently by AFA's Panama City Chapter and the Air Defense Weapons Center at Tyndall. Chapter President Bill Truxal and Chapter Secretary Hank Basham, who is Director of Information for the Weapons Center, made the arrangements. Preparing for the event are, from left, Lt. Col. John E. Bynak, USMC, Senior Military Instructor at Mosley High School; Truxal; Col. Joseph Phinney, Vice Commander of the Center; Lt. Col. Joseph Riley, Aerospace Education Instructor (AEI) at Bay High School; and Lt. Col. Dick Atchison, AEI at Rutherford High School.

Col. H. J. "Jerry" Dalton, newly assigned Deputy Director of Information, Office of the Secretary of the Air Force, here receives, from Texas AFA President Vic Kroget, a set of Texas spurs to "spur him on" in his new job. The presentation was made at a farewell luncheon given by the Texas AFA staff for Colonel Dalton as he departed his assignment as Director of Information for Air Training Command, Randolph AFB, Tex. An energetic and enthusiastic AFA supporter, Colonel Dalton was Texas AFA's "Officer of the Year" in 1973.

A banquet honoring Lt. Gen. Kenneth W. Schultz, Commander of the Air Force Space and Missile Systems Organization (SAMSO), was held during the California AFA's 1975 Mid-Year Conference in North Hollywood recently, and featured an address by AFA President Joe L. Shosid. Head-table guests were, from left, California AFA President John Lee; Mr. Shosid; General Schultz; AFA Board Chairman Martin M. Ostrow; and Hal Parks, President of the Jimmy Doolittle Chapter that hosted the conference. During the program, the California AFA presented its 1975 Distinguished Service Award to General Schultz in recognition of his enthusiastic participation in State and Chapter activities.

Brig. Gen. Edward J. Haseltine, seated, USAFR (Ret.), Vice Chairman of the Bank of New Hampshire, was guest speaker at a recent dinner meeting of AFA's Amoskeag Chapter. He goes over the evening's program with, from left, Chapter President Wilfred B. Corriveau, Jr.; Leo Lass, Chapter Program Chairman; and R. L. "Dev" Devecoux, President of the New Hampshire AFA.

Dr. Michael Yarymovych, second from right, guest speaker at the March meeting of AFA's H. H. Arnold Memorial Chapter, is shown a layout of the Arnold Engineering Development Center (AEDC), Tenn., by Dr. James Mitchell, Chief, Requirements Planning Division, AEDC. Looking on are Chapter President Tom Bigger, left, and Col. Joseph Regan, AEDC Vice Commander. Dr. Yarymovych, who at the time was the USAF Chief Scientist and is now Assistant Administrator for Laboratory & Field Coordination, Energy Research and Development Agency, spoke on "Future Trends in Air Force Research and Development." (USAF Photo)

COMING EVENTS IN AFA

Ak-Sar-Ben Chapter's Arthur C. Storz Awards Luncheon, Omaha, Neb., June 4 . . . **Wisconsin AFA Convention,** Milwaukee, June 6–7 . . . **Virginia AFA Convention,** Lynchburg, June 7 . . . **Texas AFA Convention,** Hilton Palacio Del Rio, San Antonio, June 13–15 . . . **Oregon AFA Convention,** Bowman's Mt. Hood Resort, June 13–15 . . . **Ohio AFA Convention,** Ramada Inn, Springfield, June 14 . . . **Pennsylvania AFA Convention,** Hershey Motor Lodge, Hershey, June 20–21 . . . "New Trends in Systems and Logistics," a symposium cosponsored by the **Ohio AFA** and the **Dayton Chapter of the National Security Industrial Association,** Air Force Museum Auditorium, Wright-Patterson AFB, Ohio, June 24 . . . **New Jersey AFA Convention,** Playboy Club, Great Gorge, June 27–29 . . . **Oklahoma AFA Convention,** Oklahoma City, June 27–29 . . . **North Carolina AFA Convention,** Pope AFB, June 27–28 . . . **Georgia AFA Convention,** Royal Coach Motor Hotel, Atlanta, June 28–29 . . . **Charleston Chapter's** 7th Annual Invitational Golf Tournament, Charleston AFB, S. C., July 4–6 . . . **New York AFA Convention,** Tarrytown Hilton, Tarrytown, July 11–13 . . . **AFA National Convention and Aerospace Development Briefings and Displays,** Sheraton-Park Hotel, Washington, D. C., September 14–18.

Officials of AFA's Reno, Nev., Chapter meet with Strategic Air Command leaders during a recent orientation visit by Reno community leaders to SAC Headquarters at Offutt AFB. Pictured are, from left, Carl Peterschmidt, Chapter Vice President; Lt. Gen. James M. Keck, Vice Commander in Chief, SAC; Maj. Gen. John W. Burkhart, DCS/Plans, SAC; Clarence Becker, Chapter member; Brig. Gen. (Maj. Gen. selectee) James L. Brown, DCS/Intelligence, SAC; and James Murphy, the Chapter President.

Showing off his western hat and a scroll naming him an honorary citizen of Fort Worth just presented to him is Maj. Gen. John P. Flynn, Commander, Air Force Military Training Center (ATC), Lackland AFB, Tex. General Flynn, the highest ranking prisoner of war held by the North Vietnamese, spoke at a joint meeting of AFA's Fort Worth Chapter and Fort Worth Airpower Council. He told the groups that a nation's foreign policy is directly dependent on its military strength and the will to use it. General Flynn also expressed concern over the dwindling percentage of the US Gross National Product being spent on defense. With him are Chapter President Felix Ankele, center, and Council Chairman Herman F. Stute, Jr.

Maj. Gen. Charles I. Bennett, USAF (Ret.), a member of AFA's Jacksonville, Fla., Chapter and one of the founders of AFA's Merced and Guam Chapters, brought the AFA message to commanders and representatives of eleven American Legion Posts representing more than 5,000 Florida Legionnaires at a recent Tri-County Council meeting. General Bennett's message was so well received that a retired US Navy chief petty officer and a former US Army sergeant applied for membership in AFA's Jacksonville Chapter as an immediate result. Shown with General Bennett, center, are Tri-County Council Commander Robert W. Sowerby, left, and Department of Florida Vice Commander Calvin Gray.

The Portland, Ore., Chapter's annual Winter Rendezvous, held recently at the Thunderbird Inn at Jantzen Beach, featured an address by Sen. Barry Goldwater (R-Ariz.). Vince Barnett, a veteran movie actor and aviation pioneer, was master of ceremonies. In his address, Senator Goldwater blasted military cutbacks and said the United States must maintain its military strength to preserve world peace. Head-table guests included, from left, Mrs. Robert Hilbers, wife of the Chapter President; Sherman W. Wilkins, Vice President of AFA's Northwest Region; Senator Goldwater; and Dr. Clayton Gross, a Past President of the Chapter and the Oregon AFA, and cochairman of the dinner.

Freshman Congressman Herbert E. Harris II (D-Va.) was guest of honor and speaker at a recent dinner meeting of AFA's Northern Virginia Chapter. During the program, Chapter President Thomas Anthony presented Congressman Harris a three-year membership in AFA. In the photo are, from left, Richard C. Emrich, Vice President for AFA's Central East Region; John Pope, Past President, Virginia AFA; Congressman Harris; Chapter Treasurer Everett J. Burlando; Chapter President Anthony; Chapter Vice President William A. Vogel; Clifford Dougherty, Judge Advocate, Virginia AFA; Virginia AFA President Lester Rose; and Brig. Gen. William McCall, Chief of Staff, D. C. Air National Guard and a Past President of the Chapter.

During a recent meeting of AFA's Spudland, Maine, Chapter, in the Loring AFB Officers' Club, Chapter President Alban E. Cyr presented Loring AFB a commemorative montage of early American coins, paper money, and paintings "in recognition of the long history of military contributions to America's heritage." Col. Robert E. Chapman is shown accepting the montage from Mr. Cyr, as Col. Russell S. Morton, left, Loring AFB Commander, and William J. Anderson, Caribou's mayor and Chapter Vice President, look on.

Maj. Gen. George W. McLaughlin, right, Sacramento ALC Commander, was guest of honor at a recent annual awards dinner sponsored by AFA's Sacramento, Calif., Chapter at the McClelland AFB Officers' Open Mess. Chapter President Col. Robert Cochran, USAF (Ret.), left, presented a desk set to General McLaughlin in recognition of his outstanding support of AFA goals. Nathan H. Mazer, an AFA National Director and former AFA National Secretary, was guest speaker at the event. AFA National Director George Douglas of Denver, Colo., was a special guest.

Guest of honor at the annual Reserve Officers Association Military Ball held recently in Cincinnati, Ohio, was Miss Betty Donovan, military editor for thirty years with the Cincinnati Post and Times-Star, who received a silver wine cooler in recognition of her loyal service and support of the nation's military forces over the years. AFA's Cincinnati Chapter together with the Cincinnati Navy and Karger Chapters of ROA made the presentation. Participating in the ceremonies are, from left, Maj. Gen. Homer I. Lewis, former Chief of Air Force Reserve, now retired; Miss Donovan; Col. Elmer Reis, USAF (Ret.), Karger Chapter President; John Drummy, Cincinnati Navy Chapter President; and Robert J. Erman, Lt. Col., USAFR, AFA's Cincinnati Chapter President.

Gen. Russell E. Dougherty, Commander in Chief, Strategic Air Command, was guest of honor and speaker at a recent meeting of AFA's Rushmore, S. D., Chapter at the Ellsworth AFB Officers' Club. At the event, Chapter President Don White presents Mrs. Dougherty a gift of Black Hills gold as General Dougherty looks on.

Connecticut AFA President Margaret McEnerney, left, pins AFA's Bronze AFJROTC Medal on Cadet Maj. James Lapan, as Pasquale F. Nappi, Danbury, Conn., Superintendent of Schools, looks on. The presentation was made during the Danbury High School AFJROTC Squadron's Sixth Annual Military Awards Banquet.

Lt. Gen. Kenneth W. Schultz, Commander, Air Force Space and Missile Systems Organization, and a native of Buffalo, N. Y., was honored as Western New York State's "outstanding military aviator" at a recent meeting of AFA's Lawrence D. Bell Chapter, N. Y. The guest speaker was Lt. Gen. John O'Neil, USAF (Ret.), a former SAMSO Commander. Shown in the photo are, from left, Robert Kelso, President, Calspan Corp.; General O'Neil; Chapter President Wayne Hawk, who also is Executive Vice President of Moog Inc.; General Schultz; and William G. Gisel, President of Textron's Bell Aerospace Division and the founder and first President of the Lawrence D. Bell Chapter.

During her recent visit to McGuire AFB, N. J., Miss Shirley Cothran, Miss America 1975, received an AFA Certificate of Appreciation for her "continuing efforts on behalf of all the men and women of the United States Air Force." The presentation was made by Maj. Gen. Lester T. Kearney Jr., Commander, Twenty-first Air Force, on behalf of AFA President Joe L. Shosid.

During a recent visit to Hq., Military Airlift Command at Scott AFB, Ill., AFA President Joe L. Shosid presented an AFA membership award to the Scott Memorial Chapter, recipient of the award for the second consecutive year. Participants in the ceremony, held during a program at the Scott AFB NCO Open Mess, are, from left, MSgt. Jerry McCabe, a member of the Chapter's Advisory Committee; Mr. Shosid; Chapter President Hugh L. Enyart; and Joe H. Wilson, Chapter Executive Council member.

Five individuals who have distinguished themselves in the air industry by their contributions and humanitarian good will were honored at the Fourth Annual Bishop Wright Air Industry Awards Luncheon recently in the Starlight Gardens of the International Hotel at J. F. Kennedy International Airport in New York. Shown with the General Chairman of the luncheon, Mrs. Doris H. Renninger, left, a member of the Women's Advisory Committee for the Federal Aviation Administration, and a member of AFA, are three of the recipients, from left, James H. Doolittle, Medal of Honor recipient, aviation pioneer, and one of the founders and the first National President of AFA; Grover Loening, aviation pioneer and a member of AFA; and AFA National Director Herbert O. Fisher, retired New York Port Authority official, veteran test pilot, and a Past President of AFA's Iron Gate Chapter. Recipients not shown are Gustav Heningburg, President, Greater Newark Urban Coalition, and Fred Feldman, pilot of New York radio station WOR's traffic helicopter 710, also an AFA member.

AFA's Joe Walker Chapter, Washington, Pa., recently sponsored a program in memory of the late Joseph A. Walker, formerly NASA's Chief Research Pilot, for whom the Chapter is named. Students, faculty, neighbors, and Chapter members attended the program, held at the Joe Walker Elementary School. During the program, Chapter President Mary Bakaitis, right, and the X-15 pilot's brother, John, left, presented a framed photo of the test pilot for display in the school.

AFA State Contacts

Following each state name, in parentheses, are the names of the localities in which AFA Chapters are located. Information regarding these Chapters, or any place of AFA's activities within the state, may be obtained from the state contact.

ALABAMA (Auburn, Birmingham, Huntsville, Mobile, Montgomery, Selma, Tuscaloosa): **Cecil Brendle,** 3463 Cloverdale Rd., Montgomery, Ala. 36111 (phone 281-7770, ext. 28).

ALASKA (Anchorage, Fairbanks, Kenai): **Vernon R. Johnson,** c/o Peat, Marwick, Mitchell & Co., 736 G St., Anchorage, Alaska 99501 (phone 272-7401).

ARIZONA (Phoenix, Tucson): **Robert E. Poston,** 4818 E. Scarlett, Tucson, Ariz. 85711.

ARKANSAS (Blytheville, Fort Smith, Little Rock): **Robert M. Tirman,** 1801 Hill Rd., Jacksonville, Ark. 72076 (phone 372-8361, ext. 383).

CALIFORNIA (Apple Valley), Edwards, Fairfield, Fresno, Hawthorne, Hermosa Beach, Long Beach, Los Angeles, Marysville, Merced, Monterey, Novato, Orange County, Palo Alto, Pasadena, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, Santa Barbara, Santa Clara County, Santa Monica, Tahoe City, Vandenberg AFB, Van Nuys, Ventura): **John W. Lee,** Box 5305, Fullerton, Calif. 92635 (phone 879-3951).

COLORADO (Aurora, Boulder, Colorado Springs, Denver, Ft. Collins, Greeley, Pueblo): **James C. Hall,** P. O. Box 30185, Lowry AFB Station, Denver, Colo. 80230 (phone 366-5363, ext. 459).

CONNECTICUT (East Hartford, Torrington): **Margaret E. McEnerney,** 1476 Broadbridge Ave., Stratford, Conn. 06497 (phone 377-3517).

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DISTRICT OF COLUMBIA (Washington, D. C.): **George G. Troutman,** 1025 Connecticut Ave., N. W., Washington, D. C. 20036 (phone 785-6500).

FLORIDA (Bartow, Broward, Daytona Beach, Ft. Walton Beach, Gainesville, Homestead, Jacksonville, Key West, Miami, Orlando, Panama City, Patrick AFB, Redington Beach, Sarasota, Tallahassee, Tampa, West Palm Beach): **Wayne A. Hilton,** 1338 Stratford Dr., Clearwater, Fla. 33516 (phone 531-4611, ext. 3006).

GEORGIA (Athens, Atlanta, Rome, Savannah, St. Simons Island, Valdosta, Warner Robins): **Dan Callahan,** 134 Hospital Dr., Warner Robins, Ga. 31093 (phone 923-4288).

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MONTANA (Great Falls): **Jack K. Moore,** P. O. Box 685, Great Falls, Mont. 59403 (phone 761-2555).

NEBRASKA (Lincoln, Omaha): **Lyle O. Remde,** 4911 S. 25th St., Omaha, Neb. 68107 (phone 731-4747).

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NEW HAMPSHIRE (Manchester, Pease AFB): **R. L. Devoucoux,** 270 McKinley Rd., Portsmouth, N. H. 03801 (phone 669-7500).

NEW JERSEY (Andover, Atlantic City, Belleville, Camden, Chatham, Cherry Hill, E. Rutherford, Fort Monmouth, Jersey City, McGuire AFB, Newark, Trenton, Wallington, West Orange): **Joseph J. Bendetto,** 2164 Kennedy Blvd., Jersey City, N. J. 07305 (phone 420-6154).

NEW MEXICO (Alamogordo, Albuquerque, Clovis): **Harry L. Gogan,** 2913 Charleston, N. E., Albuquerque, N. M. 87110 (phone 264-2315).

NEW YORK (Albany, Bethpage, Binghamton, Buffalo, Catskill, Chautauqua, Elmira, Griffiss AFB, Hartsdale, Ithaca, Long Island, New York City, Niagara Falls, Patchogue, Plattsburgh, Riverdale, Rochester, Staten Island, Syracuse): **Gerald V. Hasler,** P. O. Box 11, Johnson City, N. Y. 13760 (phone 754-3435).

NORTH CAROLINA (Charlotte, Fayetteville, Goldsboro, Greensboro, Raleigh): **Elton Edwards,** P. O. Box 37, Greensboro, N. C. 27402 (phone 275-7616).

NORTH DAKOTA (Grand Forks, Minot): **Kenneth A. Smith,** 511 34th Ave., So., Grand Forks, N. D. 58201 (phone 722-3969).

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OKLAHOMA (Altus, Enid, Oklahoma City, Tulsa): **David L. Blankenship,** P. O. Box 51308, Tulsa, Okla. 74151 (phone 835-3111, ext. 2207).

OREGON (Corvallis, Eugene, Portland): **John G. Nelson,** 901 S. E. Oak St., Portland, Ore. 97214 (phone 233-7101).

PENNSYLVANIA (Aliquippa, Allentown, Chester, Erie, Homestead, Horsham, King of Prussia, Lewistown, New Cumberland, Philadelphia, Pittsburgh, State College, Washington, Willow Grove, York): **J. Deane Sterrett,** 110 McMillen Ave., Beaver Falls, Pa. 15010 (phone 843-4589).

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SOUTH CAROLINA (Charleston, Columbia, Greenville, Myrtle Beach, Sumter): **A. M. Hendry, Jr.,** 837 Gordonia St., Sumter, S. C. 29150 (phone 469-2883).

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UTAH (Brigham City, Clearfield, Ogden, Provo, Salt Lake City); **Gil F. Friederichs,** P. O. Box 486, Clearfield, Utah 84015 (phone 825-9511, ext. 2363).

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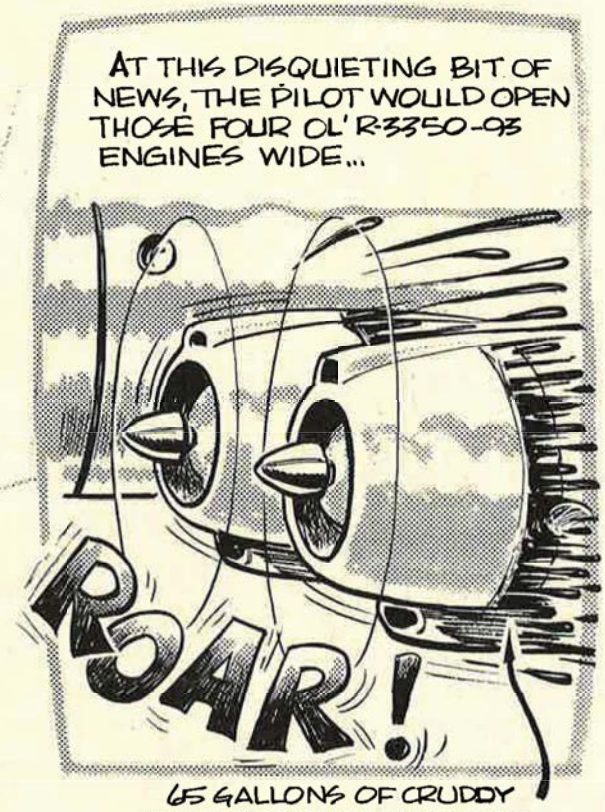
Bob Stevens'

"There I was..."

IT'S ABOUT TIME WE RECOGNIZED THOSE OFTEN UNSUNG HEROES OF EC (ELECTRONIC RECON). THE "OL' HUMPBACK" — EC-121 SUPER CONNIE, *Swineus Subsonicus* — and HER CREWS HAVE BEEN DOING A SUPER JOB!

IN SEA, 121s FLEW *DEEP* INTO UNFRIENDLY AIRSPACE ON BUTT-NUMBING MISSIONS. PROTECTION CONSISTED MOSTLY OF SIDE ARMS and (ALLEGEDLY) THE FOLLOWING IN-FLIGHT TACTIC:

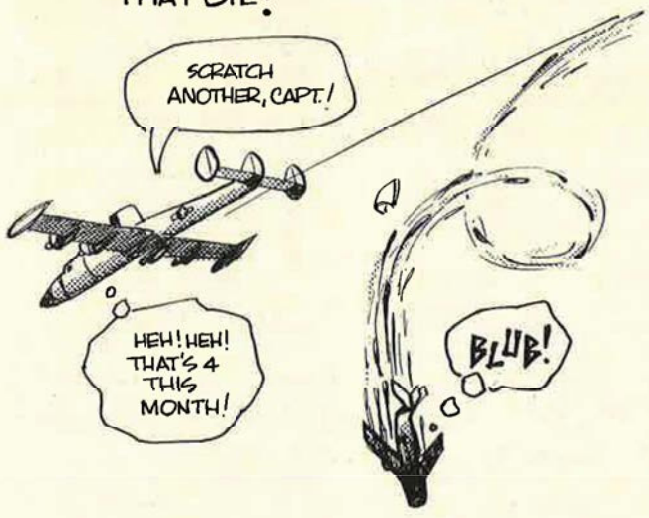
AT THIS DISQUIETING BIT OF NEWS, THE PILOT WOULD OPEN THOSE FOUR OL' R-3350-93 ENGINES WIDE...



65 GALLONS OF CRUDDY OIL PER ENGINE EMITTED

WELL, SIR, THAT OIL WOULD COMPLETELY DRENCH THE TRAILING ENEMY...

HE'D EITHER (1) OPEN THE CANOPY, LOSE HIS MASK and PASS OUT, OR (2) FLAME OUT FROM SUCKING IN ALL THAT OIL!



P.S. IF THIS DIDN'T GET HIM, A FULL BLAST OF RADAR WOULD RENDER HIM IMPOTENT and HE'D DIE OF "LOSS OF FACE" UPON RETURN TO HIS BASE!

Bob Stevens

THANKS TO CAPT. BART CUSICK WURTSMITH AFB, MICH.

WE'RE MORE THAN THE A-7.

Our A-7 sets the standard for tactical support aircraft. And we're proud of its success.

But we have more than one success story to tell. Because for years we've been using aerospace technology in a number of areas. Ground transportation. Space vehicle and missile development. Technical engineering and logistics support. Many types of aircraft design. And major subcontracts like our work on the Boeing 747 and the McDonnell-Douglas DC-10.

We've helped solve some tough problems. Because the same expertise that created the A-7 does a lot of other things well. And that makes us proudest of all.

LTV AEROSPACE CORPORATION
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The DC-10 tanker/cargo jet:

Optimum way to upgrade U.S. military airlift capability.

Recent events have dramatically emphasized the importance of military airlift and at the same time have highlighted the need for increasing the non-stop range of the airlift fleet. Aerial refueling is a low-cost way of increasing the range of the airlift fleet.

The DC-10 aerial refueling capability will permit the airlift fleet, operating from U.S. bases, to reach all major areas in the world. In addition, the military DC-10 tanker and cargo capability can support an integrated deployment of tactical fighters and their associated unit support. The DC-10 tanker/cargo aircraft represents the most economical solution in terms of initial cost, total cost of ownership and fuel consumed.

The lower unit cost of the military DC-10 compared to contemporary four engine wide-bodied transports permits the purchase of more DC-10s for a given investment. The resulting larger DC-10 force offers increased flexibility, with capability to support simultaneous worldwide operations.

The DC-10 is proving day after day in commercial service that its fuel, operating and maintenance costs are low and its departure reliability record is high—important considerations for military operations.

MCDONNELL DOUGLAS

DC-10 tanker capability was demonstrated in company-funded flight test in October, 1971.