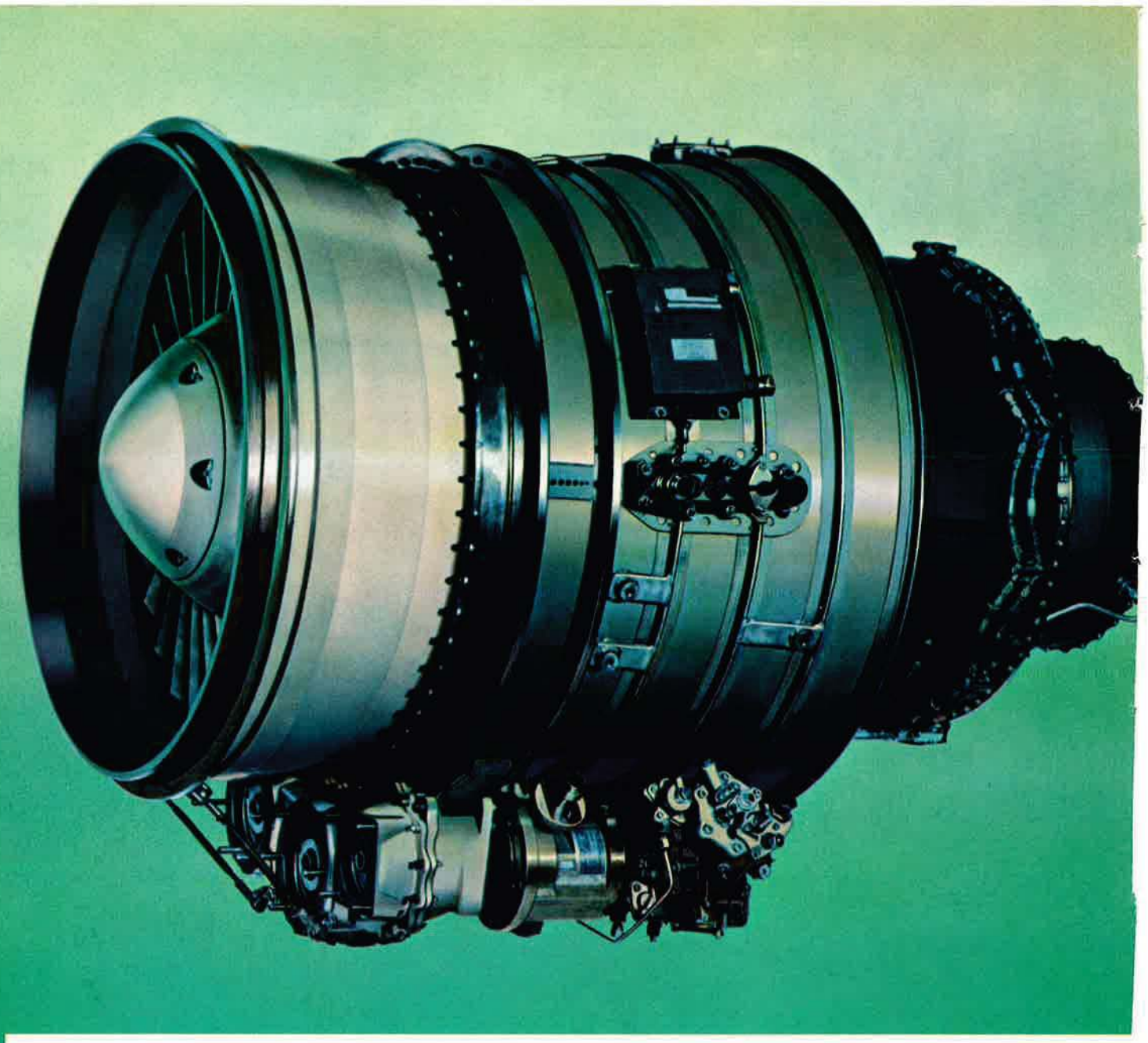
SEPTEMBER 1971 / $1

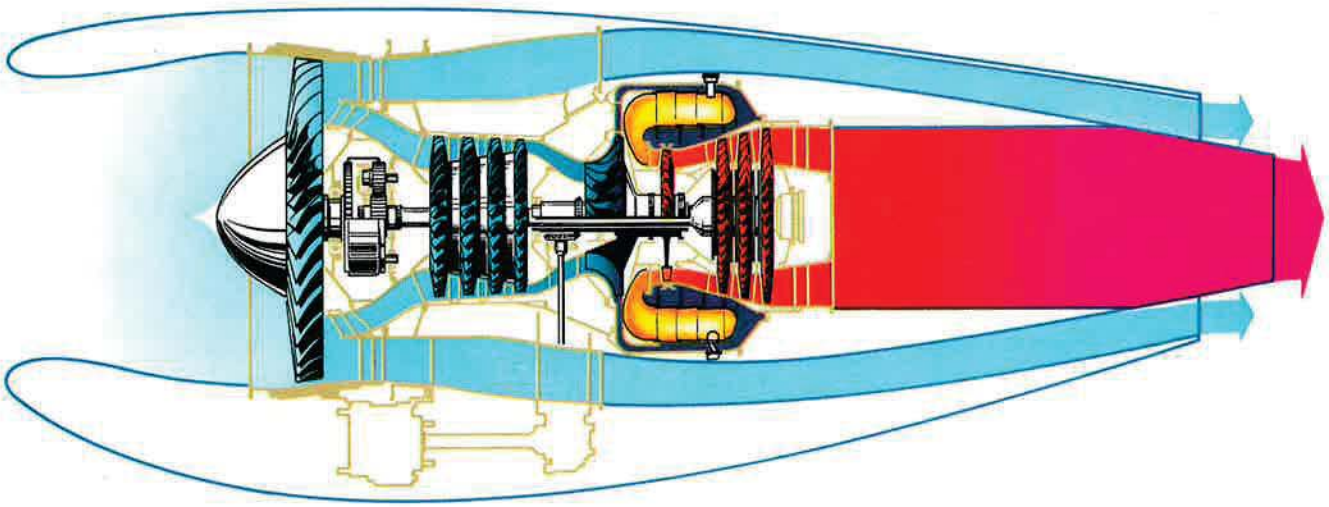
AIR FORCE MAGAZINE

Published by the Air Force Association

USAF

Behind the symbol,
a sturdy structure





THE GARRETT TFE 731 ENGINE:

for greater economy and range smaller jets need our turbofan.

Put our TFE 731 turbofan on any small to medium size jet and the biggest thing you've got going for you is economy of operation. First, you get better performance at higher altitudes—higher cruise speeds over a longer period of time for more range—up to 2500 miles. You get an unmatched altitude versatility too—because the Garrett AiResearch TFE 731 performs just as well at lower altitudes. You get an extended hold time at airports. And at takeoff, more thrust and an overall good short field performance. Just one more thing, our TFE 731 is years ahead in noise reduction and pollution emission. So far, the Garrett AiResearch TFE 731 engine powers the new Falcon 10, the Swearingen business jet and the Gates Learjet. Make your new jet next.

Garrett AiResearch TFE 731 specifications (sea level, standard day):

Power output	takeoff thrust: 3500 lbs max continuous: 3500 lbs
RPM	fan: 10,967 LP spool: 19,728 HP spool: 28,942
TSFC	0.493 lb/hr/lb thrust
Pressure ratio	fan: 1.54 cycle: 15.09
Bypass ratio	2.67
Airflow	113 lbs/sec
Weight (base)	625 lbs

Write or phone. AiResearch Manufacturing Co. of Arizona, 402 S. 36th St., Phoenix, Arizona 85034. Phone (602) 267-3011.

GARRETT

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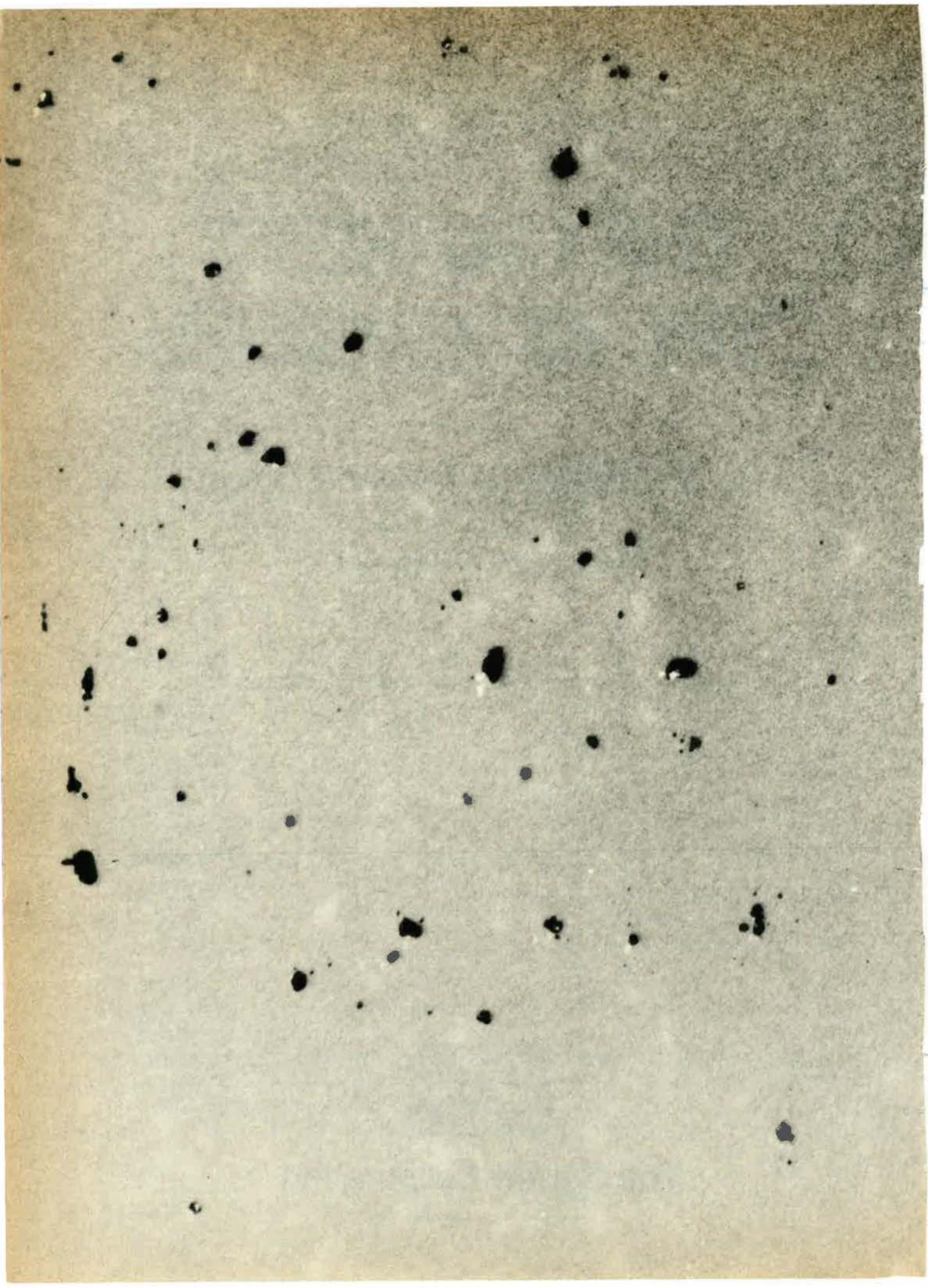
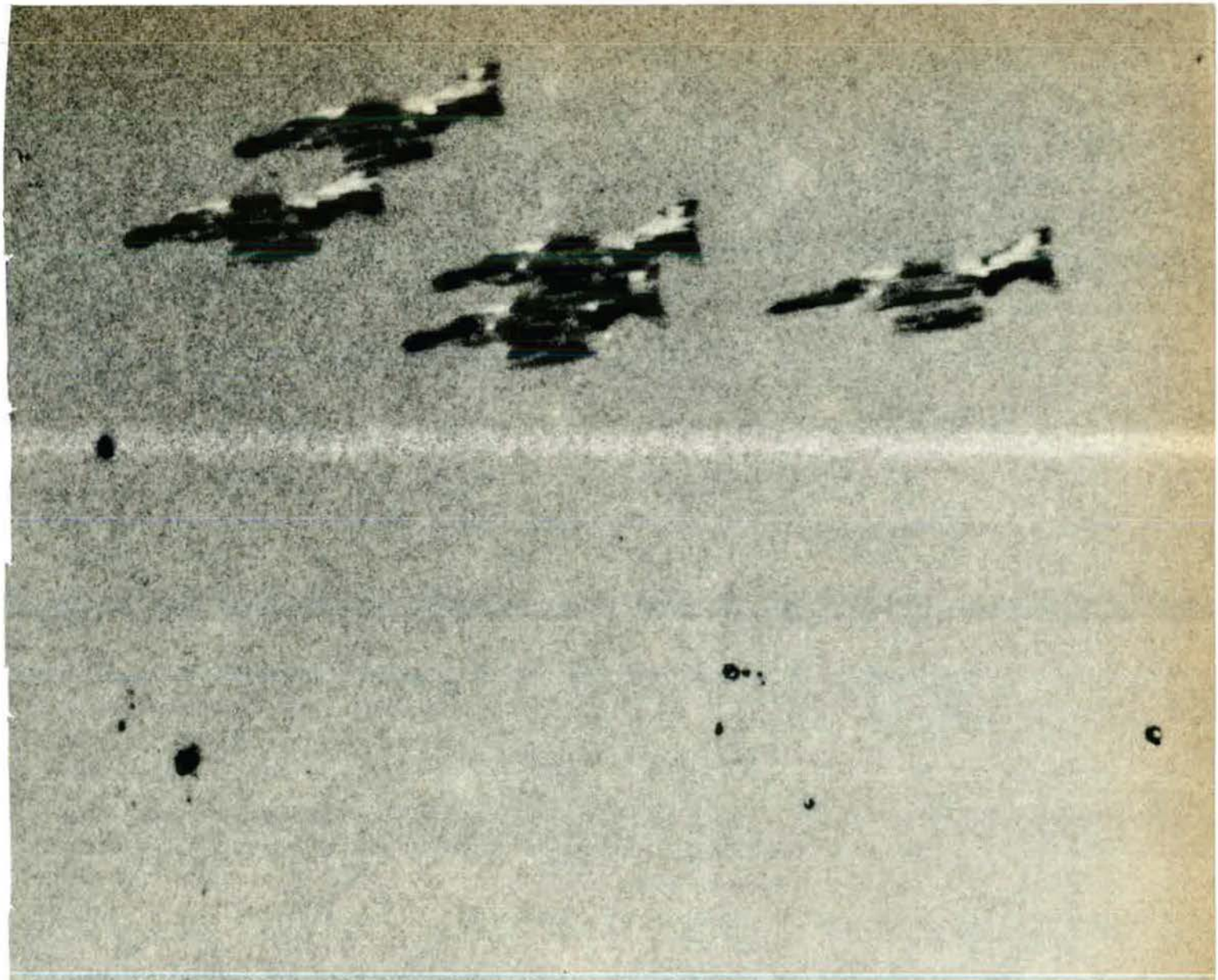
one of The Signal Companies

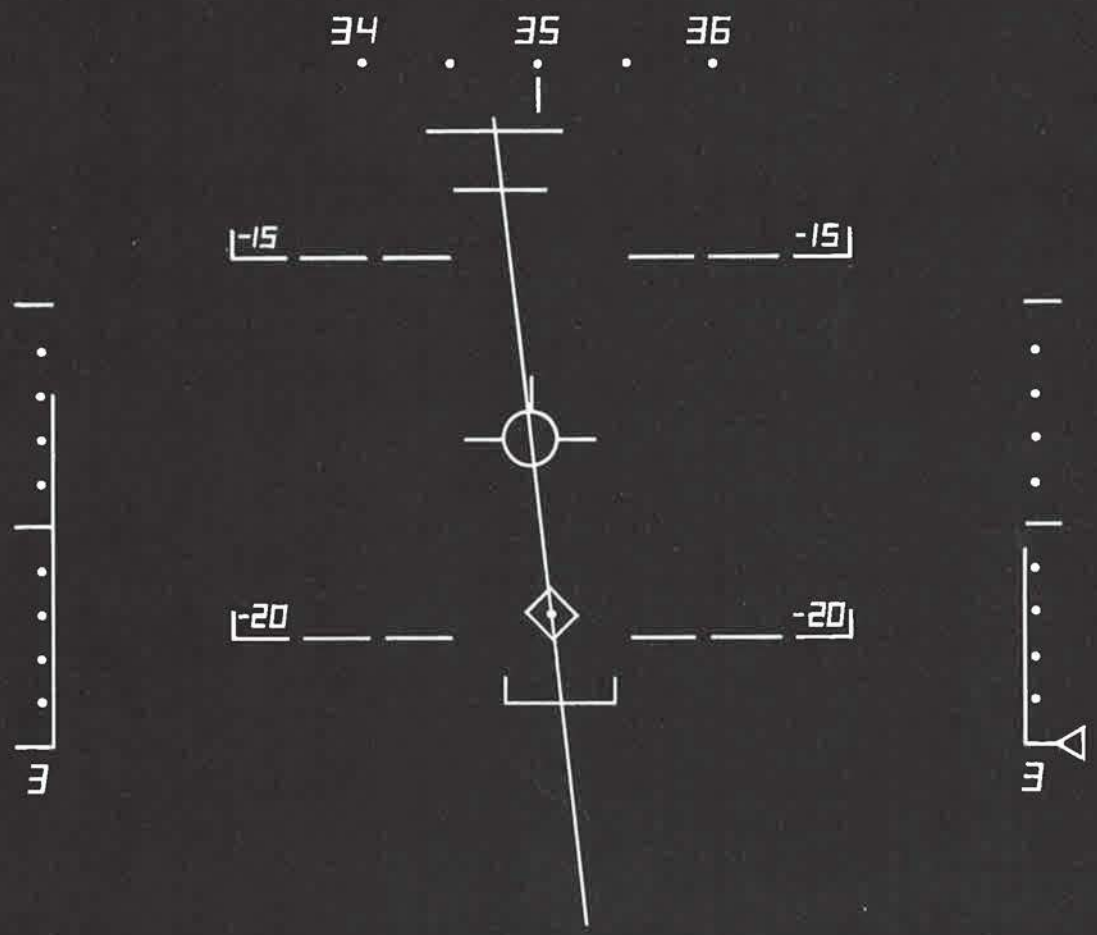




In electronic countermeasures, Westinghouse makes some of the most protective systems in the world.

And we'd like to talk about them. About our work in active and passive techniques; about our achievements in solid-state microwave; about our leadership in molecular logic and processing techniques. But we can't talk about it here. However, if you have a good reason to know just how protective our systems can be, contact Westinghouse Aerospace and Electronic Systems, P.O. Box 746, Baltimore, Md. 21203.

You can be sure... if it's Westinghouse



The A-7 makes ground movement after dark a nightmare.

In combat, the devastating accuracy of this aircraft is being applied to an increasing number of night attack missions.

The A-7 is equipped with the most advanced navigation weapon delivery systems in service. The Head-Up Display, shown above, gives the pilot eye level information required for weapons delivery.

An improved Doppler, inertial platform, forward looking radar, projected map display and computer supply integrated data for pinpoint navigation and attack.

With its superior navigation and weapons capability, today's A-7 continues to deliver a wide variety of mixed ordnance on target with better than 10 mil accuracy.

So when the A-7 prowls at night, enemy ground movement plans go up in smoke.

VOUGHT AERONAUTICS

AIR FORCE MAGAZINE

Published by the Air Force Association

VOLUME 54, NUMBER 9

SEPTEMBER 1971

THIS MONTH

THIS MONTH'S COVER . . .

Decorative and esthetically pleasing is the shield that represents the United States Air Force. Intrinsic to its design is the nation's symbol—the high-flying and majestic American eagle.

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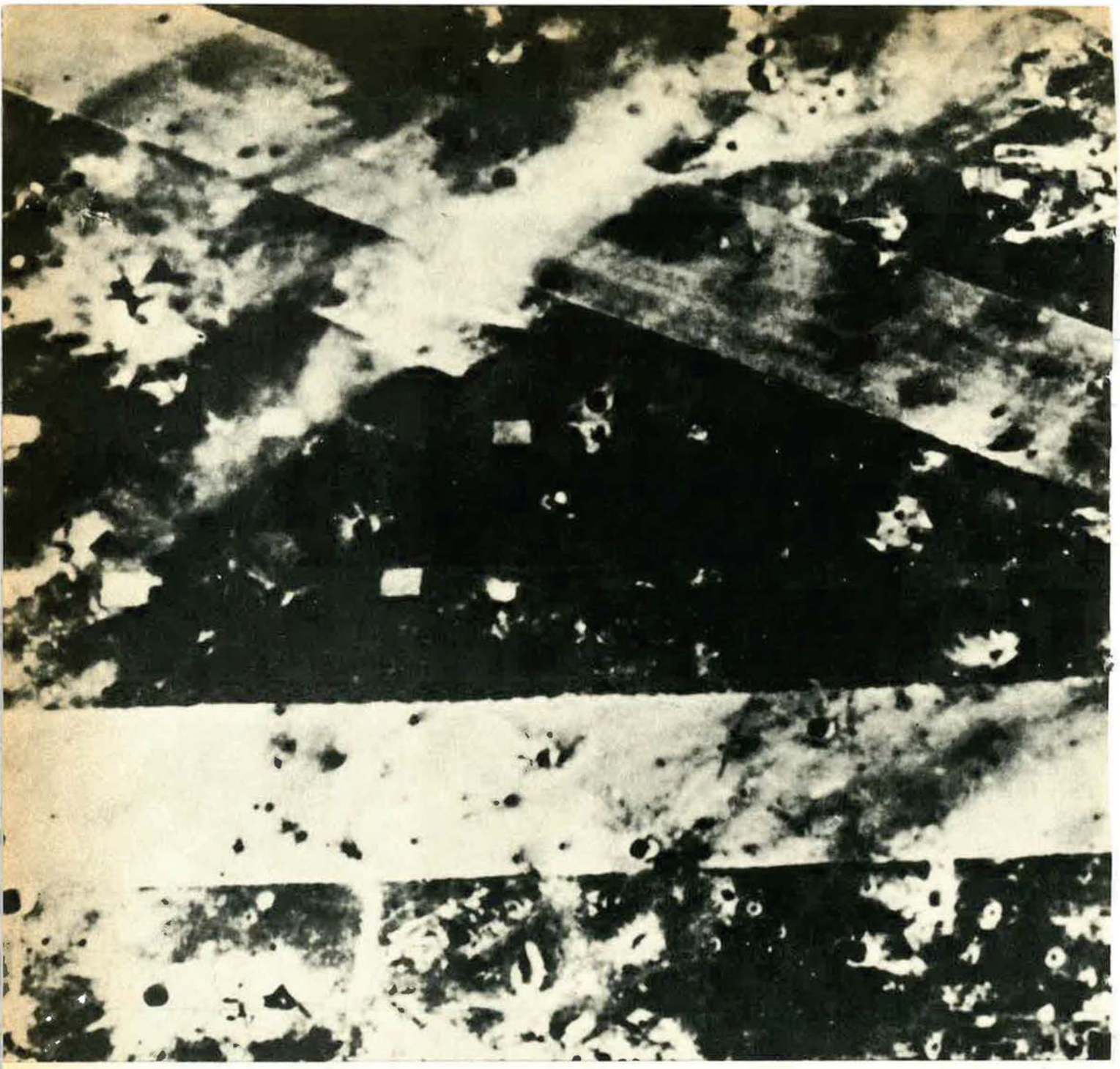
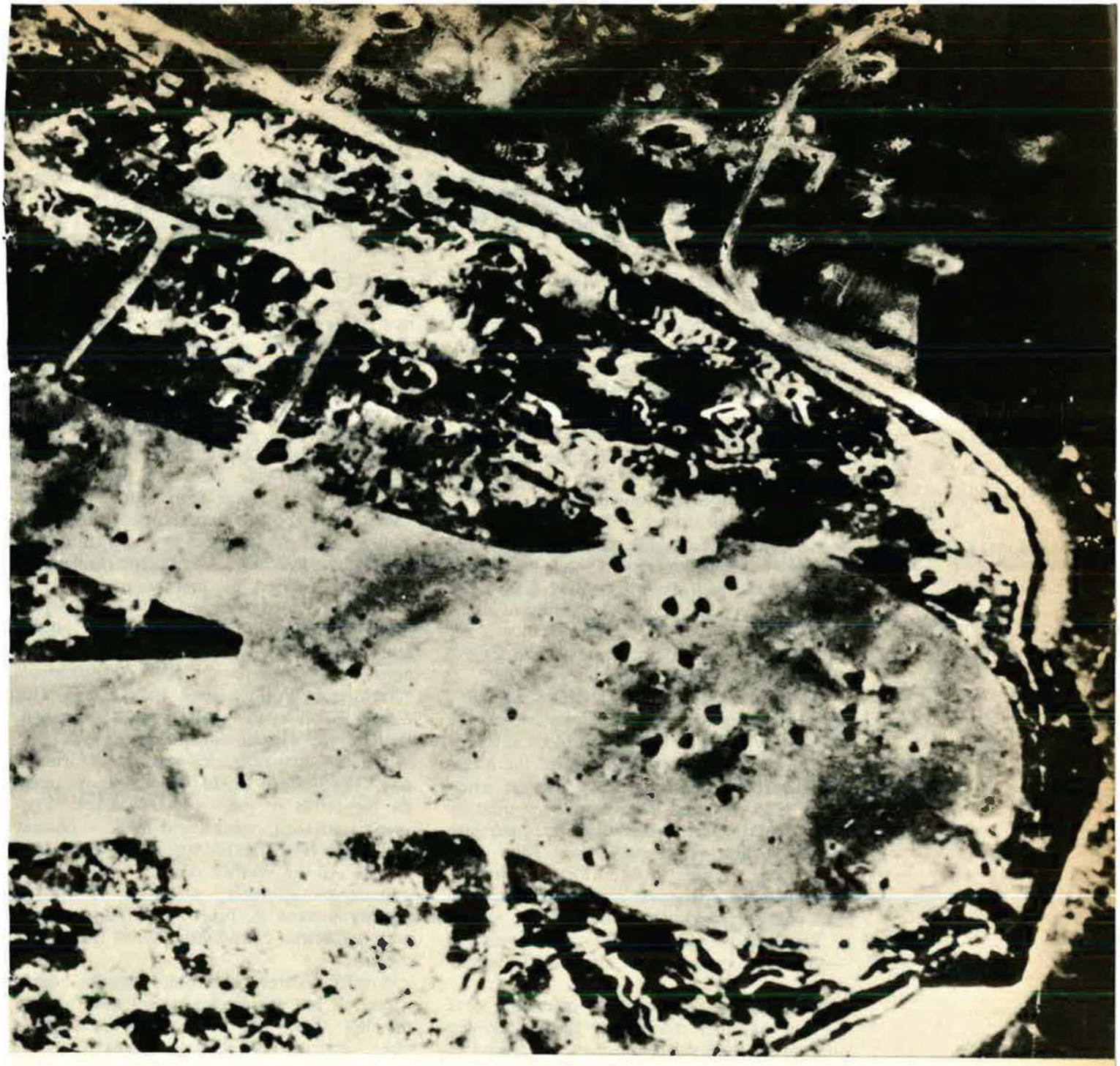


Only one fighter can sti
fror

HAWKER SIDDELEY AVIATION



perate his airfield...

The HS Harrier

The Harrier is already in service with the Royal Air Force and the United States Marine Corps and is in quantity production for both.

gston upon Thames, England
ter Siddeley Group supplies mechanical, electrical and aerospace equipment with world-wide sales and service.

An Editorial Memorandum

The Readers Respond

IF YOU'VE ever tried to critique your own golf swing, tennis serve, staff paper, or relationship with your kids, you've probably discovered that a little outside help is in order. None of us sees ourselves quite as others see us.

That includes the editorial staff of this magazine. Every month we try to tailor the content of AIR FORCE Magazine to the interests and needs of a very mixed reading audience: active-duty people ranging from young airmen to four-star generals, members of the Air Guard and Reserve, retired blue-suiters, former Air Force people who now are in a hundred civilian professions and businesses, industrialists, and others who may never have worn a blue suit but are supporters of aerospace power.

But how close do we come to the target? How can we measure our editorial CEP?

Well, on a regular basis, READEX, Inc., does an independent reader interest survey for us. Shortly after the issue that's to be analyzed has been distributed, a sampling of the membership receives survey copies of the same issue. Each is asked to go through it page by page, marking the things that interested him when he first read that issue. Then each respondent is asked to fill out a questionnaire that includes space for comments—good or bad—that he may want to beam at the editor.

You may be interested in what the surveys —the latest covering the June 1971 issue— reveal.

First, to the credit of AFA members, let it be said that more than ninety percent take the time to go through their survey copies and to fill out the questionnaire. Nearly two-thirds of the respondents grasp their opportunity to sound off to the editors. Most are laudatory. But about eight percent let us have it right between the eyes. The critical comments are perhaps the most helpful of all. We'll say more about them in a moment.

Among other things, the READEX questionnaire asks readers to rank five aerospace or professionally oriented publications according to which they find most useful in their work. In this latest survey, sixty-five percent chose AIR FORCE Magazine as Number One. Of those who didn't, eighty-one percent listed us Number Two.

The surveys often contain some surprises. Here's one that gets us just a little up tight, and we think it should you, too. Sixty percent of those polled in June indicated that they pass their copies of AIR FORCE on to others. To how many others? From one to twenty-six, for an average of five additional readers per copy. If that largesse holds throughout the AFA membership, we have about 300,000 more readers than paid members.

Naturally, this generated a feeling of pride here—but also more than a little concern. Since the Air Force has never been more in need of AFA support than today, we think you should ask these discriminating but nevertheless freeloading readers to put their money where their eyes are. As in any organization, the more members the more clout.

Now for some specifics on what goes between the covers. First, the monthly departments. Year after year, Claude Witze's "Airpower in the News" and Bill Schlitz's "Aerospace World" stand at the top with ninety to ninety-five percent reader interest. Bob Stevens' cartoon page, "There I Was . . .," is a close contender, followed by "Airmail" and "The Bulletin Board," which always interest two-thirds or more of the readers. "Airman's Bookshelf" rates about fifty-five percent and "AFA News" stands well below that figure. "Jane's All the World's Aircraft Supplement," a relative newcomer, scored a resounding seventy percent in June 1971. The monthly editorial ranks consistently above eighty-five percent.

Reader interest in feature articles varies widely. It has averaged a steady climb during the last three issues surveyed—from sixty-three percent to 73.6 percent. That's an unusually high average for any magazine. We must be doing something right, but obviously not everything, as proved most forcefully by those "between-the-eyes" criticisms mentioned earlier.

Our gentler critics seemed most concerned with the balance of feature material. So far as we can judge by respondent addresses, members who are in the R&D field want more on R&D, operations types more on operations, and so on.

A common thread is an interest in Air Force history—more on the old planes, the dramatic and significant events of earlier wars, and the men who built the Air Force. So we have been publishing more history lately.

Several respondents complained that AIR FORCE Magazine runs too many long articles.

We're trying to hold down the length of articles, much to the dismay of some of our staff writers and contributors. But there are times when our obligations to make certain information a matter of public record will govern.

The most serious criticism came from eight percent of those surveyed in June 1971. We've heard it before, but never quite so loud or clear. Their charge: that the Air Force Association and AIR FORCE Magazine are too uncritical of the Air Force—that we have been too much of a transmission belt for the "party line."

To some extent, the charge can be documented, although consistent readers of the magazine will recognize that AFA's annual policy statements and the pages of AIR FORCE Magazine have often been critical of the Air Force.

Several points need to be made here:

—At no time has any official of the Air Force ever attempted to influence the policies of the Association or the editorial policy of this magazine.

—Our support of Air Force policies has been based on a sincere belief that they were the right policies.

—With the wind-down of the Vietnam War and the approach to a Zero Draft goal, the military services are entering a new ball game. It's evident that senior Air Force people, from the Secretary and the Chief on down, are realigning the Air Force with the realities of current defense policy and social change. It's also evident that they welcome constructive ideas, even those that are critical of established policies and practices.

—We intend to offer constructive criticism in this magazine when, in our judgment, it is consistent with the opinions of a majority of the members and will help the Air Force.

—The pages of AIR FORCE Magazine are open to all members—particularly to those on active duty—whose ideas will contribute to building the Air Force of the 1970s. We're looking for thoughtful, constructive articles, and we pay better than average rates.

One word of caution. AIR FORCE Magazine has never been, and won't be, a vehicle for publicizing personal gripes or for uninformed, purely negative, or self-serving bitching.

In any one year, the READEX surveys go out to only a few hundred of our more than 100,000 members. Your name may never come out of the hat. But there's an alternate route for telling us what you do and don't like about AIR FORCE Magazine. It's called "Airmail," the letters-to-the-editor department.

We urge you to use it. Only with your help can we make AIR FORCE a constantly better publication. After all, it's your magazine. We just manage it. ■

Comments From READEX Readers' Survey, June 1971

Bouquets

"Editorial comment is constructive and informative; choice of articles is consistently excellent."—Civilian Member.

"It is a good magazine and I am sure this survey will make it a better one. . . . Ask for comments or short articles from the retired, and I'm sure it will be well received."—Retired Colonel.

"As a college student I was often able to use AIR FORCE Magazine as a *major* source for papers in my course of study (Political Science).

". . . Keep up the fantastic work."—Lieutenant.

"I wish more of the general public could read it."—Civilian Member.

"In my opinion the content of AIR FORCE Magazine has been improving consistently in my area of interest."—Civilian Member.

"The annual Almanac is probably the most worthwhile issue of any of our 'trade' journals. Recommend expanded distribution of that particular issue."—Lieutenant Colonel. [Readers should know that extra distribution of this issue in the Air Force was almost 11,000 copies this year.]

". . . this magazine probably keeps me up to date on Air Force developments better than any other publication. The 'Wayward Press' is outstanding. Informative advertisements are also enjoyed."—Retired Lieutenant Colonel.

"I've saved all issues for future reference."—Lieutenant.

". . . extremely useful for supplementary and research material in my just-concluded tour as an AFROTC instructor."—Major.

"Thank you for a fine magazine month after month."—Captain.

Brickbats

"I think we get a bit too polemic in supporting Air Force interests."—Brigadier General.

"Your articles are either directed Air Force policy or 'everything is peaches and cream.' Controversial items, nondefensive to USAF practices, are evidently verboten."—Civilian Member.

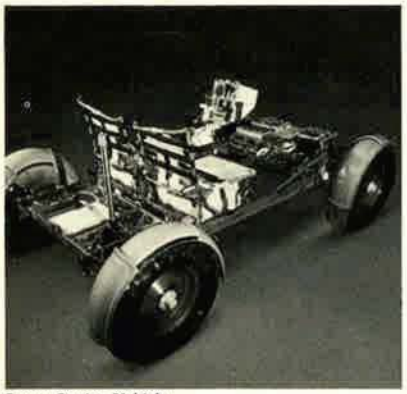
"AIR FORCE Magazine would be far more honest and credible if it took an occasional editorial exception to the Air Force party line."—Major.

"Doctrine is too heavy-handed even for solid supporters like me."—Civilian Member.

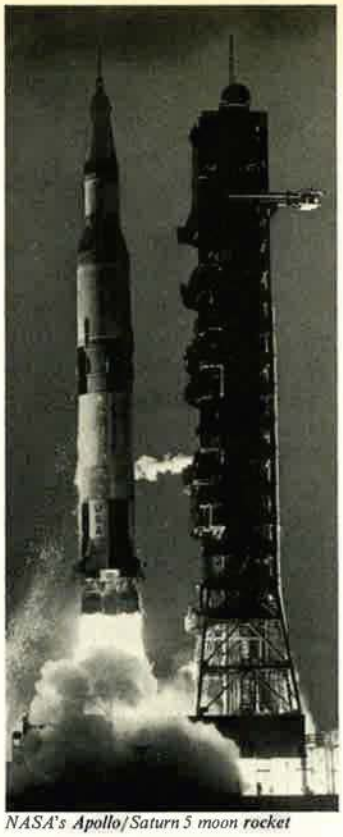
"Magazine is too one sided! The Air Force does not do everything right all the time."—Colonel.

"Overall . . . I do enjoy your magazine. I only wish I didn't have to be so on guard for the superficial gloss-over approach you sometimes take toward anything that might make the Air Force look bad."—Captain.

SRAM, Air Force short-range attack missile



Lunar Roving Vehicle

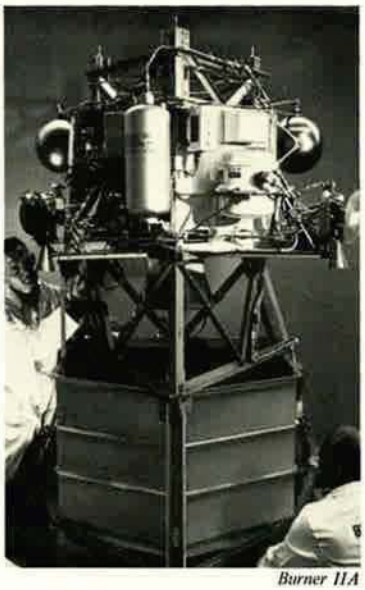


NASA's Apollo/Saturn 5 moon rocket

B-52 eight-jet Stratofortress

Boeing helicopter

U.S. Air Force Minuteman ICBM



Burner IIA

AWACS, Airborne Warning and Control System

Boeing: serving the nation in defense and space exploration.

SRAM. A Boeing B-52H is shown **carrying** U.S. Air Force short-range attack **missiles.** Now in **production,** SRAM is an **air-to-surface** bomber-**launched** missile. It is **designed to provide stand-off capa**bility to assist in pene**tration of sophisticated** enemy defense systems.

Lunar Roving Vehicle, one of three designed and built by Boeing for NASA, carried two astronauts, along with scientific instruments and lunar samples, over the rugged surface of the moon. The vehicle, designed to expand significantly Apollo missions' areas of exploration, was carried to the moon in a storage bay of the lunar module.

AWACS. Eight-engine version of a Boeing 707-320 shown carrying USAF Airborne Warning and Control System. Large radome atop the fuselage will house surveillance radar antenna. AWACS fleet, equipped with radar, communications, computers and displays, would serve as airborne tactical command post, and as an airborne warning and control system. Proposed AWACS fleet would replace existing ground-based radars and older aircraft. Boeing is AWACS' prime contractor.

NASA's Apollo/Saturn 5 moon rocket, the largest, most powerful in the world, launches Americans on voyages to the moon. Boeing builds the first-stage booster, integrates Saturn 5 with Apollo command, service and lunar modules, and performs systems engineering, launch and integration support for NASA on the entire Saturn 5 system.

Boeing B-52, global nuclear weapons carrier and missile-launcher-bomber, continues to provide aerial strength for U.S. forces.

Twin Turbine helicopters, built by Vertol Division, serve with U.S. Army, Navy, Marine Corps.

Burner IIA, USAF's new Boeing-built upper stage vehicle, is smaller, less costly than other upper stages. It's applicable to almost all USAF launch vehicles, also scientific experiments, weather, navigation or communications satellites.

Minuteman is U.S. Air Force's quick-firing, **solid-fuel** ICBM. Boeing is responsible for assembly, test, installation and checkout of the missile.

BOEING

Airmail

A Better Way

Gentlemen: I agree with your editorial, "There's Got To Be a Better Way" [July issue]. In fact, I *know* there is a better way.

That way is to stop using ponderous "new" methods where they are not appropriate. Specifically, stop requiring PERT [Performance Evaluation Review Technique] and PERT/cost, etc., presentations for programs that can be managed without it. It is amazing how many large business organizations function profitably without it. There is one drawback to this concept—it requires that managers be managers.

A second better way calls for the elimination of the "numbers game," Reliability, where it is not really needed. (Note: I mean Reliability with a capital R, not real reliability.) It can be done. Consider the Brooklyn Bridge, an innovation in its time, but a soundly engineered one. Again, the drawback—the engineers must know what they are doing.

I have sat in meetings and listened to the bright reliability man talk about something being reliable to four nines and watched all the wise heads nod. Even after studying statistics and reliability theory and working in a reliability department, I firmly believe that if you don't know something is going to work when you want it to, it's no damn good.

I also believe that if the engineer knows the functional requirement, the environment, the expected life of the product, he can design the product to work. But it means that he must know the operating characteristics of the product he designs and must understand his materials.

Thus, if we have capable managers and competent engineers, give them the required authority and nail them with the responsibility, we can do away with a lot of excess paper and personnel, and save a lot of everybody's time.

It sounds old-fashioned, I know. But look how far we came with those old-fashioned methods.

ROBERT N. GREEN
Gainesville, Fla.

Gentlemen: Your editorial . . . covered the whole spectrum of aerospace and still scored points for the military. And your lead-in was beautiful. Not a sport in the house will have a dry eye. It will appeal to the instincts of all men, and even esoteric politicians can understand it, but that doesn't mean that they will do anything.

You have your finger on the pulse but need to broaden your scope. Granted, there is considerable overmanagement within DoD, but that is not the beginning or ending of the problem. As you said "it is not peculiar to the Pentagon or, indeed, to government."

Frankly, the problem starts with the statutes that dictate acquisition of complete end items, *i.e.*, hardware or services, on a fiscal year basis. It is difficult to cost out an item or component in new technology that hasn't been invented yet, and it's more difficult to know what factors, *e.g.*, inflation, labor and material costs, etc., will impact on the program during lead time dictates two to four years in the future. If you want to try this one on for size, just jot down now what you think the 1975-76 dollar value will be, and then compare it when that time frame rolls around. But that is what our current laws require, and there's just too many unknowns for even a Proxmire to handle. . . .

Your statement that a higher proportion of the total effort goes into keeping track of what is being done, and a smaller percentage goes into the actual doing couldn't be truer, but the featherbedding begins on a much higher plain than DoD. BoB, Congress, GAO, etc., really precipitates most of this action. It's worse than Lil' Abner's Bottomless Canyon. Management attention at all levels is diverted away from first things first by these tactics and dictates. I know of no way to establish opposite numbers to be responsive to all the demands. . . .

My point is that there is no high, or middle, ground to blame for this morass. It is a from-the-womb-to-the-tomb matter, and I will be the first to admit that I don't know of a panacea. But that is no reason not to critique the system from time to time, and I'm mighty glad to see your good hand at work.

LYLE C. FREED
Bellevue, Wash.

Gentlemen: Glad to see your editorial. . . . I was wondering how long it would take for you to seize your expertise and write the piece.

The fact is, as you state, that our aerospace industry is busy pricing itself out of the market. And, curiously, look deeper and see that the statement is true for almost every other country with an aerospace industry and a noncontrolled economy. France, England, Germany, Italy, Canada, Australia, Spain, etc., have very little market at home for their products, and continually are striving for export orders.

Where does this end?

DAVID A. ANDERTON
Ridgewood, N. J.

Gentlemen: Your editorial was outstanding. . . . Give 'em hell and mount the barricades!

NATHAN H. MAZER
Ogden, Utah

Gentlemen: No one ever tells the end of that story about the kid who hollered, "Hey, Dad, the emperor has no clothes." Actually, he was taken to the woodshed immediately after the parade! You, too, will be taken to the woodshed by many of your readers after they read your editorial "There's Got To Be a Better Way." You are suggesting, sir, that the "New Economics" has a hole in it through which is leaking our individual economic strength and competitive spirit.

Reality states that full employment and a stable dollar *can coexist* in an economy where *unearned dollars* do not exist! What is an *unearned dollar*? That paid for management redundancy to the point of the ridiculous. That dollar paid for a wage increase not earned by increased production. That dollar infused into the economic stream by federal deficit spending. You can find many more areas if you really look.

The new economics worked internally for a while, until international competition (something we almost forgot!) caught up with us. But, now there are many industrial nations who are as "lean and mean" as we used to be before the discipline of the dollar became "permissive."

Where the government acts only as referee in a marketplace stressing competence and competition, with no unearned dollars pushing up the price of adequate goods and services, this writer believes a stable dollar and full employment is possible. Who is to argue? It's never been tried! As you say, "There's Got To Be a Better

You've never asked for our appreciation.
But your countrymen say thanks, anyway.

TELEDYNE RYAN AERONAUTICAL
SAN DIEGO, CALIFORNIA 92112

Airmail

Way," but the sad part is we probably will never get around to trying it. How many can stand the harsh yardstick of competence plus the mind and muscle stretching necessary for good, honest competition?

BOB CESSNA
Daytona Beach, Fla.

Forgiven

Gentlemen: Reference the "Department of Embarrassment" in the July issue ["Airmail"] of your very fine magazine. Although your left hand and right hand may get mixed up at times, your heart is certainly in the right place. Your apologies are certainly accepted, and many thanks on behalf of all ACIC personnel and myself.

COL. BYRON L. SCHATZLEY
Commander
Hq. ACIC
St. Louis, Mo.

Lockheed's Record

Gentlemen: The employees at Lockheed have closely followed the congressional action regarding Lockheed's need for a government guarantee for a commercial bank loan. Much has been said against Lockheed and while we are proud of the professional restraint our management has displayed in this matter, we, as employees, believe there is much to be said *for* Lockheed.

I came to work for Lockheed because it was the leader in advanced weapon systems and because I respected and admired the zeal, intelligence, professionalism, and dedication of the Lockheed people I had met. My feelings have not changed in my ten years at Lockheed and I feel the company deserves a good word, and a look at a little bit of the record may in some small way help to balance the scales in the minds of Congress and the public.

Lockheed is the company that first produced—

- The first pressurized airplane, leading to current commercial transport aircraft capabilities for high-altitude flight.
- 3,000 Hudsons and 2,750 B-17 Flying Fortress bombers during WW II as well as the famed P-38 Lightning fighter, which shot down 9,924 Japanese aircraft—more than any other American fighter.
- This country's first production jet fighter—the P-80.
- All the major patrol aircraft for the Navy antisubmarine warfare mission: the P-V-1, the P2-V, and now the P-3C. These aircraft have done an outstanding job in tracking Soviet attack and missile-carrying submarines.
- All the current major military cargo and troop transports—the C-130 Hercules, the C-141 StarLifter, which have fantastic performance records in Vietnam, and now the C-5, the world's largest and most advanced transport aircraft. Despite some things said in the press, the C-5 has met or exceeded more contract specifications than most new aircraft ever have.
- One of the finest weapon systems ever developed, the Polaris missile, so greatly feared by the Soviet bloc. The weapon is one of the reasons that the US remains as a powerful political, military, and economic force in the world today and has not been attacked or politically bent to its knees by foreign powers who are hungry to expand their power base.
- The Agena space vehicle, which performs the bulk of our vital surveillance of Russian and Chinese missile launch bases. More Lockheed satellites are flying than all others combined.
- The famed U-2 aircraft that provided the hard intelligence of the existence of Soviet missile sites in Cuba, permitting America's strong response in removing this threat. Lockheed also built the SR-71, the nation's fastest and highest flying aircraft, now performing important reconnaissance missions. It is unfortunate indeed that the national security contributions of these aircraft cannot be publicly announced.
- The solid-propellant motor for the Air Force's SRAM missile, the first two-pulse motor ever made and the most advanced solid rocket flying today.
- The most advanced helicopter ever developed—the Cheyenne. With this helicopter our Army pilots will have the attack and survival capabilities they deserve.
- A variety of aircraft that set more speed and altitude records than those of any other company.

Is this a company to destroy? Is bad management providing the most advanced weapons this country has for its defense, the fastest and largest aircraft, and the most effective space vehicles? Is it bad management that has made Lockheed the biggest and the best, a management that has built an invaluable national defense asset?

Yes, Lockheed has made mistakes. Perhaps the company has made a mistake in not being profit-hungry instead of being dedicated to providing the most advanced and reliable products it can possibly produce for our defense effort at great financial risk to the company. Perhaps we should have stopped C-5 production instead of agreeing to absorb a $200-million fixed loss. Perhaps we should have quit on the Cheyenne and the SRAM motor instead of pouring millions of our own money into them to finish the job and do it well. There is no "perhaps" about our mistake in accepting three of the first four Total Package Procurement contracts foisted on the industry and the public by past Defense Department officials. This procurement method has now been proved absolutely unworkable and has been thrown out as a viable contracting system. . . .

Lockheed was not asking for a handout like the billions in aid the US gives to foreign countries, nor was Lockheed asking for millions of dollars to *not* build defense products as some do to not grow food, or a direct subsidy like the $579 million given to the shipbuilding industry, or even for welfare handouts. In fact, we asked for no handout at all. We intend to get out of this temporary financial bind, produce the L-1011 (a fine airplane much needed to maintain a competitive environment), continue to be a successful major contributor to the country's defense posture, and pay back all of our debts. All we ask for is a vote of confidence.

If all the real, unbiased facts were laid honestly on the table, we believe Lockheed would be truly adjudged to be of great value to this country and would be proved to be well worth saving.

J. DONALD HAAS
Lockheed Employee
Redlands, Calif.

Freedom of the Press

Gentlemen: In AIR FORCE Magazine of July 1971, page 14, "Airpower in the News," the second paragraph on the page, [Mr. Witze writes] "We defend his *constitutional right to distort the meaning* of General Brown's comment."

I find it difficult to restrain my wording after reading that. Where did you get such an idea? I have read —even studied—the Constitution and I can't imagine where you, even with the loosest interpretation, could find the words giving anyone such a *right.* I am well aware that the news media have a standard practice of such distortion, but I doubt that they claim that it is a *right*—and *constitutional.*

Ha! If the Constitution gives anyone the right to lie or even bend the truth, we had better amend it. How

Air Force
F-15

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Airmail

can courts try libel suits if people have a constitutional right to distort the truth?

I'm surprised. Where did you get such an idea?

COL. C. R. LAUBENFELS,
USAF (RET.)
Glendale, Calif.

• *The often-cited, seldom-read First Amendment says, in the pertinent part: "Congress shall make no law . . . abridging the freedom of speech, or of the press; . . ." The meaning, simply, is that you can say or print what you please without let or hindrance in advance. You must also be prepared to take the possible consequences, e.g., losing a libel suit.*—THE EDITORS

The Red Baron's Done It Again!

Gentlemen: I believe you have misidentified one aircraft on page 71 of the July issue ["The Past Is Prologue . . . And a Lot of Fun!"]. The plane in the background of the lower right-hand picture is not a Nieuport, as claimed, but a Sopwith Camel. This ship appears to be the same as the one in the upper right corner of the same page.

MICHAEL T. LILLEY
Elsberry, Mo.

• *Mr. Lilley is correct. During the author's visit, a dogfight ensued between a Nieuport and the Fokker. The day the photo was taken, a Sopwith Camel rose to intercept the red triplane.*—THE EDITORS

Arnold Air Society Awards

Gentlemen: Many thanks for the outstanding coverage AIR FORCE Magazine provided the 23d National Conclave of the Arnold Air Society. The fine young Americans who comprise the Arnold Air Society and their auxiliary organization, the Angel Flight, are a credit to the campuses they represent, the Air Force, and the nation.

Regrettably, your article overlooked the names of two very deserving award recipients: Brooks E. Shelton of the University of Illinois, who received the AFA–Arnold Air Society Alumni Council Award; and Miss Kay Varley of Bowling Green University, who was chosen as the Outstanding Angel Flight Area Commander. . . .

CAPT. FREDERIC C. LYNCH
Washington, D. C.

Daedalians

Gentlemen: Recognizing and respecting AIR FORCE Magazine's penchant for accurate reporting, as expounded so expertly by Claude Witze in his monthly column, I feel it my duty to alert you to factual errors in the caption accompanying the photograph on page 25 of "Aerospace World" in your July issue.

1. The Order of Daedalians is not solely for World War I pilots. The Order of Daedalians was, indeed, organized by a representative group of World War I pilots; however, its members include military throttle jockeys of all eras, including veterans of World War II, Korea, and Vietnam as well as a moon walker, other astronauts, and recently commissioned pilot graduates of the various services.

2. Lt. Gen. James V. Edmundson, who, incidentally, is a Daedalian, does not spell his name "Edmondson."

COL. E. B. RASMESSEN,
USAF (RET.)
Editor, *Daedalus Flyer*
Kelly AFB, Tex.

Old Friends

Gentlemen: During World War II my husband (an RAF fighter pilot) and I lived near Rodiford, Essex, England. The famous Eagle Squadron was stationed at Rodiford during 1941–44, and we became acquainted with many members of the outfit.

Over the years contact has been lost with them but have often thought of them and wondered what they were up to these days. Now living here in the States, it would be nice to hear from some of our old friends of the Eagle Squadron.

MRS. MARYE HINDLEY
Georgian Towers
8715 1st Ave.
Silver Spring, Md.

UNIT REUNION

American Fighter Pilots Association

The annual reunion of the American Fighter Pilots Association will be held at the Hilton Hotel, Denver, Colo., November 19–21. A "mixer" on Friday evening, a special ticket (including bus transportation) for the Air Force Academy–University of Colorado football game, and the wind-up Awards Reception and Banquet are the social highlights of the meeting. Business meeting and election of officers on Saturday morning. All AFPAers are invited, and urged to bring a new member. For details, registration forms, and hotel reservations, contact

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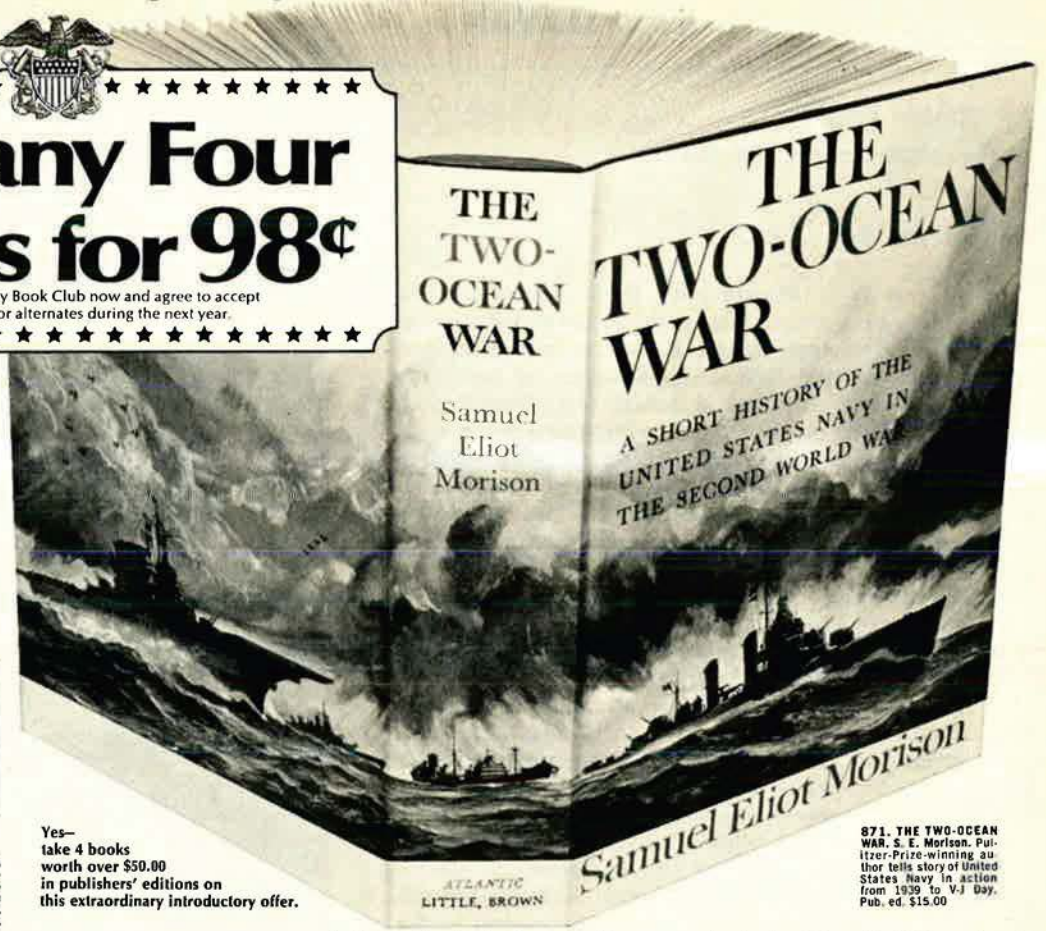

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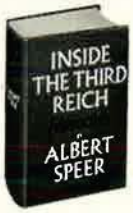

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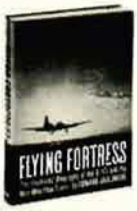

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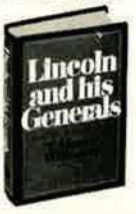

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Airpower in the News

By Claude Witze

SENIOR EDITOR, AIR FORCE MAGAZINE

Man of the Year, 1962

WASHINGTON, D. C., AUGUST 5, 1971

One fascinating by-product of the recent publication of the so-called Pentagon Papers is the obvious discomfort they created for the New Left and some of our more militant dissenters. Go back a decade and you will find, for the most part, that these people were among the most enthusiastic supporters of the new approaches brought to the capital by John F. Kennedy and the men around him. Indeed, an impressive contingent of the men who were around him now professes to be aghast at what they learned from a one-sided report on how policy was determined in the Kennedy Administration.

Now we have here in Washington a group—christened "The Group" by columnists Rowland Evans and Robert Novak—that is trying to interpret history before it has been accurately written. The Group is composed of seventeen Democratic Congressmen and they have been holding a seminar on the Pentagon Papers that featured such headliners as Dr. Daniel Ellsberg, the RAND ex-employee who says he gave the Pentagon Papers to the press. Other witnesses have included Ellsberg's teammate Tony Russo, who is in trouble with a Grand Jury in California; Melvin Gurtov, another ex-RAND intellectual and one of the authors of the Pentagon Papers, who once worked in the office of Defense Secretary Robert S. McNamara; and Noam Chomsky, an MIT professor who is an expert on linguistics.

Rep. John G. Dow of New York, who chaired the conference, said it would focus "on the apparent failure of American constitutional processes." He said that out of the Pentagon Papers emerged "a spectacle of a major war, costing 45,000 American lives and a million Vietnamese, being conducted as an administrative project ancillary to the normal governmental operations."

Columnists Evans and Novak, however, reported on a classified paper of their own that threw a different light on the project. In their account, derived from a memorandum circulated within The Group, the target is the Nixon Administration and the effort is to take the spotlight away from the Democratic Administrations of the 1960s. They quote the memorandum, dated about twenty days before the meeting convened:

"The political focus must be shifted away from the Kennedy-Johnson Administration. Nixon will argue in 1972 that he ended the war that the Democrats got the country into. It is critical that he not succeed.

"Only by undermining his present policies and by obtaining a Democratically sponsored congressional action forcing the acceptance of the present Viet Cong proposal can we recover lost ground."

One memo, suggesting that Melvin Gurtov be on the panel, pointed out that he has been "highly critical of the Nixon Administration and says it is following the same policy as previous Administrations. . . ."

Mr. Gurtov did not disappoint his sponsors. At the opening session on July 27, he denounced the Nixon regime on half a dozen points. He said, in effect, that the troop withdrawal is a phony front, charging that the use of airpower has been expanded, and the aim is military victory. He charges that the Administration is not interested in a negotiated peace and that it pays only lip service to self-determination for South Vietnam.

The commitment of US combat forces to what was to become the Vietnam quagmire had its foundation in the policies advocated by those close to the Presidency during the John F. Kennedy Administration.

Further, Mr. Gurtov contends the White House is exploiting the captivity of our prisoners of war for domestic political purposes, while it "knows full well that the POWs will not be returned unless and until the United States sets a specific date for complete withdrawal from Vietnam." He charges that the US public is being misled by an Administration that "portrays escalation as deescalation and failure as success." He describes our "protective reaction strikes" against North Vietnam as "attempts to punish Hanoi for continuing the war" and says they may also be a warning of our willingness to restart the air war in the North. Finally, Mr. Gurtov scoffs at Vietnamization, calling it "a domestic political tactic, not a program for complete withdrawal."

This indictment, close to the Hanoi propaganda line, was echoed to one degree or another by other witnesses called by The Group. In addition to the Messrs. Ellsberg,

Russo, and Chomsky, these included such experts as Cynthia Frederick of the Committee of Concerned Asian Scholars, who was expelled from South Vietnam; David Marr, a visiting assistant professor at Cornell University; Fred Branfman, described as a correspondent for the left wing Dispatch News Service, who was expelled from Laos; former Sen. Ernest Gruening of Alaska and four Vietnamese—Tran Vinh Dinh, Ngo Vinh Long, Gen. Nguyen Chanh Thi, and David Truong.

The audience at The Group's sessions, held in room 2141 of the Rayburn House Office Building, was almost entirely composed of young people. In appearance, they provided small encouragement for tonsorial artisans or the marketers of shoes and stockings, neckties, or brassieres. The press paid scant attention to the proceedings, although there were a substantial number of reporters and television cameras in the room.

There was, at no time, any mention of atrocities carried out by the North Vietnamese—such as the burial of 5,000 people alive at Hue during the Tet offensive of 1968—or the substantial aid provided to the Communists by Moscow and Peking. More important, in view of the announced purpose of the meeting—to interpret the revelations of the Pentagon Papers and their impact on policy—there was no discussion of the early steps leading to US involvement in Vietnam.

It was *Time* magazine that named John F. Kennedy as Man of the Year in 1962 and related, at that time, that he had a joking line he used on friends: "I had plenty of problems when I came in. But wait until the fellow who follows me sees what he will inherit." *Time* further pointed out that President Kennedy endured agonies in his relations with Communists, particularly Russia.

The fact that the New Left now recognizes the role played by that Administration is emerging, even from the New Left's own think tanks. The first evidence of this is an astounding evaluation by the Institute of Policy Studies, published last month in the *New York Review of Books.* The title of the essay is "Kennedy's Private War."

According to this account, the action started in the spring of 1961, when Roswell Gilpatric, Deputy Secretary of Defense, was told victory was the goal, and it was his assignment to draw up plans to ensure that victory. Out of this came "A Program of Action to Prevent Communist Domination of South Vietnam" under the date of May 6, 1961. Five days later, Mr. Kennedy arranged to have the orders issued that would launch the program. Here are the goals, as listed in the Institute report:

1. The US objective is to prevent Communist domination of South Vietnam.

2. A further increase in GVN (South Vietnamese) forces from 170,000 to 200,000 is to be assumed.

3. Defense Department is directed to examine the size and composition of US forces in the event that such forces are committed to Vietnam.

4. The United States will seek to increase the confidence of Diem.

5. The Ambassador should begin negotiations for a bilateral agreement with Vietnam.

6. The program for covert action is approved.

At the July conference of The Group, there was no participant who quoted these paragraphs from the report of the Institute of Policy Studies:

"Kennedy's policy toward Vietnam, then, was to accelerate the war while denying that he was doing it. His policy was to promote a private war. He was willing to go it alone in Asia, but not to admit it. He disregarded the counsel of his advisers only to the extent that they preferred a public war.

"The President, clearly, did not believe that the American people would support him in his decision to escalate the level of combat. This does not mean that Kennedy thought the American people would have been opposed to a war in Indochina under any circumstances. It simply means that in 1961 the American public would not support a war whose ostensible purpose was to preserve the Diem regime."

The report makes it clear that Mr. Kennedy, taking much advice from Gen. Maxwell Taylor, had great pride and faith in the Army's Green Berets and he wanted to "carry on the Vietnam war exclusively through the Special Forces." Had he lived, says the Institute, "he would not have pulled out of Southeast Asia."

It is time the New Left, so much of it out of the Kennedy camp, learned that it has to live with these facts in the record, even if they are not in the Pentagon Papers. If they are known to The Group, the seventeen congressmen who sponsored the July conference, they did not say so.

During the first day of the Washington seminar, a member of the press corps asked the chairman whether any member of The Group, having read the Pentagon Papers, would comment on how the press had handled the story when they were leaked. Did the press do a good job at reporting their contents?

There was silence and no member of The Group spoke up.

Rep. Charles S. Gubser, a Republican from California, was present as an observer of the proceedings, and he volunteered that he had some information that might be helpful. Mr. Gubser said that the official copy of the Pentagon Papers provided for the House of Representatives was in an office "on this floor of this building." On his way to the meeting, Mr. Gubser stopped at that office and asked for a list of the House members who had been there to read or refer to the documents. He was given a list of fourteen names. He read the names. Not one of them was among the seventeen congressmen who make up The Group.

The more the subject is examined, it now appears, the deeper the dilemma will become for the New Left. Somehow, they bring to mind the problem faced by Jim Com-

THE GROUP

The seventeen members of the House of Representatives, all Democrats, who sponsored the July conference on the Pentagon Papers are:

James Abourezk (S. D.)
Phillip Burton (Calif.)
John Conyers (Mich.)
John Dow (N. Y.)
Robert Drinan (Mass.)
Bob Eckhardt (Tex.)
Don Edwards (Calif.)
Don Fraser (Minn.)
Michael Harrington (Mass.)
Henry Helstoski (N. J.)
Bob Kastenmeier (Wis.)
Edward Koch (N. Y.)
Abner Mikva (Ill.)
Parren Mitchell (Md.)
Benjamin Rosenthal (N. Y.)
William F. Ryan (N. Y.)
John Seiberling (Ohio)

stock's stupid carpenter and his efforts with a board. He cut it off twice, and it was still too short.

The Wayward Press (cont.)

To listen to their protestations, some of the newspapers sound as if they never had heard of a newspaper hoax until William F. Buckley, Jr., and his *National Review* came out with "The Secret Papers They Didn't Publish" in the July 27 issue of that magazine. The principal suckers turned out to be the Washington *Post,* the Associated Press, United Press International, and the Voice of America, the radio news service operated by the government for foreign audiences. The New York *Times,* displaying better judgment than it has on some other occasions, reported the publication, but so heavily burdened with qualifications and attribution that the sophisticated reader knew at once the story was, at the least, edited by an experienced copy-desk man. He must be over thirty, and brought up on a farm.

Probably the funniest incident was that the AP, pounding out a straightforward dispatch about the fourteen pages of new "documents" on its news wire, had to interrupt the transmission to insert a bulletin announcing Mr. Buckley had told all. The *Post,* which goes in for a good deal of self-flagellation these days, admitted to its readers that the editors were had. And that some other editors were not.

The most complete follow-up coverage on the hoax was in the *Times,* where Linda Charlton wrote a long story about how the press was taken in, while the *Times* was working hard to test Mr. Buckley's authenticity. It was the *Times,* then, that told what happened at the *Post,* an account that the *Post* did not give to its own readers. According to the *Times,* the *Post* first learned of the story from a wire service and frantically hunted for a copy of the *National Review*. Unsuccessful, they dashed to the office of Bill Buckley's brother, Sen. James L. Buckley, and—shades of the real Pentagon Papers—made a Xerox copy of his magazine. Ben Bagdikian, national editor of the *Post,* was quoted in the *Times* as saying "we checked our own documents and had none that seemed to be reflected in the *National Review*." Finally, "we went with what we had," which is an old newspaper necessity in such circumstances.

Now, the Washington *Star,* which is an afternoon paper coexisting in this city with the *Post,* subscribes to the New York *Times* news service. That means the editors can use articles, in the afternoon, that appeared in the morning edition of the *Times*. The *Star* reprinted the article by Linda Charlton. But it deleted, in its entirety, all references to what had happened at the *Post* the night before. That comes under the heading of professional courtesy.

Incidentally, it was on April Fool's Day of this year that a press release was distributed in this area by "The Sylvan Foundation" with an address at Wye Mills, Md. It said that the foundation's president, Mrs. A. S. Hawthorn, had drafted a plan which would require newspapers to retrieve and recycle their product. The press release went on, with pure spoof, to kid the telephone company because it uses poles to hang wires and history books because they emphasize rail splitting, log cabins, and George Washington's cherry tree.

Well, United Press International was had in this case. And that New York *Times* copy editor was having a night off. The *Times* printed the story, deadpan, under the head, "Conservationists Urge a Curb on Newspapers."

There is no truth to the rumor that William Buckley really is Mrs. A. S. Hawthorn. ■

Representative Gubser Challenges The Group

Representative Gubser

Representative McCloskey

—Wide World Photos

The lone member of the House of Representatives to challenge The Group on its own grounds was Congressman Charles S. Gubser of California. He is the man who checked and found that no member of The Group had requested permission to read the copy of the Pentagon Papers available to the House.

Mr. Gubser is a member of the Armed Services Committee. In recent weeks he has been carrying on a running debate with Rep. Paul N. "Pete" McCloskey, Jr., also of California, who says he may challenge Richard Nixon for the Republican nomination in 1972.

Mr. McCloskey charges that US airpower is being used in Laos without discrimination, that innocent villagers are being bombed, and that this results from a deliberate effort "to destroy the structure of that society."

Mr. Gubser, on the other hand, contends the Republican hopeful has not produced evidence to prove his accusations. He says McCloskey's charges do damage to the United States and interfere with the Nixon Administration's efforts to wind down the war.

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Aerospace World

News, Views & Comments

By William P. Schlitz
NEWS EDITOR, AIR FORCE MAGAZINE

WASHINGTON, D. C., AUGUST 10

With both pride and humor, David Scott and James Irwin activated a tape recorder to play "Off We Go Into the Wild Blue Yonder," and at 1:11 p.m. EDT August 2 rocketed their lunar module *Falcon* from the moon's surface to a rendezvous with Apollo-15's command ship, *Endeavor*.

Thus began the final phase of a mission termed "the most scientifically satisfying" in the series of lunar landings.

Except for minor problems and irritations, the mission went beautifully and chalked up a number of records, including the longest stay on the moon, the first use of a lunar roving vehicle for surface transport, and the largest haul of lunar matter—175 pounds.

The first all-Air-Force crew, including Alfred Worden who had remained aboard *Endeavor* during the lunar landing, completed its mission with splashdown in the Pacific August 7.

Scientists were elated with the experiments the astronauts were able to accomplish, the amount of varied matter brought back, and the new insights into the geology of the moon, earth—and universe. *(For photos of the Apollo-15 mission and its all-Air-Force crew, see pages 22–23.)*

CMSgt. Richard D. Kisling will replace CMSgt. Donald L. Harlow as Chief Master Sergeant of the Air Force on Sergeant Harlow's retirement October 1. Sergeant Kisling's current assignment is with the USAF Security Service facility in San Antonio, Tex.

☆

NASA has given North American Rockwell Corp.'s Rocketdyne Division a go-ahead to build rocket engines for the Space Shuttle program *(for a story on prospective developments in the program, see p. 53).*

The $500 million contract, to run through June 1978 for the production of some thirty-six engines, is seen as giving a much-needed shot in the arm to the economic fortunes of Southern California's aerospace industry. Rocketdyne is located in Southern California.

With the unemployment situation in that part of the country approaching criticality, "Thousands of jobs at many different subcontracting companies will be involved in building these engines for the main engine of the Space Shuttle," Sen. Alan Cranston (D-Calif.) said.

The Senator also commented that both Vandenberg and Edwards AFBs in California are in the running for the site of the Shuttle program's launch and retrieval base. (The Cape Kennedy complex is also a strong possibility.)

☆

Southern California is not alone in the plight of aerospace-trained unemployed. East Central Florida, proximate to the Cape Kennedy space complex, also is hard hit.

This summer, as part of the federal package to aid the aerospace jobless, a new program known as RETRO (Regional, Environmental, Training, and Research Organization) has been initiated in the area.

RETRO aims to retrain technicians for new careers in environmental control and management, a new field in which experts are needed in a battle against pollution that might prove crucial to the quality of existence in the decades to come.

Operating within a consortium of universities, including Florida Technological University, RETRO is chiefly funded under a $504,000 federal grant. And half this will pay costs, while the remainder will go to the full-time students to keep their families above water financially during retraining.

"Third Lieutenant" Air Force Academy Cadet Thomas R. Maddock mans the observation scope on an AC-119 gunship while Lt. Col. Edward A. Elbert, Jr., looks on. The scene was Phan Rang AB, a SEA base Academy seniors visited.

Officials recognize pragmatically that only the outcome of the retraining program will have justified the cost: "If our retrainees cannot be placed in new positions—and this is a major concern—RETRO will have failed its prime purpose," conceded one.

Two types of courses are offered: a short ten-week stint to qualify degree-holders as "environmental control technologists"; the second course lasts about a year and, heavy on theory, will lead to a Master's in Environmental Systems Management. The two groups began with twenty-five students each.

Once it proves itself, RETRO is likely to receive additional funding, officials are hopeful.

☆

Simulator training, which has come a long way, baby, since those early Link machines of World War II, has now branched out into another area.

Instructor Horace H. Valverde of USAF's Human Resources Laboratory monitors the progress of a "FAC" and "strike pilot" as they work the screens of a training simulator. The FAC transmits target reference points to the strike-pilot trainee, who marks the "strike" with a grease pencil. The object is faster target kills.

[In pilot training, some simulators are deemed more effective than actual flight time aboard an aircraft. See July 1971 issue, p. 22.]

Currently in experimental use is an Air Force-developed simulator designed to smooth out communications between forward air controllers (FACs) and strike pilots seeking targets.

If no major hitches develop, TAC's Special Operations Forces will utilize the portable, lightweight devices to train FACs at Hurlburt Field, Eglin AFB, Fla.

TAC hopes that the simulator training will help cut the time between target acquisition by the FAC and the strike. Experience in Southeast Asia has determined that the time lapse between target spotting and bombs-on-target varies considerably, and depends to a major degree on a FAC's skill in instructing a strike pilot. A substantial loss of time means evasion by mobile targets, even if promptly marked by FAC rockets.

The new simulator is also being tested experimentally in training Vietnamese FACs to work with US strike pilots in SEA.

In the system, psychological factors are emphasized rather than technical simulation. Using photographic imagery on screens, with a joint intercom, the student FAC and "strike pilot" work out the perceptual problems of selecting landmarks and their geographic relationship to the target. These help to correct ordnance deliveries and to judge target distance and direction.

The 1970 Mackay Trophy, awarded for the year's most meritorious flight, has been won by the ten-man crew of an Air Force AC-119K gunship.

On May 8, 1970, the gunship, while flying an armed reconnaissance mission, was hit hard by antiaircraft fire and heavily damaged, losing power and maneuverability. The aircraft stayed on target and concluded its mission.

The crew and their current posts: Capt. Alan D. Milacek, Altus AFB, Okla.; Capt. James A. Russell, sensor operator, Yokota AB, Japan; Capt. Ronald C. Jones, sensor operator, Kincheloe AFB, Mich.; Capt. Brent C. O'Brien, copilot, now separated from the Air Force and living in Galveston, Tex.; Capt. Roger E. Clancy, navigator, Air Force Institute of Technology, Wright-Patterson AFB, Ohio; TSgt. Albert A. Nash, flight engineer, McGuire AFB, N. J.; SSgt. Ronald R. Wilson, aerial gunner, McConnell AFB, Kan.; SSgt. Adolfo Lopez, Jr.,

US Aerospace Leadership in Doubt

In July, on the occasion of the delivery of the first McDonnell Douglas Corp. DC-10 jetliners to their new owners, CAB Chairman Secor D. Browne had some disquieting words about the future of US aerospace technology:

Today we lead the world in aviation and aerospace technology. But what of tomorrow? Where will our next airplane come from? Obviously, from the next engine, but where will that originate? Probably from the French, because they are the only ones currently developing a 20,000- to 30,000-pound-thrust, clean, quiet engine.

As a result, we stand a serious chance of losing our supremacy in the world aviation marketplace. This means a loss of technical know-how and a further loss of jobs. That to me is the biggest, most immediate problem facing aviation today, and I'm not aware that it's being addressed anywhere in the United States government.

In the past, we as a nation have had the courage of our convictions. Future mastery of the marketplace and favorable balance-of-trade payments depend on continued supremacy in aviation and this will take national courage in the future as it has in the past.

Furthermore, if management can't find support for future development within this country, it must turn elsewhere. The recent agreement between the Boeing Co. and the Italian government, and other agreements in the air, simply looks to me like other governments are buying our brains and, therefore, our technology.

A few years ago, McDonnell Douglas was competing only with other companies. Today, McDonnell Douglas and other US manufacturers are competing with companies who are financed by their governments—which hardly puts the competition on an even keel. And more importantly, those governments are avowedly out to capture the marketplace.

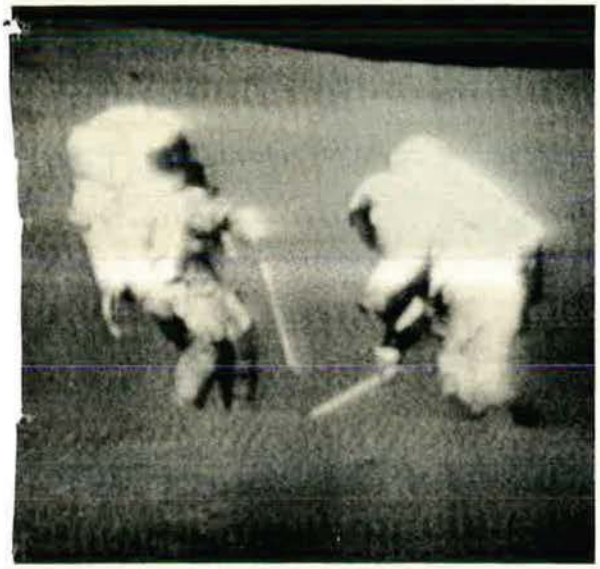
The Germans, in cooperation with the French, are producing an airbus capable of landing on very short fields with very large payloads. The Canadians, whose government had dedicated millions to STOL development, are presently the best bet to win the race for a city-center-to-city-center vehicle—needed not just in the US but around the world.

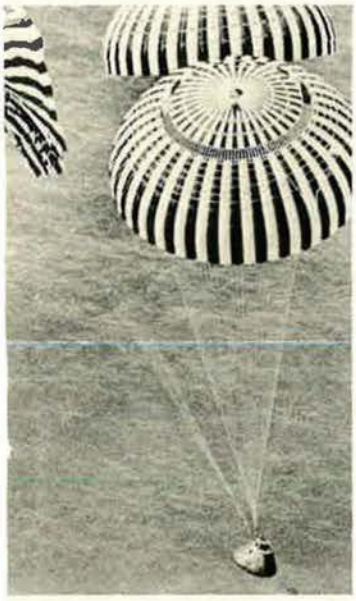
The Russians with the TU-144 and the British/French combine with the Concorde are presently in control of commercial supersonic development. We need all three vehicles—subsonic, supersonic, and STOL—so that we—the United States—have a complete product line for the marketplace.

We are the world's leaders; we have the capability of remaining the leader, and I hope all of us, the Congress, the scientists and engineers, the manufacturers, and the environmentalists will wake up to that fact lest we lose that leadership.

Departure And Return For the All-Air-Force Apollo-15

Top and above, the men and the launch: Commander David Scott, center, Command Module Pilot Alfred Worden, left, and Lunar Module Pilot James Irwin in an informal setting prior to the flight of Apollo-15 from Cape Kennedy on July 26.





Top, left, and bottom: the most extensive TV coverage of moon exploration yet thrilled the world; a parachute fails but splashdown is successful; the triumphant—and unshaven—three are welcomed with full honors aboard the US Navy carrier Okinawa.

—Wide World Photos

—Wide World Photos

—Wide World Photos

—Wide World Photos

—Wide World Photos

—Wide World Photos

The photos above capture the proud and poignant moment as the astronauts arrive home to be reunited with their loved ones. The scene took place at Ellington AFB, Tex. The three astronauts then began a period of debriefing.

illuminator operator, Eglin AFB, Fla.; SSgt. Kenneth E. Firestone, aerial gunner, Lowry AFB, Colo.; and Sgt. Donnell H. Cofer, aerial gunner, Wurtsmith AFB, Mich.

☆

In the year ended June 30, US Navy pilots set the best safety record in naval aviation history, Chief of Naval Operations Adm. Elmo R. Zumwalt, Jr., announced.

The pilots averaged 1.12 accidents per 10,000 flight hours, the lowest rate in sixty years of naval aviation. *(See July 1971 issue, p. 25, for a report on USAF flying safety. USAF's annual rate is three accidents per 100,000 flying hours, but the sets of figures, because of mission differences, aren't at all comparable.)*

The Atlantic Fleet, Naval Air Training Command, Naval Air Reserve Training Command, and Pacific Fleet Marines set new unit records for aviation safety, while the Pacific Fleet was only three percent higher than its all-time low, Navy said.

☆

Two Air Academy professors have devised a high-energy battery, the development of which has won them the Air Force Research and Development Award for 1970.

Lt. Col. Lowell A. King and Maj. David W. Seegmiller, both of the Academy's Chemistry Department, said that "our system will produce from five to seven times the energy of lead acid batteries and nickel cadmium batteries. It will also be twice as good and less expensive than the silver zinc energy systems used widely in the military."

A major possibility for the new battery: powering electric automobiles. Other prospective uses are in long-lasting radios for downed pilots; immediate high-energy batteries for critical missile reentry power; virtually maintenance free, limitless life, inexpensive batteries for a multitude of purposes.

The system consists of aluminum electrodes immersed in a liquid solution of aluminum chloride and sodium chloride.

Other high-energy systems require extreme temperatures to keep batteries working, and the necessary insulation added greatly to size and weight. The King/Seegmiller system requires heat in a very moderate temperature range.

☆

Now more than a year old, Project MAST will be allowed to continue pending an independent evaluation.

MAST—for Military Assistance to Safety and Traffic—is a cooperative enterprise by the Departments of Defense, Transportation, and Health, Education, and Welfare that permits military personnel and helicopters to respond to civilian medical emergencies in remote areas.

The outside appraisal, by Ohio State University and the Stanford Research Institute, is expected to last about six months.

From the outset, MAST has had two objectives: to determine the feasibility of such an effort by the military; to determine how military assistance can complement civilian efforts in the evacuation of accident victims.

From July of last year to June 28, 1971, MAST personnel have conducted 415 missions leading to the evacuation of 516 patients.

☆

The growing number of incidents of unruly behavior aboard MAC passenger flights going overseas has prompted a cautionary letter to all major military commands from Hq. USAF.

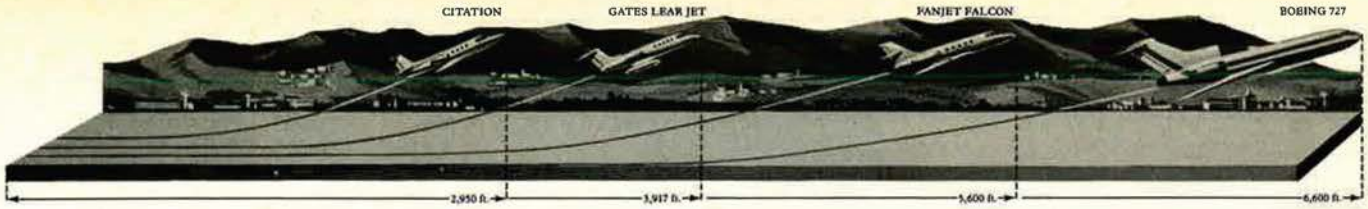
Incidents have reached such proportions "as to cause concern for the safety of the other passengers, the aircraft, and its crew," Air Force officials said.

"Since almost all overseas passenger movements are aboard chartered commercial airlines with a civilian crew, any misconduct by a member not only reflects upon that member, but also to the discredit of the armed forces and the member's service, in particular," officials said.

Aboard a helicopter, and backed by US air support, Vietnamese Lt. Gen. Nguyen Van Minh led July's push of 10,000 troops into eastern Cambodia. He said the move was to keep the enemy from disturbing South Vietnam's elections in August.

—Wide World Photos

Designed to prevent runway overshoots or contain aborted takeoffs, the runway arresting gear shown here can handle aircraft up to the size of the C-5. Manufactured by All American Engineering, the Model 64 system has been tested extensively at Edwards AFB, Calif., with B-52s. Commercial applications have proved successful.



Distance it takes various jets to reach an altitude of 35 ft. at maximum gross weight; a principal measurement of balanced field length.

The new Cessna Citation® lands and takes off from 828 airports where no other corporate jet can.

Available "off the shelf" this meticulously designed 8-place jet offers many advantages over corporate jets costing a million dollars and more—simplicity, mission flexibility, and low operating cost.

1. A PACKAGE—NOT A PLANE.

With the low price comes a complete program—not just a modern twin turbofan plane.

Initial crews and instructor pilots will receive intensive professional training at American Airlines Flight Academy.

A worldwide network of support will keep your Citation within one jet-hop of quick and qualified service.

Maintenance will be computerized; we'll help you improve reliability and reduce "downtime."

Your Solid-State avionics will be completely factory installed. So will your interior.

The warranties will come from a single source—Cessna—and are the largest offered by any corporate jet today.

All this, and a low price, too.

2. THE DOOR-TO-DOOR JET.

The Citation can take off and climb to 35 feet in less distance than any other corporate jet; only 2950 feet. And that's at maximum gross weight—with a full load of fuel, baggage and passengers.

Overnight, the Citation gives thousands of fields throughout the world jet handling capacity.

It can fly you directly to out of the way airports and military fields where the runways are too short for all other corporate jets.

When the Citation does use major jetports it can get in and out of them faster, simply by using the shorter runways where bigger jets aren't allowed.

3. OVER 1500 JETS.

Nearly two decades of jet know-how have gone into the design of the Citation. The T-37, affectionately nicknamed, Tweety Bird, was first delivered in September, 1955 and has performed the yeoman task of serving as the training aircraft for more than 30,000 U.S. Air Force jet pilots. An evolution of the T-37, the A-37, was delivered in 1967. It has been operational in Vietnam as the only turbojet aircraft designed specifically for close support and counter insurgency in Southeast Asia.

New from the ground up, the Citation is not a modified version of the over 1,500 jet aircraft designed for the military. However, the same attention to detail—engine selection, handling characteristics, cockpit arrangement, completeness, initial cost, reliability and operating cost—has gone into the Citation.

4. QUIETEST JET OF ALL.

Three engine parts make a jet shriek: inlet guide vanes, axial compressors and stators. The Citation doesn't have any inlet guide vanes, only one compressor and one set of stators. So it purrs. In fact, you could be standing next to the Citation's takeoff point and still carry on a conversation in normal tones.

The quietest jet of all is a good neighbor.

5. A BIGGER FOOTPRINT.

The tires on a Citation are larger and wider than tires on any other jet in its class. They work the way wide tires on your car work. When you land, they weld the plane to the runway. When you brake, they create more friction and you stop faster.

6. UNPAVED RUNWAYS.

The Citation can land on almost any kind of runway. It has oversized, low-pressure tires that absorb and disperse shock. Its landing gear has passed arduous stress tests. Its engine inlets are positioned over the wing so they're protected from FOD.

7. 83-KNOT TOUCHDOWN: BEST OF ANY CORPORATE JET.

Most corporate jets touch down at over 100 knots. The Citation can come in at under 85. A comforting thing to know if the runway you're landing on is short, wet or icy.

8. LOWEST JET OVERHEAD.

Fan jets are less expensive than ordinary jet engines. They burn less fuel and operate more efficiently at a variety of altitudes than ordinary jets. The Citation has fan jets. Fan jets are also easier to maintain than ordinary jet engines. What's more, no other corporate jet has engines as easily accessible for maintenance as the Citation's. Time is saved in troubleshooting and servicing is greatly simplified.

The Citation is completely standardized from nose to tail. Even its avionics. So repairs can be made quickly and at less cost.

9. MORE JOBS—FEWER PROBLEMS

Pilots who have flown the Citation rave about its handling characteristics. The Citation has none of the common jet aerodynamic problem symptoms that require sophisticated devices for flight safety—there are no stick pushers, stick shakers, yaw dampers, boosted controls or leading edge wing devices. Uncomplicated systems—uncomplex maintenance. The Citation would make an excellent trainer, transport, or utility aircraft with Category II special mission capability.

Brig. Gen. Jesus Singson, Commander of the Philippine Air Force, presents that service's Golden Wings to USAF Chief of Staff Gen. John D. Ryan. Cast in the shape of Command Pilot insignia, the wings have been awarded on just one other occasion —to President Marcos of the Philippines.

Such cutups are to be removed from the aircraft at the first point of landing and turned over to the security police.

Commanders have been asked to identify potential miscreants so that steps can be taken "to assure more positive control." The code "U" is to be entered in column twenty of the reservation request form, and will be based on the member's previous disciplinary record and the best judgment of the commander.

☆

The Air Force has reached major points in two of its promising missile programs.

In midsummer it successfully completed a development flight-test program of the short-range attack missile (SRAM). Air Force said that the "thirty-eight flights conducted in the program demonstrated the missile's launch capability at both subsonic and supersonic speeds and its ability to approach targets at both high and low altitudes."

SRAM is to arm our force of B-52s and FB-111s, as well as the B-1 bomber currently under development.

Nineteen SRAMs were test-launched from B-52s and an equal number from the FB-111. Results demonstrated that the Boeing missile can "hit targets at varying distances ahead, behind, and to the side of the aircraft from which it was launched."

The Air Force also awarded Hughes Aircraft Co. a production contract for the Maverick (AGM-65A) air-to-surface missile. The action came following an extensive test program at Holloman AFB, N. M.

The new contract, worth some $69,910,128, provides for 2,000 missiles and related support equipment to be delivered beginning in 1972.

Maverick is an electro-optical, TV-guided weapon to be used on the F-4E and A-7D fighters. It can hit such fixed or moving small hard targets as tanks, armored vehicles, artillery, and field fortifications.

☆

By a one-vote margin, forty-nine to forty-eight, the Senate on August 2

In July, the first production version of the Navy's remotely piloted, supersonic Firebee II aerial jet target was rolled out at Teledyne Ryan Aeronautical's plant at San Diego, Calif. The Navy and Air Force's initial order is for 118 Firebee IIs to be delivered through 1972.

gave final approval to a measure designed to stave off bankruptcy of the Lockheed Aircraft Corp.

The action followed by several days a House vote of 192 to 189 backing an identical bill.

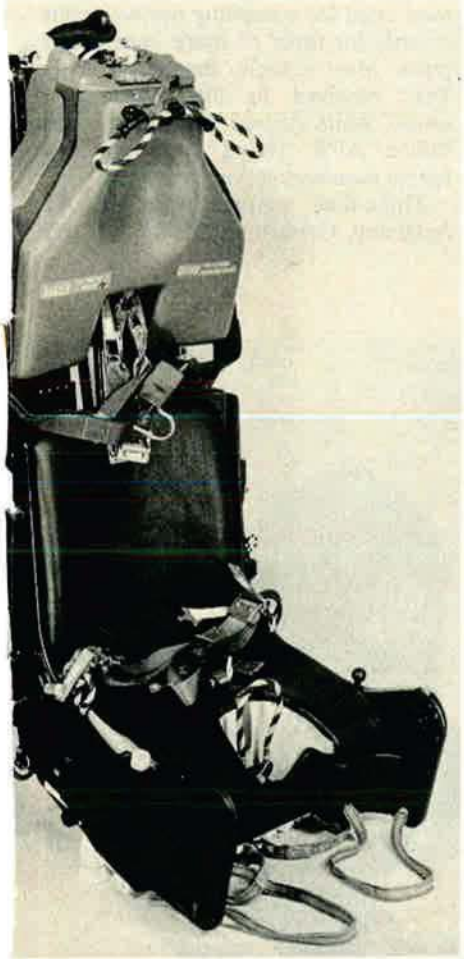
The legislation will permit the government to guarantee up to $250 million in loans to the hard-pressed company.

In the battle over the bill, the winning argument was that the nation's largest defense contractor—which with its subcontractors employs 60,000 people—shouldn't be allowed to fail. The bill's opponents contended that Lockheed has been responsible for hefty cost overruns because of alleged faulty mismanagement and shouldn't be bailed out any longer.

Presumably, the financial help will allow Lockheed to continue to build its L-1011 commercial transport.

☆

Currently under way is a program



On July 21, 1971, the 3,000th aircrew member was saved by an ejection seat built by Britain's Martin-Baker Aircraft Co. Since the company produced its first seat in 1945, more than 40,000 have seen service in the air forces of fifty-one countries, including the US.

At the annual Bosses' Night of Washington, D. C.'s Top-Side Aviation Club (a group of executive women in aviation) were, from left, AFA's Dottie Flanagan; AFA President George Hardy; club president Joanne Meredith of General Dynamics; guest of honor David S. Lewis, head of General Dynamics; and AFA's Marcella Myers, club treasurer.

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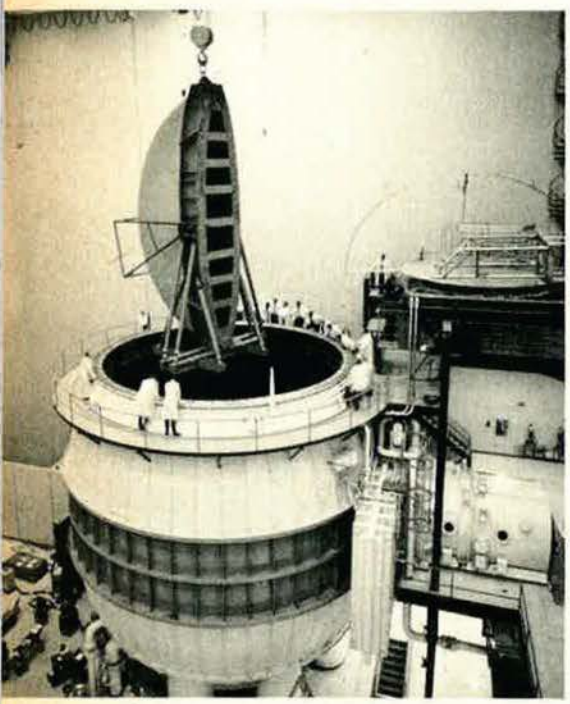
to build an experimental high-strength armored crew seat for military cargo and transport aircraft. Part of the project is to integrate a tri-axis energy-absorption system to reduce the effect of severe impact on crew members during survivable crashes, the Air Force said.

First phase of the program, undertaken by Budd Co. of Ft. Washington, Pa., will include a detailed study of major seat components to incorporate crash protection devices, structural armor techniques and materials, and comfort and adjustment features for long flights.

The Air Force said the new seat is to provide protection against a .30-caliber, armor-piercing projectile fired directly at it. A front shield will prevent injury to the seat occupant or other crew members.

Cheyenne Mountain near Colorado Springs, Colo., will soon house a new utilities plant for the NORAD underground command post. Another phase of the modernization program will be construction of a control center for the Safeguard antiballistic missile system.



Huge radome for USAF's upcoming AWACS to go aboard Boeing 707s enters a vacuum chamber at the firm's Seattle facility. The chamber is used to test radomes at simulated altitudes of 40,000 feet.

☆

USAF Aero Clubs from forty-nine air bases were honored early in August by the FAA for conducting flight operations for the year 1970 without a single aircraft accident.

To their credit, several of the clubs were cited for compiling perfect safety records for three or more consecutive years. Most notable, Bergstrom AFB, Tex., received its fifth consecutive award, while Arnold AFS, Tenn., and Vance AFB, Okla., accepted their fourth consecutive yearly awards.

Three-time winners were the AF Academy, Grissom AFB, Ind., March

The widow of SSgt. Rogers D. Mobley, a USAF recruiter mortally stabbed while in his office last April, accepts his Meritorious Service Medal and a $5,060 check in private donations from Brig. Gen. W. C. McGlothlin, Jr., head of USAF recruiting. Sergeant Mobley's mother looks on.

AFB, Calif., and Whitman AFB, Mo.

The awards, first presented in 1964, are part of the joint USAF/FAA program to promote aviation safety. During 1970, seventy-three USAF Aero Clubs were operated involving 10,550 officers and enlisted men. The clubs flew 425 government and civilian lightplanes a total of 280,292 hours. With these kinds of figures, safety must have been the foremost consideration with most.

☆

The US Navy has halted development of its F-14B fleet air-defense and air-superiority fighter and, for the time being at least, plans to perform these missions with the F-14A.

Pentagon spokesmen were sparse in their comments concerning the Navy's ultimate plans but admitted that Deputy Defense Secretary David Packard was discussing the matter with Navy and Air Force representatives.

The F-14B's engine, Pratt & Whitney's N-401-PW-400, is being developed by JEPO (Joint Engine Program Office), headed by Brig. Gen. Benjamin Bellis, System Program Director of the F-15 at Wright-Patterson AFB, Ohio. Basically identical engines are to power both the USAF's F-15 and the F-14B.

Spokesmen for the two services refused to discuss the effects of the Navy's action, which was attributed to increased costs of the F-14B program, on the F-15's production costs. A sharp reduction in the "buy" of the advanced technology P&W engine is likely to increase its unit cost to the Air Force, however. The F-14A is powered by the older TF30 engine, power source of the F-111.

☆

Another controversial USAF program received a shot in the arm recently. President Nixon, in a surprise move, asked Congress for $112 million to provide for an additional twelve F-111s.

If Congress approves, the production run of the "F" version of the F-111 would be restored to eighty-two aircraft. The total F-111 force would then stand at 531 planes, including FB-111 bombers.

The President also requested $183.8 million to cover cost increases that unexpectedly developed since the budget submission back in February. Of the total, not all would represent new money. About $91 million would come from reserve Air Force funds and cancellation of some equipment development.

The President also requested $14.5 million in new money to purchase as many as thirty STOL aircraft to be tested in Southeast Asia. Source selection, involving one or more designs, is currently in progress.

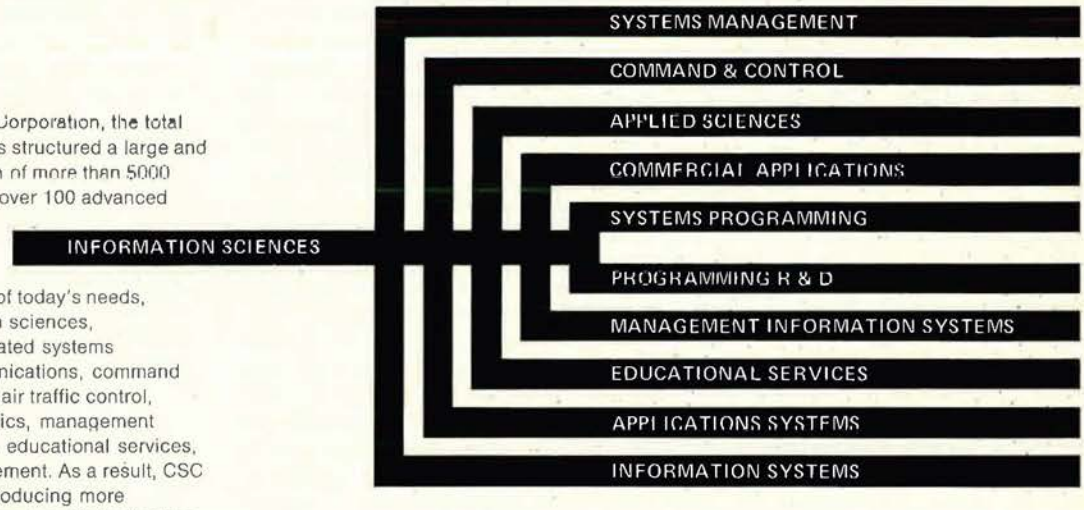
☆

NEWS NOTES—Britain's **A. E. Russell,** "father of the [Anglo-French] Concorde," has been awarded 1971's **Daniel Guggenheim medal,** a top US aviation honor.

Belgium became the sixth nation to join NATO's **Seasparrow Project,** an effort to produce a second-generation, shipboard, point defense weapon system. The others are the US, Italy, Denmark, Norway, and the Netherlands.

Lt. Gen. Benjamin O. Davis, Jr., USAF (Ret.), has been sworn in as **Assistant Secretary of Transportation for Safety and Consumer Affairs.** He is now the highest ranking black in DOT and one of the highest in government. ■

fast-reaction capability



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Airman's Bookshelf

Success and Failure

McNamara: His Ordeal in the Pentagon, by Henry L. Trewhitt. Harper & Row, New York, N. Y., 1971. 307 pages with index. $7.95.

The first three chapters of eleven in this book give the impression that the author is going to extol the virtues and performance of an unusual and capable man. What follows, however, is a review of many controversial episodes in the regime of Robert S. McNamara as Secretary of Defense. The accounts provide comfort for both supporters and opponents of the Secretary. The book is interesting, readable, and worth reading.

One can't say the book analyzes the basis of the controversial problems, and the causes of differences between Mr. McNamara and the armed services. The chronicle is slanted to favor the McNamara mode of operation in the Pentagon.

Perhaps the most famous controversy was over the TFX, now the F-111. Mr. Trewhitt is in error when he writes, on page 137, that "the Air Force wanted a plane that weighed no less than 75,000 pounds, the Navy one that weighed no more than 55,000."

Actually, the Air Force hoped to attain a weight of 45,000 pounds. At a meeting of USAF commanders at Langley AFB, Va., Gen. Frank F. Everest, then head of the Tactical Air Command, made it clear that he would not accept any "g-- d--- 70,000-pound airplane." His position was soundly based on technology. Later, the General relented, but still would not accept anything above 60,000 pounds, and this was a "trade" he offered to get a significant high-speed, low-level penetration radius.

Mr. Trewhitt accepts the idea that interservice rivalry was involved in the reluctance of the Navy and Air Force to accept the concept of a commonality in the TFX project. "The shotgun wedding was thereby performed," he says in the book. Actually, the impetus for this approach preceded Mr. McNamara by as much as two years, and was generated in what is now the Tactical Weapons Branch of the Pentagon's Research and Engineering Office, which was staffed in part by former RAND employees.

The requirements of the two services were not compatible. The Navy needed loiter time on station; this called for subsonic capability. In combat, the Navy could use a long-range, air-to-air missile, and USAF, with pilots who—in a dogfight—would identify a foe by eyeball, not radar, found the 20-mm gun important. USAF also needed high speed on the deck and electronic countermeasures. There were differences on desirable length, one or two-man cockpits. As the pressure increased, the Air Force compromised more and more in order to get the program moving. To a large extent, it was the requirements imposed by the Navy, on top of TAC's, that pushed the weight up.

Another controversial matter was Skybolt, an air-launched ballistic missile. Author Trewhitt does not waffle the fact that Mr. McNamara was more interested in cost-effectiveness than he was in diplomacy. And diplomacy was an issue with the Skybolt, because Great Britain was prepared to use it on its Vulcan bomber. The truth is, and the book supports this thesis, that more than the failure of adequate cost control led to cancellation of the program. The need for a stand-off weapon of this type still exists. The cancellation was a setback to our weapons inventory.

In the early chapters, attention is given to Mr. McNamara's successes with the Ford Motor Co. It is also noted that the firm had a chaotic situation at the management level. The opportunity for Mr. McNamara to show improvement was there, when he arrived. By application of methods he had both learned and taught at the Harvard Business School—which were based on the management methods of Alfred P. Sloan, who made General Motors great—Ford got back on its feet. One wonders if the same McNamara group had been employed by GM whether their management careers would have been so meteoric?

There is a chapter on Vietnam. Years before McNamara, generals had made the point that we should never get drawn into a land war in Asia. Yet we did. Mr. McNamara may have received an unfair share of the blame, according to the Trewhitt account, but the fact remains we did not and do not have the manpower to occupy the ground. When we used our airpower, we used it hesitatingly and under target restrictions. This was part of flexible response and it ensured our failure.

The antiballistic missile (ABM) was too late and too little. Mr. Trewhitt says that Mr. McNamara "resisted deployment of the ABM" to the end. One can expect we will need the ABM in the '70s and '80s, lest we become victims of nuclear blackmail.

Much is made by the author of "interservice rivalry" and attempts to control it during the McNamara regime. To some of us on the outside, this rivalry is not entirely evil. It does engender competitive thought that leads to new and valuable weapons.

In the X-airplanes program—the X-1 was the first to fly supersonic—USAF used a Navy-developed rocket engine. In the D-558, the Navy used an air-breathing engine—the TG 180—developed by USAF. The F-4, now in great numbers in the Air Force, was a Navy development. The Navy's Polaris is an important factor in our strategic arsenal.

Interservice rivalry contributed to these successes. Much of the debate is among the civilians, who are oriented toward politics, organization, and management. When the chips are down, the hard core of our armed services are compatible.

At one point, Mr. Trewhitt speaks of Mr. McNamara's concern about his public image. He says this was reflected "in the spectacular growth of the Pentagon public relations machinery in size and sophistication during his administration." This is a truth that was not mentioned by the Columbia Broadcasting System in last winter's controversial documentary, "The Selling of the Pentagon." It should have been.

Somehow, in the Pentagon of the 1960s, there was a failure to exercise brilliant management on worthy concepts. Still, Mr. McNamara has a broad background in industrial management. This, with his experience in defense and diplomacy, should make him an outstanding choice to head the World Bank.

—*Reviewed by John Stack. For more than forty years, Mr. Stack has been one of the nation's leading aeronautical engineers, and was described before the McClellan Subcommittee as "Mr. TFX." He is the only man who has won the Collier Trophy twice (1948 and 1952) as well as the Wright*

Brothers Memorial Trophy (1962). He designed the first supersonic airplane (the X-1) and is known in the industry as "father of the research airplane." He now is Vice-President for Engineering of Fairchild Hiller Corp.

Retrospective Perspective

D-Day: The Normandy Invasion in Retrospect, The Eisenhower Foundation. University of Kansas Press, Wichita, Kan., 1971. 254 pages with bibliography and index. $7.50.

The length of Dwight Eisenhower's shadow grows with time. The more private papers that are published, and the deeper the research, the greater Eisenhower's reputation becomes. Each chapter of this valuable volume deals in some way with Ike's leadership, adding to his luster.

This book contains the papers delivered by noted historians at the Eisenhower Library on the twenty-fifth anniversary of D-Day. Though not uniformly excellent, the weakest are good (and corrected by the brilliant commentary of other participants) and the strongest are outstanding.

Forrest Pogue revises the popular image of Eisenhower as diplomat rather than commander. Pogue was there that memorable day, and few know more of the documents and the truths they contain than he. Alfred Goldberg's account of the air campaign suffers from a desire to smooth over conflicts in the high command and to pass out bouquets. He covers most of the story while being too kind to the Air Force. Col. Alfred Hurley comments on this paper and criticizes when necessary to give a fuller picture of the "turbulent milieu." Goldberg offers the standard account of unparalleled and unmitigated success, while Hurley believes that the popular view needs revision so that the truth will be presented and errors not repeated. Maurice Matloff reappraises the writings of those historians who condemn Roosevelt and Eisenhower for permitting the Soviets to turn triumph into tragedy. Matloff forces the reader to look at the situation through the eyes of combatants, without hindsight. He instructs us to remember the influence of the Pacific war on European strategy, and asks us to consider the result of major operations in the Balkans on the future of Western Europe. Other articles discuss the logistic problems and present the naval story (from both sides), adding depth to the history.

Martin Blumenson politely and concisely takes on Bernard Montgomery. He calls for documentation to prove Montgomery's vision and audacity. His article is valuable because it is a bibliographical mine, as are all others delivered by these professional historians. The last article was added after the symposium of historians to round out the picture. Robin Higham's chapter relates the D-Day "Wizard War." This interesting account details the fascinating story of the successful attempt to confuse the enemy about the invasion's true location. He also discusses the engineering feat in building the artificial harbors that were of vital importance following the initial landings.

D-Day, with its excellent maps, clear charts, interesting photographs, and thorough footnoting, is valuable to the scholar, and so well written that the nonstudent will also find it exciting and worthwhile.

—Reviewed by Maj. Alan L. Gropman, Department of History, USAF Academy.

Recent History

Strategic Survey 1970, The Institute for Strategic Studies, London, England, 1971. 95 pages. $2 softcover.

In compiling its *Strategic Survey 1970,* the prestigious Institute for Strategic Studies has provided a handy interpretive history for students of military and world affairs.

The *Survey* presents in a clear and readable way the jumbled and complex strategic events of the year 1970, and is objective in placing them in perspective.

Since past is prologue, understanding the currents and international tides of change that swept 1970 is basic to grasping current events and at least dimly anticipating future probabilities.

Aside from its discussion of the activities of the Soviet and US superpowers and such worldwide phenomena as air piracy during 1970, the *Survey* groups its essays logically to conform to interrelated situations in specific geographical areas.

Thus, in its section on the Middle East, the *Survey* offers a concise study of the Arab/Israeli confrontation and then goes on to outline the significance of the growing Soviet influence in the area.

Likewise, among comments concerning Europe, the *Survey* emphasizes both West German and French defense policy, along with negotiations to ease tension on the Continent, and a report on the status of the Warsaw Pact nations.

To flesh out its *Strategic Survey,* the Institute has supplied many informative maps and tables, upon which its reputation for accuracy has been partially established, plus a chronology of significant events for easy reference.

—Reviewed by William P. Schlitz, News Editor of AIR FORCE *Magazine.*

Power and Personalities

Stilwell and the American Experience in China, 1911–45, by Barbara W. Tuchman. Macmillan, New York, N. Y., 1971. 621 pages with index, bibliography, and notes. $10.

Joseph Warren Stilwell apparently had a premonition that history would seek him out. He faithfully kept notes on meetings, even casual conversations, and among his papers Barbara Tuchman found football stubs dated 1904.

General Stilwell's career and destiny in China turned on one of those quirky pivots that determines so many things in military life. He had visited both China and Japan in 1911 during a leave, and opted for duty in Japan in 1919 but those posts were filled. China was open, and Stilwell was assigned there in 1919 as the first language officer to represent the US Army.

Reporting on China's turbulent history between 1911 and 1944, when General Stilwell was recalled, Mrs. Tuchman has created a fascinating study of power and personalities. Here are Franklin D. Roosevelt, Winston Churchill, Joseph Stalin, and, of course, Chiang Kai-shek at the highest reaches of command. Stilwell had a generally poor opinion of them all, but his choicest sarcasms (and "Vinegar" Joe Stilwell could be scorchingly and refreshingly sarcastic) were reserved for China's Generalissimo. He referred to the G-mo, in less exasperated moments, as the "Peanut." The peanut designation came from experiences in France during World War I, when General Stilwell was rankled by officers from civilian life who had obtained superior rank. He described one as a "shifty-eyed smiler from the Peanut Club." This was his designation for "millionaires, politicians, and social darlings who have been given commissions of major and up, and soft jobs." Stilwell was a major at that time.

Stilwell and the American Experience in China, despite its size, is tightly written. The author has done a splendid job of sifting and straining a mass of source material. The book takes us across a mighty sweep of

events that formed the basis for our present involvement in Asia.

There are defects. Gen. Claire Lee Chennault, commander of the American Volunteer Group, and later the Fourteenth Air Force, comes off a conspirator against Stilwell's concept of operations. The author ignores the enormously effective efforts of the Fourteenth Air Force in the disastrous, hot days of 1944 when Chennault's squadrons were at the front. The survivors of the Japanese force that slammed down from Hankow and cut across Tungting Lake could have provided some historical background.

The last sentence of the book tightly ties the knot on this package of time and trouble: "In the end China went her own way as if the Americans had never come."

—Reviewed by Gerald J. McAllister. Mr. McAllister served in China during World War II, and now is with Aerospace Industries Association.

Roots of a Peninsular Struggle

Wider War: The Struggle for Cambodia, Thailand, and Laos, by Donald Kirk. Praeger, New York, N. Y., 1971. 305 pages with notes, bibliography, and index. $10.

Mr. Kirk has combined his scholar's knowledge of Southeast Asia with his experience since 1965 as a SEA correspondent for the Washington *Star* to provide a balanced, substantive, and timely analysis of the overall struggle occurring in the Indochinese peninsula. He believes that the Vietnam War is only one aspect of that struggle. The author chronicles and shows the relationships among conflicts that have been taking place in Cambodia, Thailand, and Laos concurrently with the war in Vietnam. He discusses their ancient antecedents, present critical situations, and uncertain future resolutions.

Kirk no doubt will enlighten readers among the general public and in official positions by recalling that Thai-Vietnamese rivalry for control of Cambodian and Laotian territory on either side of the Mekong River long predates the US attempt to stop the spread of communism in these Indochinese states; that the ethnic, religious, economic, political, and military conflicts in all four countries are deeply interwoven; and that these related conflicts will likely continue for some time even if the United States should withdraw from the region. He makes the important observation that the opposing Indochinese factions seem so bitterly irreconcilable that the region will likely endure more horrible and extensive war before some settlement, however unhappy, emerges.

Despite President Nixon's announcement at the outset of the invasion of Cambodia on April 30, 1970, that "we shall avoid a wider war," events since then have shown that the struggle in Indochina has grown, both intensively and extensively. It seems to have been an almost inevitable growth, independent of the United States presence. The many years of active US involvement in these conflicts has not mediated them. Some argue that our involvement may have even aggravated them. At best, it may have delayed their coming to a settlement on strictly Indochinese terms.

One is left with the impression that if outside powers such as France, the United States, China, and the Soviet Union could be persuaded to eschew intervention in the conflicts of the Indochinese states, they themselves would eventually establish an equilibrium of power and a satisfactory peace. Kirk demonstrates a compassionate interest in shedding light on the complex Indochinese struggle, and thus perhaps contributes to minimizing whatever bloodshed is inevitable in that troubled region. He suggests that US withdrawal from the struggle is probably the wisest course, since only the most extreme intervention by any of the outside powers could bring a satisfactory peace to Indochina.

—Reviewed by Dr. Joseph W. Annunziata, Research and Analysis Division, Office of the Secretary of the Air Force.

Japan and the Nixon Doctrine

Japan's Postwar Defense Policy, 1947–1968, by Martin E. Weinstein. Columbia University Press, New York, N. Y., 1971. 160 pages with index. $7.50.

Mr. Weinstein [who has reported on Japan's Air Force for this magazine] has written an interesting and thought-provoking study of Japanese defense policy spanning the years 1947–1968. This time period includes the years of American occupation, when one might assume that there would have been few Japanese defense policy initiatives. This is where the author's main thesis is established and, concurrently, where he makes his greatest contribution to scholarship on the subject. He notes that, contrary to common opinion, the Japanese government conceived a defense policy early in the postwar era and worked resolutely for its realization.

In essence, Mr. Weinstein introduces the Ashida Memorandum, a policy document written in 1947 by the then head of the Central Liaison Agency (now known as the Foreign Ministry), Ashida Hotoshi. Ashida proposed that cooperation between the United States and Japan take the form of Japanese support for the US in the cold war. In return, he envisaged a US guarantee of Japan's safety from external threats. Included in the memo was the suggestion that Japan assume responsibility for her own internal security.

Having introduced the Ashida Memo, the author proceeds to trace the involved interaction among key personalities and between the US and Japanese governments, concerning the US desire for Japanese participation in the defense of the Far East. The Japanese government continuously maintained that its commitment was to the islands of Japan; however, some interest was revealed when Korea was the subject under discussion.

The reader is brought to realize that, step by step, the Japanese government has accomplished its goal of a US commitment similar to that noted in the Ashida Memo, and subsequently articulated by Prime Minister Yoshida.

This book is a very timely treatment of an interesting phase of American-Japanese defense policy relationships. It will serve as an excellent starting place for individuals interested in Japan's future role in Asian defense vis-à-vis the Nixon Doctrine.

—Reviewed by Maj. John E. Endicott, a former member of the Air Force Academy Department of Political Science.

New Books in Brief

World War I, by S. L. A. Marshall. A new printing of Brigadier General Marshall's excellent history of the first war. Many illustrations and maps. American Heritage Press, New York, N. Y., 1964, 1971. 497 pages with index. $6.95 hardback.

Four new titles in Ballantine's Illustrated History of the Violent Century series are: *Hitler's High Seas Fleet,* by Richard Humble; *Mosquito: Wooden Wonder,* by Edward Bishop; *Mountbatten,* by Arthur Swinson; and *New Georgia: Pattern for Victory,* by D. C. Horton. Ballantine Books, New York, N. Y., 1971. Each 160 pages. $1.00 softcover. ■

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MAIN FUEL CONTROL by Chandler Evans

The JetRanger-II, Bell's five-place commercial helicopter, carries a bigger load, faster, at no increase in direct operating cost. Reason? It is powered by Allison's new 400 hp C 20 turbine engine equipped with the new MC-40 fuel control system engineered and precision-produced by Chandler Evans.

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Most cargo ships waste 1 day out of 4 at dockside. This cargo ship doesn't even need a dock.

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So that this ship, called the Seabee, doesn't need to go anywhere near a dock.

This magnificently simple idea promises a whole new lease on life for the U.S. merchant marine.

What does it mean?

It means that with these specially designed barges, cargo can be transferred from land transportation to the barges out of the weather in a minimum of time, and with a continuous availability of barges.

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Some 24,500 long tons of cargo in thirty-eight 97-foot special barges can be loaded aboard the 875-foot Seabee. In just 13 hours. Far away from docks and piers, at a roadstead or estuary.

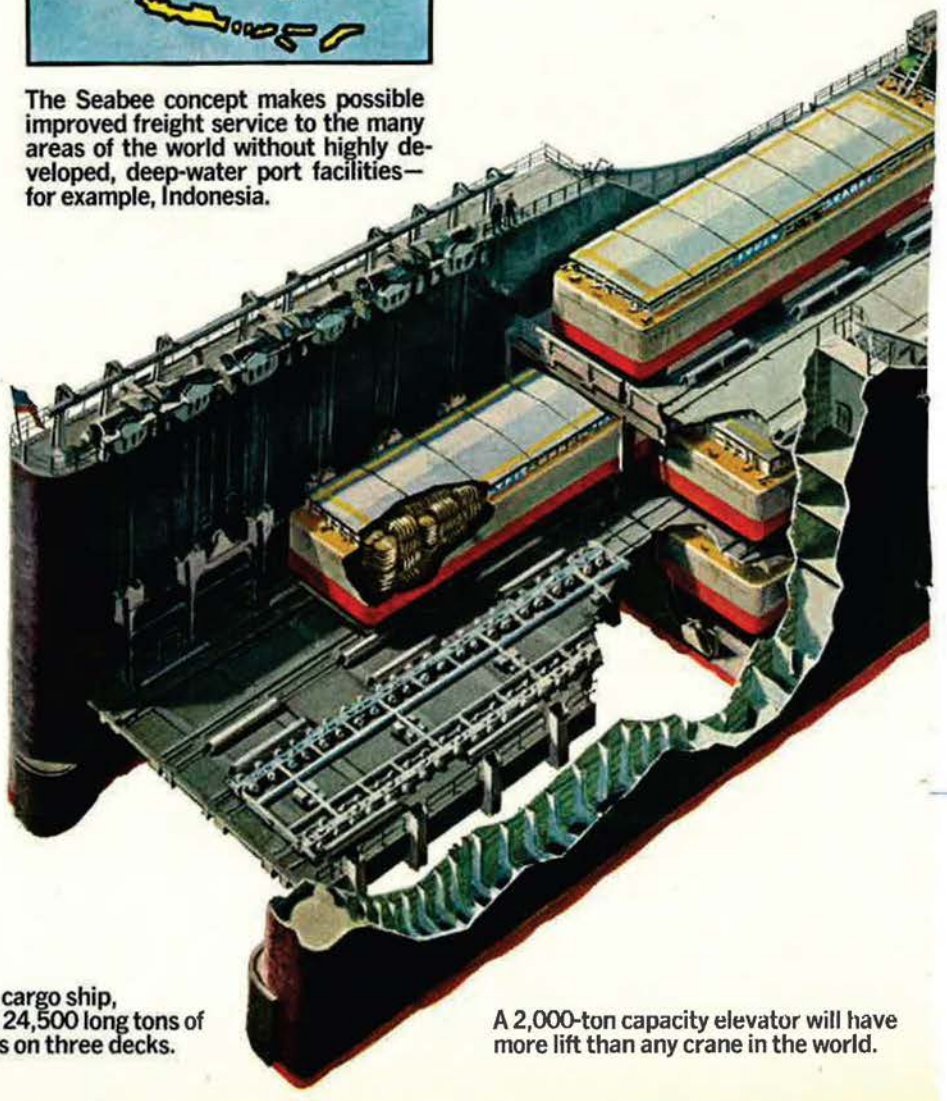
It would take more than a week to get this much cargo aboard conventional freighters at a dock. Maybe after days of waiting for dock space.

Lykes Bros. Steamship Co. Inc., of New Orleans conceived the Seabee system. And its promise is now being fulfilled at General Dynamics' Quincy Shipbuilding Division in Massachusetts where the first of these ships was launched July 10, 1971.

The Seabee will be the largest dry cargo ship afloat, with a unique design and a cargo-handling system that have led us to some of the most exacting marine engineering solutions in shipbuilding history.

The heart of the cargo-handling system is a 2,000-ton capacity submersible elevator that lifts the loaded barges safely from the sea, two at a time.

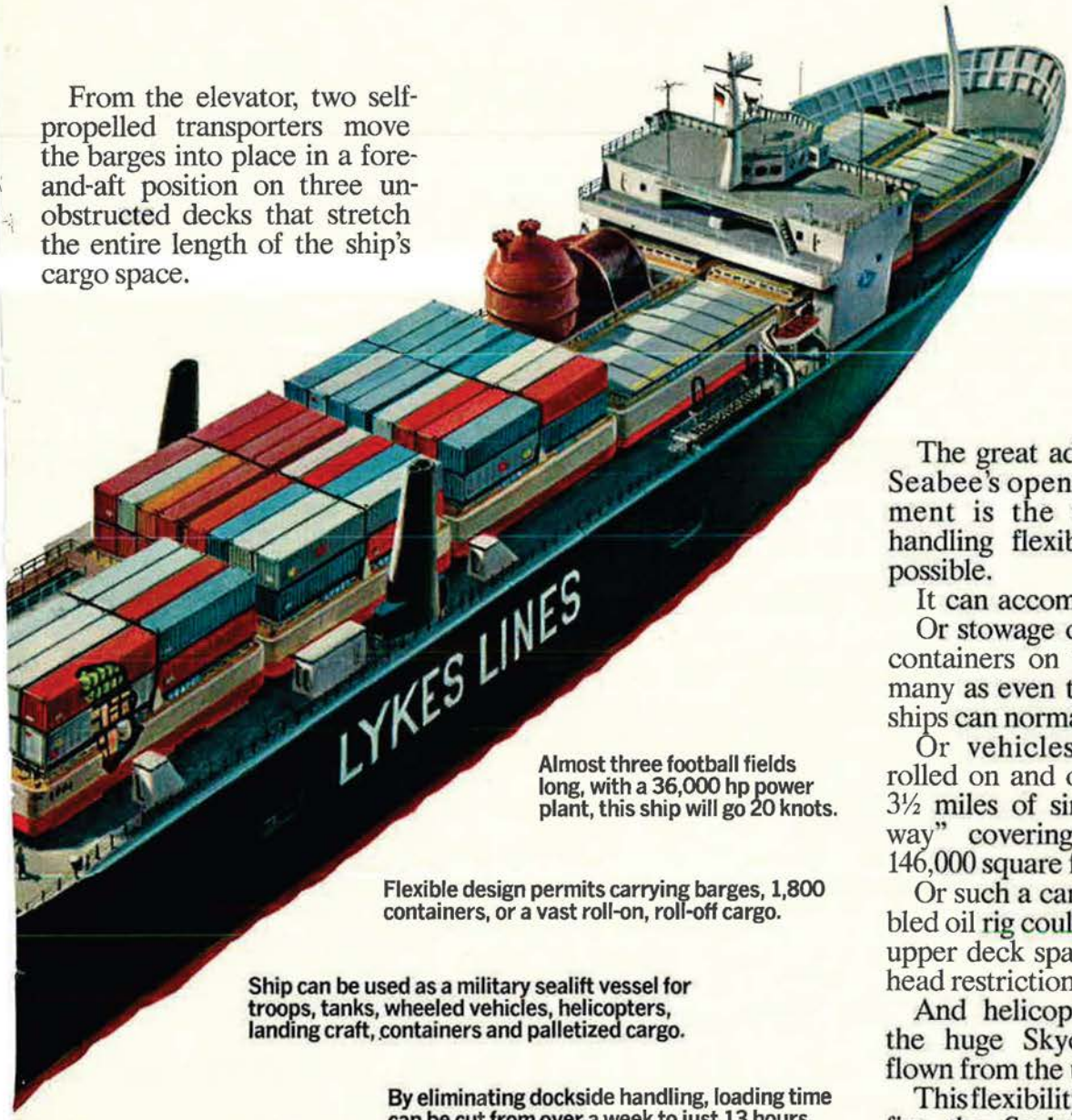
The Seabee concept makes possible improved freight service to the many areas of the world without highly developed, deep-water port facilities—for example, Indonesia.



The world's largest dry cargo ship, Seabee can carry up to 24,500 long tons of cargo in 38 huge barges on three decks.

A 2,000-ton capacity elevator will have more lift than any crane in the world.

From the elevator, two self-propelled transporters move the barges into place in a fore-and-aft position on three unobstructed decks that stretch the entire length of the ship's cargo space.



Almost three football fields long, with a 36,000 hp power plant, this ship will go 20 knots.

Flexible design permits carrying barges, 1,800 containers, or a vast roll-on, roll-off cargo.

Ship can be used as a military sealift vessel for troops, tanks, wheeled vehicles, helicopters, landing craft, containers and palletized cargo.

By eliminating dockside handling, loading time can be cut from over a week to just 13 hours.

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The great advantage of the Seabee's open-deck arrangement is the unique cargo-handling flexibility it makes possible.

It can accommodate barges.

Or stowage of 1,800 20-foot containers on trays, twice as many as even the latest cargo ships can normally handle.

Or vehicles that can be rolled on and off over almost 3½ miles of single-lane "highway" covering a staggering 146,000 square feet of deck.

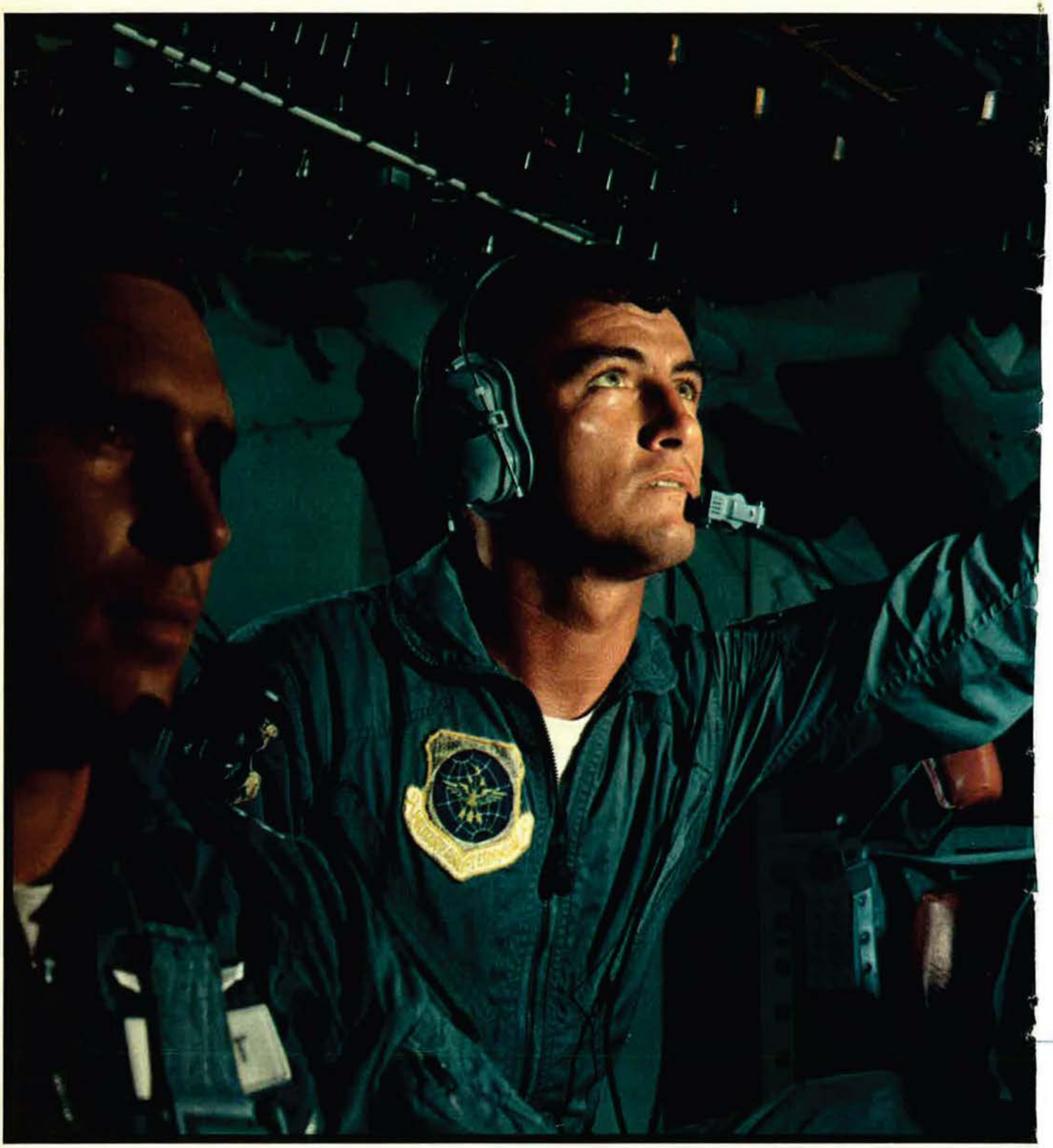
Or such a cargo as an assembled oil rig could be stowed on upper deck space free of overhead restriction.

And helicopters, including the huge Skycrane, can be flown from the upper deck.

This flexibility uniquely qualifies the Seabee for military sealift use, as well as commercial transport.

Building a ship with this much potential for saving time and money for owner and shipper alike called for radically new concepts in engineering and construction. But at General Dynamics, it seems our people are always doing something that hasn't been done before.

GENERAL DYNAMICS

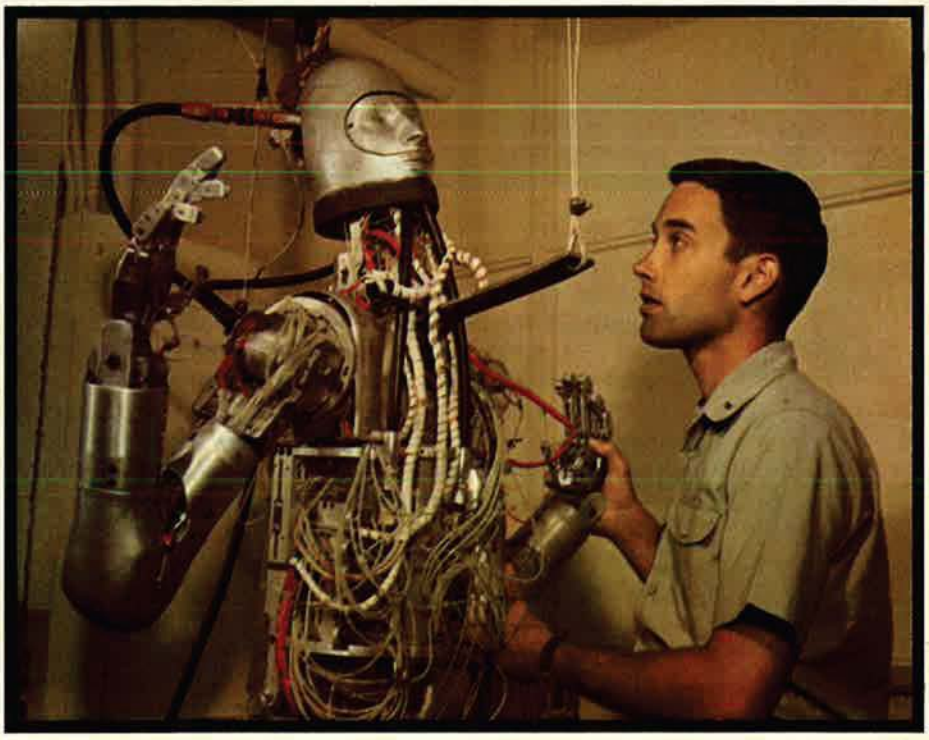


An HC-130 ready to roll.

AIR FORCE
SEPTEMBER 1971 MAGAZINE

USAF AT WORK

While rummaging through the photo archives, we ran across a series of pictures of Air Force people at work. A selected portfolio of these pictures seems particularly appropriate to the month of AFA's twenty-fifth convention, for it is the people of the Air Force and the important tasks they perform that are the bedrock of AFA's very reason for being.



Let's stay with the one on the right.

Air Force medicine—expanding frontier.

That others may live.

In a sense, this portfolio represents a thin blue line of continuity—a link between those who created, those who sustain, and those who sometime will lead the Air Force. The tools change, but the mission doesn't. Neither does the work of the Air Force—inventing, training, flying, fixing, looking after its own. Nor the pride in essential work well done—the dedication to country, and to a code that is unique to the airman. All are reflected here.

These pictures do no more than suggest the vast range of activities that underlie USAF's readiness to fly and fight. On that readiness—on the traditions built by USAF people at work—rest the best hopes of all of us for a peaceful world in the years to come.

Basic training.

USAF AT WORK

Bless 'em all; without the mechanics we fall.

Thunderbirds over the Astrodome.

Two great inventions: WAF and computer.

Taking the heat off.

USAF airmen watch VNAF A-1s climb out on a close-support mission.

With the continuing reduction of Air Force units and people in SEA has come a pronounced shift in USAF's mission assignments. Workloads still remain high, and morale has not declined noticeably as the war winds down. Here's a look at . . .

USAF's CHANGING ROLE IN VIETNAM

By John L. Frisbee
SENIOR EDITOR, AIR FORCE MAGAZINE

IN JUNE 1962, the first USAF combat unit—the 509th Fighter Interceptor Squadron—arrived in South Vietnam. Nine years and three months later, the Air Force is still there—still flying combat—in what has become America's longest, most unpopular, and second most costly war.

Since the 509th first put down at Tan Son Nhut Air Base near Saigon, more than a half-million Air Force people have served in Southeast Asia. The real buildup began in 1965. Between January 1 of that year and March 31, 1971, some 497,000 blue-suiters had done—or were doing—a tour in SEA, 319,000 of them in the Republic of South Vietnam.

Balanced against the more than one million sorties flown by USAF airmen, casualties have been light. By July 1971, 892 airmen had died in Southeast Asia as a result of enemy action—455 were killed in combat, forty-four died of wounds, 392 initially carried on the rolls as "missing" are known to have died, and the death of one POW has been confirmed. Of the dead, 751 were fixed-wing or helicopter crew members; 141 died in ground action. The Air Force wounded number more than 3,000, some 800 of whom required hospital care.

USAF's Southeast Asia casualty rate may be the lowest of any major war in history. But regardless of what the statistics show, each death is no less a final act of sacrifice. Survivors of the men killed in action, and those who lived to bear the scars of battle, will find little comfort in the decimal points and zeros of the statistical tables.

Fixed-wing aircraft losses add up to nearly 1,900, of which more than 1,400 were combat planes. Before the halt of bombing in the North, forty-eight tac fighters and one rescue helicopter were lost to MIGs (North Vietnam lost 112 MIGs to our fighters), and ninety-four USAF fighters were downed by North Vietnamese surface-to-air missiles. Most of the 235 airmen known to be POWs and many of the 557 missing in action went down north of the DMZ.

The air war in SEA has been characterized correctly as the most professional in the history of airpower—our airpower or anyone else's. Heroic achievements have been legion—

most of them unchronicled by the media. The decorations awarded to airmen in Vietnam, compared to World War II and Korea, give some indication of the number of untold tales and unsung heroes in this strangest of modern wars.

Decoration	*WW II*	*Korea*	*Vietnam*
Medal of Honor	35	4	8
DSC	745	19	—
Air Force Cross (equivalent of DSC)			143
Silver Star	5,939	304	3,478
DFC	125,594	8,721	37,347
Bronze Star	22,825	5,588	39,170

Reduction and Reorientation

Where does the Air Force stand in Vietnam after almost a decade of sorties, sweat, and sacrifice? Where is it heading? When will its commitment end? The answer to the first question is relatively clear; the second and third grow successively more speculative.

The Air Force reached its peak personnel strength in SEA—61,400—during April 1969. As of July 22, 1971, the number of airmen serving in SEA had declined to 36,300, a reduction of slightly more than forty percent.

Along with this reduction in personnel has come a shift in the balance of mission assignments, from a mixture of close support and interdiction to a primary—almost a sole—concentration on interdiction, most of it along the Ho Chi Minh Trail in Laos. Both the phase-down of personnel and the shift in types of sorties are reflections of the rapidly increasing capability of the Vietnamese Air Force (VNAF) and Army (ARVN). Now, most of the ground fighting is done by ARVN, with the VNAF providing almost all close support.

The total number of USAF sorties flown per month stands at approximately half of the sortie peaks reached in 1968 and 1969. B-52 Arc Light sorties have been reduced from 1,800 to 1,000 per month, with the great majority (in some weeks as high as ninety percent) directed at interdiction targets.

Effectiveness of the air interdiction campaign may be gauged by a comparison of enemy trucks destroyed and damaged during the last three dry seasons. Between November 1, 1968, and July 13, 1969, more than 8,200 trucks were destroyed or damaged. For the same period in 1969–70, the score stood at 12,809, and for November 1, 1970, to July 13, 1971, at 24,937. The threefold increase in truck interdiction was a result of several factors: the introduction of AC-130 gunships; the Igloo White system of remote sensors *(see "Igloo White," June 1971 issue)*; and the use of improved conventional ordnance, tactics, and airborne sensors.

Tactical airlift activity in SEA also has shown a steady decline during the past two years. It has been roughly in line with the reduction of US military forces in the theater, as shown by this table:

Fiscal Yr.	*Cargo (thousands of tons)*	*Passengers (millions)*
1968	928	3.9
1969	911	4.6
1970	720	4.1
1971 (thru 31 May)	376	3.0

The reduction in total number of USAF combat sorties flown each month (forty-eight percent) is approximately the same as the reduction in USAF personnel on duty in SEA (forty-one percent). The work load per man hasn't changed significantly. By and large, Air Force people are working as hard today as they have at any time during the past two years. Busy people don't have time to perfect the fine art of griping, to brood, or to get into some of the more serious kinds of trouble that abound in Southeast Asia.

Morale, Discipline, and Drugs

Though not everyone in SEA regards his work load as all to the good, recent returnees report no noticeable decline in morale, either within the operational and support units or on headquarters staffs. There have been no fraggings in USAF units and, so far as can be

determined, no instances of Air Force people refusing to obey orders. Racial incidents have not been a serious problem. There were only four in 1970. That doesn't mean that there have been no personal encounters between Air Force men of different races. Those things happen in every group, and in both inter- and intraracial contexts. A "racial incident" is something else, officially defined as "an overt, damaging act directed toward an individual, a group, or an institution, whether spontaneous or organized by a group, which is clearly motivated by racial considerations."

The Air Force *does* have a drug problem in SEA, as do the other services and, for that matter, civilian society here at home. As Air Force officials get a better handle on the problem, it appears that the frequency of drug abuse in SEA is considerably lower than unofficial reports have lead the public to believe.

One very rough indication of the extent of USAF's drug problem is the number of drug-abuse investigations completed by the Air Force Office of Special Investigations (OSI). The term "completed" may mean anything from a finding of malfeasance to full exoneration. In 1970, the OSI conducted 359 such investigations in Vietnam, sixty in Korea, 177 in Okinawa, 196 in Thailand, and 329 in Germany. These figures suggest that, on a percentage basis, drug abuse is not widespread in the Air Force, and that it is not significantly higher in Southeast Asia than in other areas. Only four Air Force deaths were attributed to drugs in 1970. Three were in the continental US and one at an island base in the Pacific.

In March 1971, the Air Force launched its Limited Privilege Communication Program (LPCP). Under this program, a man who turns himself in as a drug user will receive medical and psychiatric help, but no punitive action may be taken against him under the Uniform Code of Military Justice. LPCP does not grant immunity from prosecution for crimes committed to support a drug habit, or for the illegal sale of drugs. Between March 8 and May 31 of this year, 580 Air Force people throughout the world turned themselves in under LPCP; 176 of them were in Southeast Asia.

How many Air Force people in SEA use, or have used, marijuana is an open question. But the actual rate of heroin use in that area, based on urinalysis, is known to be less than 0.5 percent—less than one person in 200. Although encouraging, even this low level of use or addiction is not to be treated lightly. The Air Force record does appear to be considerably better than the reported four percent use of heroin by members of all US armed forces in SEA.

The Air Force's relatively low rate of hard drug usage in SEA is attributable to several factors: early and vigorous educational and enforcement actions; the small number and confined nature of Air Force facilities (which favor tight control of drug distribution, at least on base); reasonably comfortable and safe living conditions on air bases; and the fact that work loads have not fallen off significantly as the US disengages in Vietnam.

B-52 sorties, reduced by forty-five percent, are now almost entirely against interdiction targets, most of them out-country.

Looking Ahead: Where and When?

Where is the Air Force heading in SEA? The answer to that question probably needs but little hedging. The withdrawal of US forces from Vietnam is not likely to be reversible. Barring two unlikely developments—an internal breakdown of the South Vietnamese government, or a large-scale, sustained attack from the North—the USAF mission will continue to be focused on interdiction and assistance in training and equipping the VNAF. Withdrawal of Air Force operational units from the Republic of South Vietnam probably will proceed more rapidly than the phase

out of our combat and support forces from Thailand.

Just when the USAF commitment in Vietnam will end is another question, answerable —if it is answerable at all—by only a few top officials who, for good and sufficient reasons, aren't talking. The President's announced goal is to provide the Saigon government "a reasonable chance" for survival. When this point is thought to have been reached may be determined as much by political and economic factors as by the military situation.

From a strictly military point of view, USAF units can be brought home as rapidly as the VNAF is able to take over the air war, but no sooner. Air Force people who have worked in or with the Vietnamization program are in agreement that the VNAF has made remarkably rapid progress. Kenneth Sams's report on its growing capabilities was published in the April 1971 issue of this magazine. Here, in summary, are some highlights of that report, supplemented by more recent information.

The key to sustained operational effectiveness is good maintenance. VNAF supply and maintenance people do an excellent job.

All programmed VNAF air divisions now have been activated and are in place, though not all are fully manned. Helicopter pilot training, accomplished by the US Army, is completed except for follow-on training to replace losses.

The VNAF's fixed-wing pilot training program has been conducted largely in the US. The program hit its peak this year, and will begin to taper off in 1972. Vietnamese who have completed pilot and combat-crew training are considered as good as USAF pilots at the same level of experience.

Past weaknesses in VNAF night and all-weather operational ability have been largely overcome. All A-1 and A-37 flight leaders and supervisory personnel have completed check-out in Combat Skyspot (ground-controlled radar bombing) operations. The VNAF's delivery accuracy, either in visual or nonvisual conditions, is said to be as good as that of USAF pilots flying comparably equipped aircraft.

For more than a year, the VNAF has been operating AC-47 gunships, and now is transitioning into the more effective AC-119. Vietnamese have taken over operation of the Tactical Air Control System in one Region (where they control USAF pilots) and soon will operate the system throughout all South Vietnam.

Morale in the VNAF is exceptionally high, particularly since the Cambodian operation of last year. It is reported that the Vietnamese Air Force could oversubscribe its recruitment program at any time.

The key to sustained operations in any air force is logistic capability. The VNAF's air logistic system is one of its major achievements, for which credit must be shared among the Vietnamese and USAF's Air Force Logistics Command and Pacific Air Forces. Most of VNAF's technical training has been done in-country, at Nha Trang Air Base. Trainees meet essentially the same standards as do USAF people in our tech training schools.

The VNAF now is doing its own inspection, overhaul, and major repairs on some types of aircraft and soon will be able to handle all its own maintenance. Their in-commission rates are good. Operational readiness standards are comparable to those of the USAF, and the VNAF is flying its aircraft at the same utilization rates as does the USAF.

If the level of combat remains as it is now, competent observers believe that the VNAF will be able to completely take over the air war by the middle or latter part of 1972. If US withdrawal should be accelerated for other than military reasons, the VNAF and ARVN probably could assure the military survivability of their country, but almost certainly at the loss of some peripheral areas. It's not likely that the North Vietnamese could overwhelm South Vietnamese forces "the day after we leave." During the past three years, the enemy has been hurt too badly to pull that off.

Bridging the Gaps

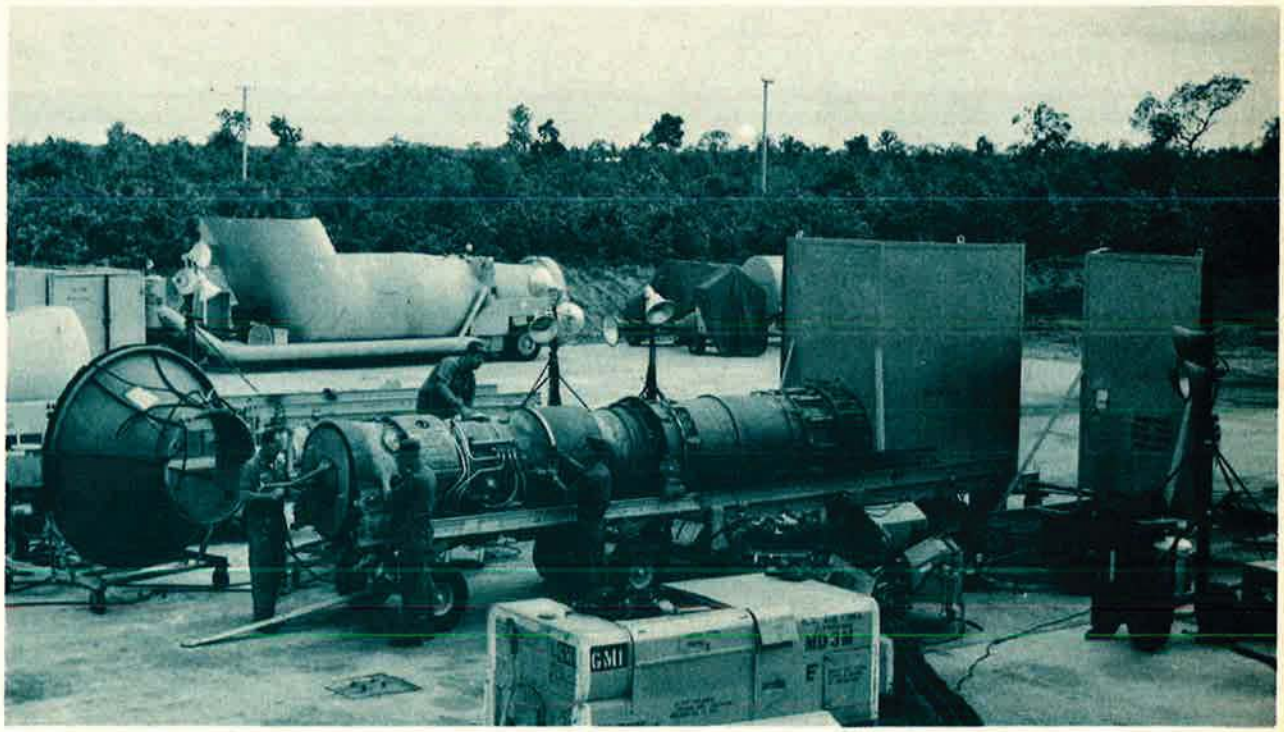
Unquestionably, there will be gaps in the VNAF's capability, compared to that of the USAF. It will not be able to provide ARVN the lavish air support that US ground forces demand and have become accustomed to. But

South Vietnamese ground forces don't expect or want every enemy sniper to be shot out of the trees by their air force.

The VNAF won't have the ability for deep interdiction along the Ho Chi Minh Trail or in other out-country areas. Nor will it have an air-superiority capability even remotely comparable to that of the USAF, which has kept North Vietnam's MIGs out of the battle for the past three years, since the halt of bombing in the North.

develop the technical ability to use and maintain it. For their part, the VNAF will be able to operate with fewer restraints on the use of their airpower than has the US.

The VNAF will not have air-superiority fighters to match North Vietnam's MIGs—at least not immediately. However, the MIGs aren't very long-legged. Their principal threat would be to VNAF and ARVN operations in the northern part of the Republic. So long as USAF fighters remain in Thailand (an unpredictable future), and the Seventh Fleet cruises western Pacific waters, it's likely that the North Vietnamese would think twice before using their fighters against the VNAF in South Vietnamese skies.



USAF has no trouble keeping its people in SEA productively busy. Sortie rates of the remaining units have not declined.

So far as interdiction is concerned, South Vietnam probably will approach it somewhat differently from USAF methods that have been successful up to now. No doubt their interdiction operations, which will have to be closer in, will be by joint air/ground action. We do, of course, have the option of providing the VNAF more sophisticated equipment as they

Neither domestic political pressures, proffered negotiations, nor the military situation in Vietnam is likely to result in total USAF withdrawal from Vietnam at any time within the next six months. The phase out probably will continue at a steady pace, keyed to the growing strength of the Vietnamese Air Force and Army.

At the same time, it is evident that we cannot, and need not, stay in Vietnam very much longer. Except for USAF personnel assigned to military assistance staffs in Vietnam, nearly all Air Force people—and most hopefully all our POWs—should be home from Vietnam in time for AFA's 1972 Convention.

And that would make it the greatest Convention in the history of the Air Force Association. ■

The aircraft was riddled in its vitals by enemy fire, and damage to the flight controls was at a critical stage. It took a large miracle—and a lot of nimble teamwork by the aircrew—to bring the C-130 back from its . . .

Airdrop Mission To Katum

By Maj. Curtis L. Messex, USAF (Ret.)

Illustration by Porter Whiteside

THE frantic bleat of my travel alarm starts the day while dawn is just a pale thought in the east. An eyes-closed, reflex stab at the source stills the racket. Sleep yields reluctantly to the ever-present irritations—gritty taste in the mouth, sand on the pillow, aching back from the swaybacked G.I. cot.

Footsteps clump and thunder through the two-story frame barracks. Running water, faint but persistent, is heard from the latrine downstairs. The constant breeze sighs through torn screens and broken slats that serve as windows. Another day begins at beautiful Cam Rahn Bay-by-the-sea.

What will this twenty-sixth day of August 1968 hold for our C-130 crew, TDY from the 21st Tac Airlift Squadron based at Okinawa?

Mission briefing has the answer. It's Katum, sixty miles north of Saigon. The camp has been surrounded, cut off for several days. We'll be going in at 600 feet, dropping fifteen tons of ammunition by parachute. Sixteen pallets. Mixed reactions. The course tends to be sporty.

An extra loadmaster and navigator from Stan Eval are going along. Weather looks like broken-to-overcast at 1,200 indicated. We'll be right at the base of the clouds on the run-in.

Takeoff is routine. Forty minutes later "Paris Control" hands us off to "Paris North," the radar handling this operation. Time to go. Roll out on the vector heading and start down. Three-minute check list. Under the clouds. Paris North says we're there. Nothing in sight. Pour on the coal and back into the clouds. Do we want more vectors? "No. We'll do it on our own."

Back to the starting point and a little beyond. Turn around. Get a radar fix off Black Virgin Mountain and update the doppler radar. Over the point.

We know the cloud base now. Gauge the descent to get in the clear about two miles short of the target so we can make any necessary corrections on the lineup. Three-minute check again. Ed says the doppler looks good as Black Virgin slides

off the left rear of his screen. "Just follow the needle on the panel."

All set for the second time around. Airspeed 130. Door open a little early so I can get trimmed up sooner. Dark splotches flash by below, then we are under the clouds. Good visibility. Target dead ahead —just like the pictures. Lineup is perfect. Add a touch of power to level off at drop altitude. Blip the trim one time. One-minute warning. Dead silence on the interphone now. Concentrate on airspeed, altitude, lineup.

In the rear the assistant loadmaster quickly pulls the safety line from the extraction parachute. Then suddenly everything stops being routine. Sharp rapping noises sound over the roar of the engines. The two loadmasters exchange a grim glance. Suddenly the space between the men is filled with screaming metal as a heavy-caliber slug blasts through the launching rail on their left.

More slugs smash into the hydraulic reservoir area. A fine spray of fluid under 3,000 pounds pressure lashes out, igniting instantly. It plays like a blow torch on the ammunition pallet a foot away. Bernie, shaken, keys his mike, "Loadmaster to Pilot, we're taking hits. The load is on fire!"

"Which pallets are burning?"

"The one on the right side at the forward end of the wheel well. They're shootin' hell out of us!"

Beautiful. That's the fuzes. Must be just the crate burning or we wouldn't be discussing it.

"Pilot, Engineer. We've lost booster-system pressure."

A glance confirms it. Half the power to the flight controls is gone. "Turn off the pumps." Running a dry pump will start an engine fire. Switching them off, the system may trap enough fluid to keep them lubricated.

Smoke is swirling into the flight deck. Wood smoke by the smell of it. No explosives burning yet. The load can be jettisoned either from here or in back. If we dump it here it goes to the enemy. They're sure to return it with interest.

"Five-second warning."

We'll take it on in. The book said that stuff would stand a minute and a half exposure to flame. Smoke getting thicker. Concentrate on lineup. Good thing the flight controls will work off either system. Good crew, nobody saying a word. Long five seconds. Thought that call looked a bit early.

"Green light."

Al punches the ADS (Aerial Delivery System) button and flips the light switch from red to green.

"The load is moving."

Didn't really need that call from the loadmaster. When fifteen tons start moving in an airplane you know it *right now*. Can't keep the nose down—heavy pressure on the yoke. Check the pressures again—good grief! The other hydraulic system is going out too!

The fingertip response is gone. As pressures drop the control column freezes. One hundred and fifty pounds of force are required to move it and then it yields at an agonizingly slow rate. The nose rises higher and higher as the ammunition load trundles over the tail gate.

"Give me a hand, Al." To the crew: "Get me some hydraulic pressure!"

There's a brief movement behind me as the engineer hurries aft. Each crew member knows the score on this one. Flight without power-boosted controls in this airplane is an emergency too dangerous to practice in training.

Maximum power to keep from stalling, but the airspeed continues to drop. The nose is so high that one of the last pallets catches momentarily, tumbles and breaks up, scattering 2,000 pounds of shells on the floor near the the tail. Bernie passes the bad news. Along with the pitch-up comes an unexplained roll to the left. Al and I strain to force the nose down and roll the wings level again. We are in the clouds now, at least we're clay pigeons no longer.

The controls jerk—and with them the airplane—as hydraulic pressure surges and dies, surges and dies. In back, the loadmasters and engineer desperately rip open boxes of spare fluid, punch holes in the cans with beer-can openers and a crash ax and slosh the fluid into the utility system. As each quart hits the pumps—which can handle sixteen gallons a minute—a brief burst of pressure surges to the controls, then dissipates as it bleeds through ruptured lines. The pressure surges are rough, but they enable us to force the nose down, avoiding an immediate stall and crash out of control. I mash the mike button.

"Mayday, mayday, mayday. This is Igloo 809 coming off Katum. We're hit hard. Give me a heading to Bien Hoa."

"Igloo 809, this is Paris North. Steer 156 degrees for Bien Hoa. Say your fuel and number of personnel on board."

"Stand by. Busy." Worry about the details later. The low wing has pulled us around 200 degrees, almost to the heading for Bien Hoa. More strain, to stop the turn.

"Igloo 809, this is Igloo 810. We're near you. Can we help?"

One of the boys from our outfit. Wish he *could* do something. "'Fraid not. Both hydraulic systems out and a fire. Trying for Bien Hoa."

A pause, then a very sober voice, "Good luck, buddy. We'll relay that to home plate."

Al and I fight as one for control and altitude. I'm trying to use the electric trim tabs to get leveled out, but with no feedback of control pressures through the wheel it's impossible to tell what my actions accomplish until the airplane starts a sluggish reaction almost a minute later. Without the frequent bursts of hydraulic power we couldn't keep flying. We've got to get level, establish an airspeed and trim setting, and do it quickly. Our fluid supply is going fast.

"Pilot, Load. The fire all went with the load. It's just smoky now."

That's a relief. "Engineer from Pilot. Save some fluid. We'll need it for landing." If we can get that far. Should I get the crew out now while there's a chance? If I lose control completely most of us won't get clear. We're still over enemy-held ground. Not a chance of everybody being rescued even if they survive bailout. We've got some altitude now. If things get out of hand there should be time to do something about it. As long as we aren't burning or completely out of control we won't give up. Okay, that is decided. Now settle down and fly this wreck. It still has wings, engines, and trim tabs. Find the combination.

Slowly we get the upper hand—the wild oscillations dampen out and I'm getting pretty close with the elevator trim. Full aileron trim won't stop the roll, but it reduces the pressure required to what one man can hack. The aircraft manual recommends 160 knots in this situation but control forces are impossible at that speed. I gradually slow down again. At 130 knots we have some influence.

"Slow down on the hydraulic fluid." It's going to take at least twenty minutes more to get to Bien Hoa. We'll run out before then. I prefer to ease into completely powerless controls rather than have a sharp cutoff.

We are still in the soup and it's getting a little bumpy. "Paris, what is the Bien Hoa weather?"

"1,000 overcast, seven miles visibility, wind calm. Landing runway two-seven. GCA is standing by."

More problems. We've got to herd

The author, Maj. Curtis L. Messex, USAF (Ret.), joined the Air Force in 1950 and spent his early service years with various air rescue units. During his career, Major Messex flew everything from the C-54 to the AC-47 gunship—and managed to chalk up 5,500 flying hours in the Gooney Bird. With a total mark of better than 9,200 flying hours, he has logged 1,200 hours in combat. Major Messex retired in September 1970. For his part in the hair-raising mission he recounts on these pages, Major Messex was awarded the Silver Star. The crew of his aircraft, and their awards for the mission: Copilot, Maj. Henry A. Lamb (Al)—DFC; Navigator, Capt. Edward F. Knox (Ed)—DFC; Engineer, SSgt. Marcus J. Harding (Jim)—DFC; Loadmaster, SSgt Bennie A. Brown (Bernie)—SS.

this monster through an instrument approach to line up with the runway. Landing on two-seven means we'll have to go all the way around to the east and come back—another ten minutes' flying, at least. Better take it though. Probably couldn't get lined up starting from this altitude and position for a landing zero-nine.

"Pilot from Engineer. Sir, how about putting the gear down while we still have some fluid?"

Good idea. Could have some damage. The way the stuff bleeds off there probably won't be any significant difference in control. Takes a long time to hand crank the gear down. Better find the problems now.

"Good move. Gear down."

The landing gear starts a jerky extension as Al pushes the handle. Each can of fluid shoves it a little further. Green lights flash on after a while.

"Loadmaster to Pilot. Gear checks down, but I think the right front tire is flat."

"Rest of them okay?"

"I'm not sure. The left rear looks a little funny, but the slipstream doesn't push it around like the other one. And, sir, we still have that one pallet of ammunition on board. Do you want us to dump it?"

That could be a little rough on some innocent bystanders. "No, we aren't over a jettison area."

All we need are a few more problems. Flat tires, no nose-wheel steering with the hydraulics out. Probably no brakes. Two thousand pounds of high explosives on board.

"Pilot from Engineer. We have only half a case left."

"Pilot, Nav. There are some little buildups ahead of us. We'd have to go a long way to get around them. They aren't very big, but we may get bounced around some."

Ask for more problems, that's what you get. "Don't put any more fluid in until I give you the word. Al, turn off the utility hydraulic pumps."

"You want them off?"

A pallet leaves the aircraft during a typical resupply mission.

"Yeah. I think we can handle it for a while and, the way I have it figured, the blown line must be the return line to the reservoir. I want to try putting some fluid in the reservoir with the pumps off and see if it stays there. If it does we can put the rest in and get pressure when we need it by turning the pumps on and off."

"Okay. Pumps are off."

"Put a couple of quarts in and see what happens."

Thirty long seconds later, the verdict, "It's holding."

"Good. Put the rest in. By the way, we could use engine oil in there, too."

"Yes, sir. We've already used two cases of engine oil and a case and a half of propeller as well as all the hydraulic fluid. All we have left is the water jug."

Jim is really using his head today. "Save the water jug in case we have to make a go-around."

A sudden chorus on the interphone.

"I could pee in it."

"So could I."

"Me too."

"Save it. Nobody takes a pee 'til I say so." No one laughs.

"We plow into the first of the bumpers. Thirty seconds of turbulence and we are out the other side with the nose and left wing down again. Heavy pressure starts them slowly back up.

"Igloo 809. Maintain this heading. Descend to 1,200 feet. Contact Bien Hoa GCA on this frequency."

Leave the nose about where it is. Ease off the power a bit. Blip the trim switch a touch. Lean a little harder on the aileron and see what happens. For the first time Al and I aren't quite together with the controls.

"I think I can hold it myself, Al."

"You sure?"

"Right now, yeah. If it starts to get out of hand I'll let you know."

"Approaching 1,200 feet. I think we are clear of the buildups."

"Thanks, Ed." A little more power. Blip the trim. Heave back on the wheel. Wait. Should have led it further, we're drifting through the assigned altitude, leveling 150 feet low. Sloppy, but safe enough. Don't mess with it.

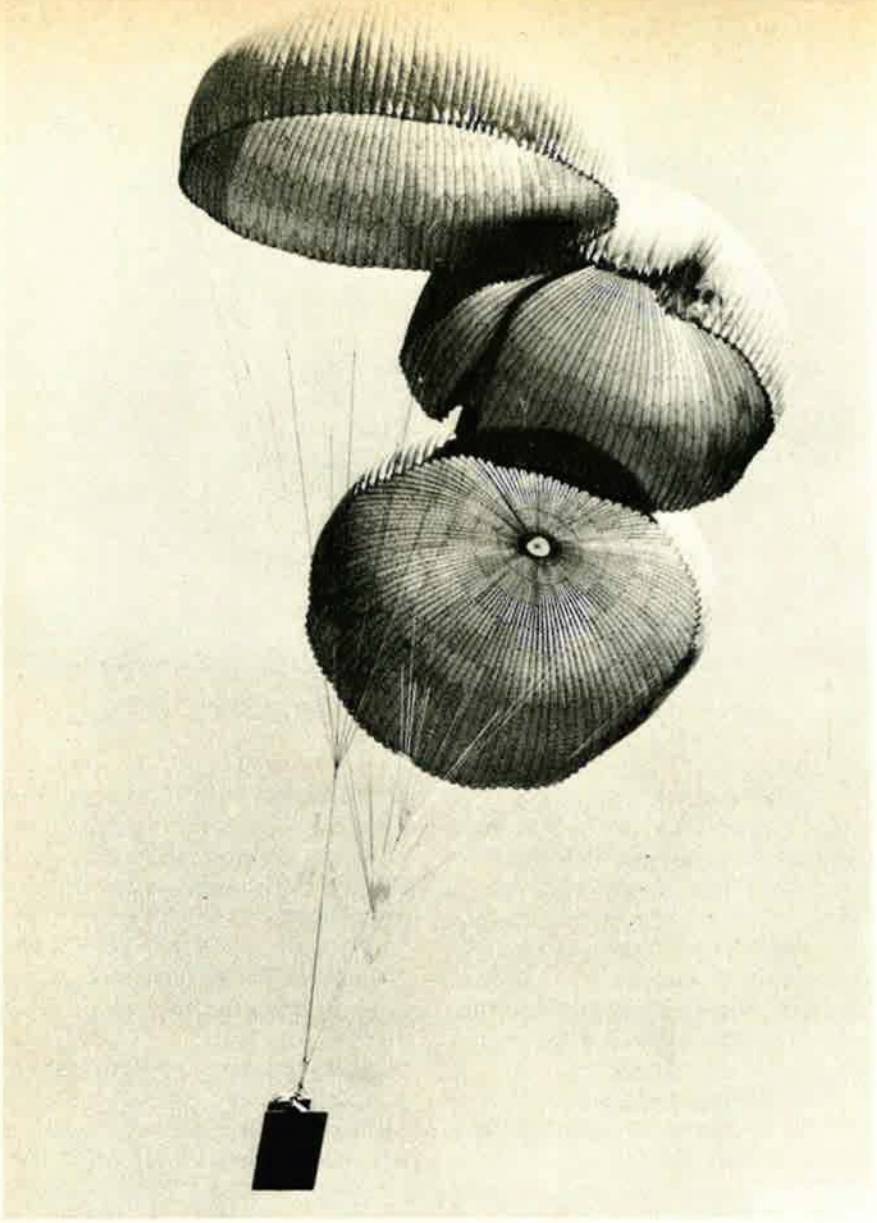
"Igloo 809, this is Bien Hoa GCA. We have radar contact. Turn left zero-nine-zero degrees."

Nudge number four throttle. Ease number one back a fraction. Let the unbalanced power drift us into a little bank to the left. Even out the throttles to hold it. Some back pressure to keep the nose from dropping. Not a fast turn, but under control.

"Load, set up the seats aft of the wheel wells for you all to strap down in."

"Yes, sir."

"GCA, note the slow rate of turn. That is about what you'll have to work with to get us lined up."



Multiple parachutes support cargo pallet during a low-level drop.

"Roger. Say the number of personnel on board and fuel state, please."

Forgot about that. "Seven personnel on board. Twelve thousand pounds of fuel. About 2,000 pounds of Class-A explosive in the cargo compartment. Hydraulic systems out. At least one tire shot out. No brakes. No steering. No flaps. Almost no flight control."

"Roger. Rescue standing by." The voice is unemotional. I know without asking that a pro is on the scope down there.

"Pilot from Engineer. Sir, we could get some flaps down with the emergency system."

"I know, but I'm not sure I can handle the trim shift and the book says minimum flaps for this maneuver."

"Curt, I read where that other crew that landed without hydraulics at Okinawa tied a cargo strap to the copilot's control column so the whole crew could help with the flareout."

"Yeah, Al, I read that too, but I don't think I'll need it. With no flaps the attitude will be okay for touchdown without a flareout. I figure the rate of descent will be around 500 feet per minute. At this weight we could just fly into the ground without breaking anything. We've got a shot of pressure we can throw in if we need it and then we can fall back on what we can get out of the emergency system through the utility prime line. Besides, with at least one tire flat I don't want a bunch of people up here not strapped down."

"Okay, you're the boss."

"Igloo 809, turn right 180 degrees. Maintain 1,200 feet."

That's the turn to base leg. "Roger, 180 degrees. Twelve hundred feet." Slip the left outboard throttle up a little and pull the right one back. Let the turn get started, then hold it.

"Pilot, Loadmaster. The seats are set up and we have the ammo tied down. What do you think of opening the paratroop doors before we land? Sometimes they stick."

Jim is immediately concerned. "Sir, will the air deflectors bother the controls if they are opened?"

Every one of these guys is using his head. Think it over. Bernie is concerned about getting out after landing—a good point. Now about the air deflectors. They have to be opened before the paratroop doors can be opened in flight. They do cause a light buffet, but I can't recall any trim shift. "Shouldn't be any problem. Go ahead and open the deflectors, Al. We'll see what happens."

A red warning light blinks on as Al flips the switch. He hangs on to it, just in case. There comes the buffet, but nothing else.

"Go ahead and open the doors."

Another red light blinks on. "Sir, there's a lot of white stuff coming in the door—are we on fire?"

A moment of worried silence while three sets of eyes sweep the fire warning panels. "No sweat, Bernie, it's just cloud. We're still in the soup."

"Igloo 809, turn right 270 degrees. This is your final controller, how do you read?"

"Loud and clear, final."

"You are twelve miles from touchdown. Cleared to land runway two-seven left. Wind is 200 degrees at four. Emergency equipment standing by."

The voice from GCA is the same as before. The old pro is going to take us all the way. His turn to final came just as we were getting to the base leg heading so all I have to do is keep the turn going.

"Time to get strapped down.

Everybody not required up front get in back." The extra navigator is reluctant, but there is only one seat at that position.

GCA starts a steady patter as we swing toward the field. At five miles we start down the glide slope. With no change of airspeed, subtle shifts of engine power and trim keep muscle strain to a minimum. Fortunately, the air is smooth.

At four miles we can see the field. Lineup doesn't look too bad, but it isn't perfect. Looks like we'll have to use the fluid in the reservoir to make a correction. How soon? That light crosswind will drift us off. Better make the correction close in so we won't need a second one. Hold the glide path. One hundred and thirty knots. Getting close. Over the approach lights. Better do it. "Utility pumps on."

Al's hand flashes down to the bottom of his instrument panel. Two red lights blink on and off as needles jerk upward on the pressure gauges. There is sudden life in the controls. Quickly, a turn left, back right, controls stiffening. Red lights flash on.

Cargo falls "on target."

"Pressure's dropping," Jim says quietly.

Got the lineup before it quit. Over the threshold lights. At 130 knots we are well above normal approach speed, but things seem to be happening in slow motion. A rescue chopper with his fire suppression kit hanging below is swinging in from the left, but dropping back. Our speed is higher than he expected. Airplanes wait on the taxiways, crews watching. Fire engines dig out as we whip past.

"Utility prime on." Gauges flicker, but red lights stay on. Not enough flow. We're drifting slightly. Relax pressure on the ailerons and let the heavy left wing sag a bit. Force the right rudder to yield a little and bring the nose around. No pressure for flareout, but the big bird surprises me, flaring slightly by itself as the wings catch the ground cushion. Floating—jockey the throttles to ease it down—there!

The touchdown is fairly gentle, but it sets off a fierce vibration as flat tires flail themselves to destruction. Must be some on each side. It's pulling left instead of the expected swerve to the right. Stand on the slowly yielding right rudder pedal. Throttles to idle, try the brakes. Nothing there. Wait for it to slow to reversing speed—can't stand a prop hanging up in forward thrust. Wait . . . wait . . . 105 knots.

Reverse all the way on two, three, and four. Leave number one up to fight the left turn. Vibration getting worse as the speed drops. The instrument panel is a blur. Something shakes loose and crashes to the floor behind me. Slowing . . . slowing . . . the rescue chopper is with us again, just off the left wing . . . the right wing is dropping lower than it should . . . props are still clear . . . dust swirls up in front from the reversed propellers . . . can't see. . . .

Vibration thumps to a stop. Throttles to ground-idle quickly so it won't back up. No fire lights showing. We're on the left edge of the pavement. "Shut everything off . . . with the condition levers, Al."

Four handles snap to a vertical position. Four engines stop bellowing. Hands are flying above my head as Jim shuts down the systems. "Everybody out—watch out for the props!" Jim finishes flipping switches and departs abruptly. Al is getting out. Ed is gone. I unsnap my belt and follow.

Down the ladder from the flight deck. The crew entrance door hangs open ahead. Stop and check the cargo compartment—no one there. A shout from outside, "Come on, Major, everybody is out."

Out the door. My crew is in a loose group beyond the wingtip. Fast count—all there and no obvious damage. Red fire trucks and people in aluminum suits converge from all directions. Quick check toward the tail. No fire on this side. Around the nose. No fire, but hydraulic fluid under high pressure is spraying from under the wheel-well doors. The engineer dashes past me, unlatches the door, swings it up exposing the wheels, then gets back away from the spray. Good move. Ventilation will reduce the explosion hazard. The spray is coming from a bullet gash in the aft landing gear strut. A fireman drags his hose into position and stands ready.

Cooling metal ticks sharply as I scan the aircraft. A ragged cluster of six-inch holes mars the forward end of the wheel-well area. The front main tire is a shredded remnant, smoking in the hydraulic spray. Back to the other side. Fragment holes splattered along the side, another of those ugly six-inch holes in the gear door. The aft tire is another smoking rag. A big hole in the aileron explains the roll tendency that gave us so much trouble.

A yellow tractor shoves a tow bar up to the nose wheel. I walk beside the lurching airplane as we drag it off the runway. The crew is with me but quiet. The pressure is off, but it's too soon to talk. The sun is shining through a patch of blue in the overcast—almost symbolically. The grass beside the runway is a lovely shade of green, the breeze soft and warm. It's awfully nice to be here. ■

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For a closer look at TRW's communication satellite capability, contact R. G. Williams, R5/2020, TRW Systems, One Space Park, Redondo Beach, California 90278. (213) 536-1538.

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National security as well as the national interest presumably would benefit substantially if ways could be found to orbit both men and material at sharply reduced costs and in a flexible manner. The method for achieving this quantum jump in space technology is known as the Space Shuttle, currently under development by NASA for its own as well as DoD's use. NASA's new Administrator, in an exclusive interview, discussed . . .

Dr. James C. Fletcher

The Shuttle: US's Airline Into Space

By Edgar Ulsamer

SENIOR EDITOR, AIR FORCE MAGAZINE

THE SOVIET UNION, whose overall space effort exceeds that of the US by about sixty percent, leads this country by "a significant margin" in planetary exploration and space station capability, two pivotal fields of space activity. The United States is ahead in lunar exploration and, through the proposed Space Shuttle system, could secure scientific and technological preeminence in near-earth space late in this decade and in the 1980s.

Dr. James C. Fletcher, the new head of the National Aeronautics and Space Administration, expressed these views to AIR FORCE Magazine in his first press interview since taking office. In discussing the crucial importance to the national interest of the two-stage, reusable Space Shuttle system, he revealed that NASA now plans to let hardware contracts for the system by spring of 1972—contingent on White House approval.

(NASA in July awarded a contract for the development of thirty-six engines for the Shuttle's booster and orbiter stages to the Rocketdyne Division of North American Rockwell Corp. Development of these liquid-hydrogen/liquid-oxygen engines was initiated first because they are the system's longest lead-time components.)

Dr. Fletcher told AIR FORCE Magazine that NASA decided this summer to extend the program's preliminary design contracts by four months "in order to look more intensively at alternative configurations." Four industry teams are involved: McDonnell Douglas Corp., with Martin Marietta as major subcontractor; North American Rockwell Corp., with General Dynamics; Grumman Aerospace Corp., with Boeing; and Lockheed Aircraft Corp.

In a radical departure from original plans, the industrial contractors, as well as NASA's own staff, currently are analyzing the pros and cons of a "phased approach," whereby the upper-stage orbiter vehicle would be built first and initially tested and operated with an interim expendable booster. The Shuttle, in its ultimate form, is to employ a reusable delta-wing first stage about the size of a 747 superjet and capable of at least 100 individual launches *(see p. 54 for performance characteristics).*

Additional Research

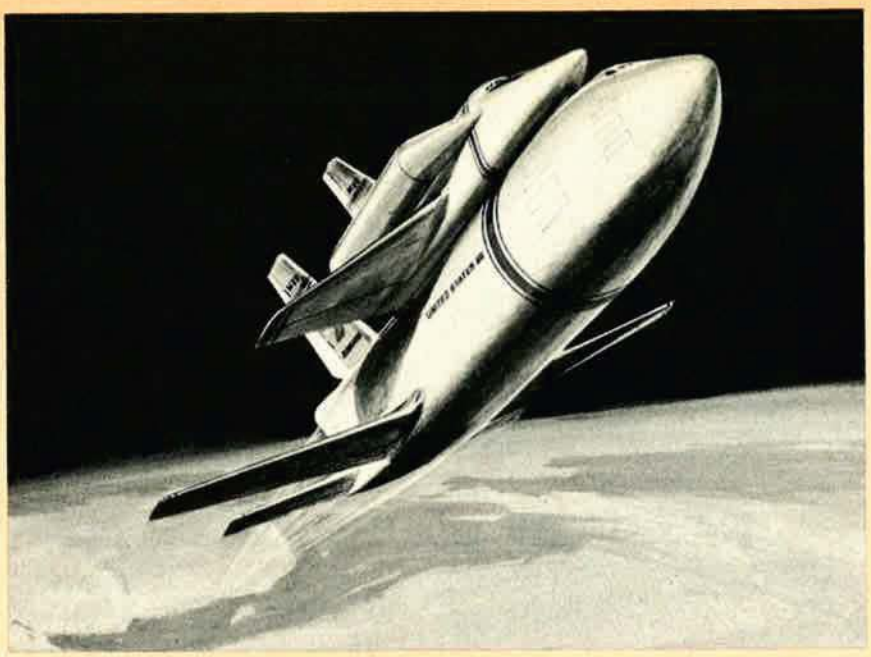
The current reevaluation of the design concepts underlying the Shuttle system, Dr. Fletcher explained, was deemed necessary because of the "sketchy way in which we had looked—through limited contractor research and in-house studies—at various configuration options. We felt that we needed additional analyses and research in order to make a hardware decision." In addition, he said, the White House and the Office of Management and

The text of the article continues on page 57.

Antitechnology Bias

In his interview with AIR FORCE Magazine, Dr. Fletcher pointed out that he believed the most pressing issue facing his agency, as well as the Department of Defense, is "the fact that this country seems to be on an antitechnology kick. I admit we might have spent too much on technology during the peak period of the Apollo program and in connection with Vietnam. Now we are overreacting and, while we dismember our creative design teams, the Soviets are likely to pull ahead of us.

"As soon as they get way ahead of us—as is likely—we will start a very expensive game of catch up. Obviously, this is not the right way to handle the technology job."



Eventual Shuttle system is to consist of a 747-size booster and a 727-size orbiter, possibly using external tanks.

Reusable booster and orbiter, shown following separation, are fully flyable in the atmosphere to meet military requirements.

Orbiter stage is shown here delivering a space station module into orbit from its cylindrical payload bay.

Space Shuttle Characteristics

The Space Shuttle system, subject to minor changes that might emerge from the current re-evaluation, can be expected to function in the following manner: The Space Shuttle's reusable booster will be powered by twelve North American Rockwell Corp. engines of 550,000 pounds of thrust each. It will take off vertically, carrying the Shuttle's second-stage orbiter in piggyback fashion to an altitude of approximately forty miles. (The orbiter will be about the size of a

727 jetliner.) The two vehicles will then separate at a velocity of about 11,000 feet per second. The booster stage, its primary fuel expended, will then fly back to earth as a conventional aircraft. Auxiliary turbofan jet engines will provide power for maneuvering and landing.

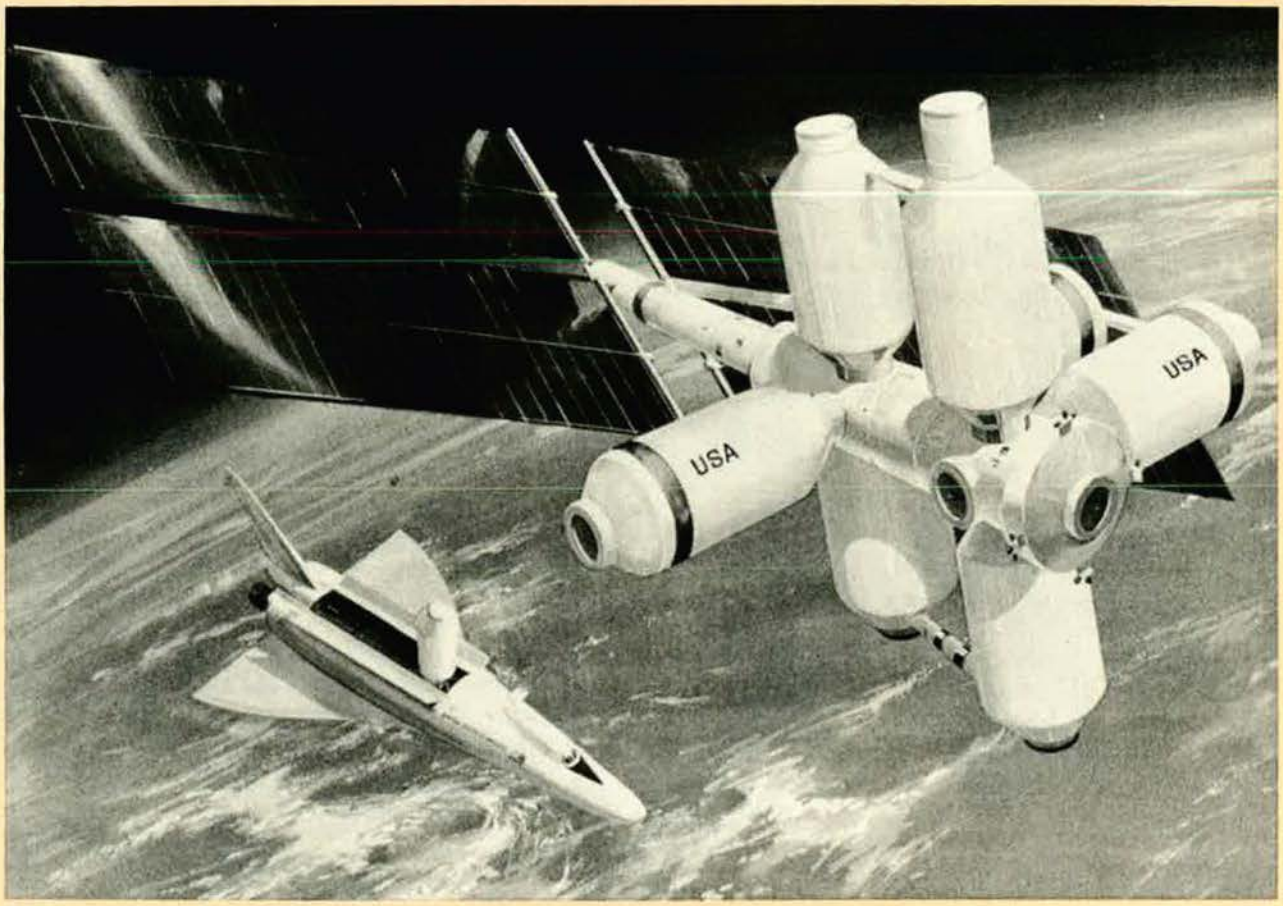
On separation, the orbiter stage will fire its two main engines, each producing 632,000 pounds of thrust, and proceed into orbit. (The orbiter engines are to be identical to the main engines of the booster stage but equipped with special exhaust nozzles and designed to produce more thrust because they operate in the vacuum of space.) The versatile orbiter has a wide range of potential missions. They include satellite placement; repair, service, or retrieval of satellites; delivery of a "space tug" (a military satellite equipped with its own propulsive stage to achieve special, high-energy orbits); actual sortie missions of up to seven days' duration; and space station support.

Its mission completed, the orbiter will deorbit and fly back to a conventional airstrip in airplane fashion, with the help of four turbofan engines. Like the booster stage, it is to be good for at least 100 trips. To meet Department of Defense requirements the orbiter is to have a "cross range" (maneuver area for earth landings) of 1,100 nautical miles.

The orbiter's payload initially was to be 65,000 pounds for due-east launches (which take advantage of the earth's rotational speed), or 40,000 pounds for the polar orbits required for most USAF satellites. In terms of payload volume, the initial specification agreed upon by NASA and the Air Force was to be a cylinder sixty feet long and fifteen feet in diameter. This size and shape are important for military satellites, which, once in earth orbit, have to be pushed by their own propulsion system into high-energy, geostationary, or inclined synchronous orbits.

The orbiter stage will be able to land either at the same airstrip as the booster stage or be routed to another site. If it lands at an alternate site, the orbiter can be flown back to the original launch site in conventional airplane fashion.

Maintenance of the orbiter and its component systems, including refurbishing its thermal protection system, will require no more than two weeks and will permit relaunch of the entire Shuttle system within that period.



Orbiter is about to complete space station assembly.

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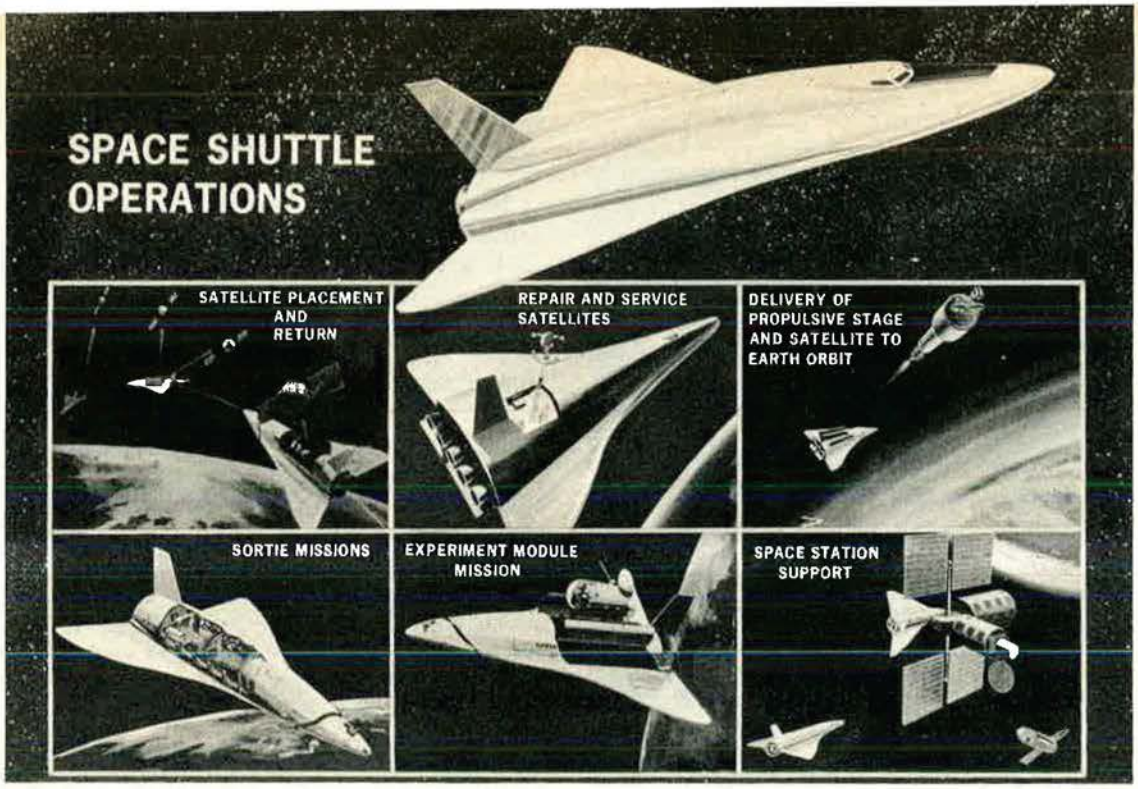


Budget (OMB) provided the "impetus to consider a phased approach to the Shuttle system's development. This would involve use of as inexpensive an expendable booster as possible [in place of the reusable booster] in concert with a fully reusable second stage during the first three or four years of Shuttle operation. Such an interim system would have all the characteristics of the fully reusable Shuttle except for the economic advantages. We are also considering the possibility of a reduced payload."

The reason for the phased approach as well as a cut in payload, by as much as forty-six percent, stems from "the need to keep down expenditures in a given year," according to Dr. Fletcher.

The new NASA Administrator acknowledged that, in terms of overall system costs, the phased approach "appears to be more expensive than the concurrent development of both stages." This assumption is based "largely on intuition and at this time we don't know how much the phased development will increase costs. We hope that the increase will be minimal. Conversely, by spending the extra money on the expendable boosters during the initial years of Shuttle operation, we are reducing the technical risks of the program," Dr. Fletcher said.

The candidates for interim expendable launch vehicles are a modified S-IC, the first stage of the Saturn V moon rocket; the Titan IIIL, a derivative of the Air Force's Titan III; a single 260-inch-engine solid booster (the "Big Dumb Booster"); and packages of either 120-inch or 156-inch solid rockets. In case of the latter, the orbiter would in fact be a stage-and-a-half system, launched by rockets placed under its deltawings.

External Tanks

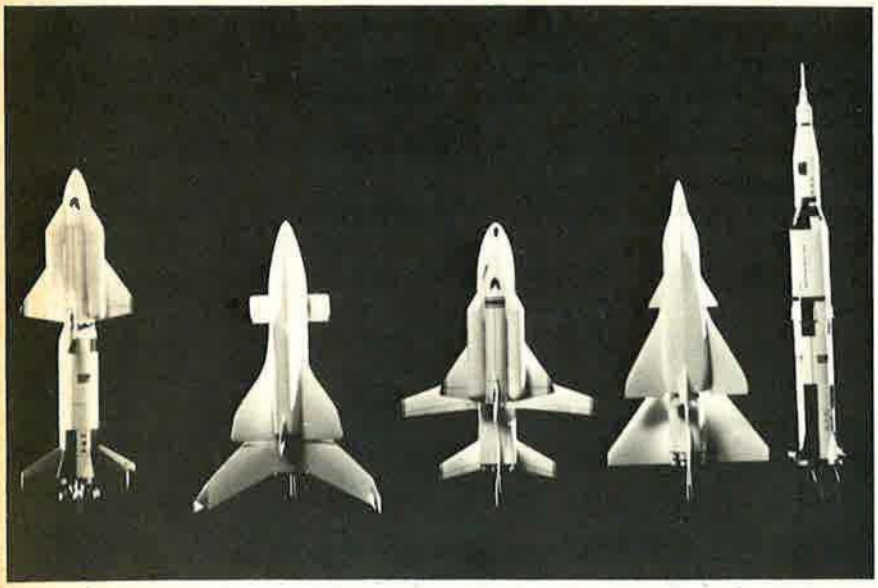
Still another configuration change currently being examined involves an orbiter vehicle employing external, expendable hydrogen and oxygen tanks and with a smaller payload bay than originally envisioned.

Department of Defense and USAF officials, Dr. Fletcher said, have not formally objected to the phased approach but appear to opt "for the earliest possible availability of a fully reusable Shuttle system. A reusable system would save them money because it would mean a lower-cost booster and a lower-cost payload.

"By the same token, the question of who will pay for the boosters has not been settled. If NASA were to agree—during the interim period—to launch the Air Force payloads without charging [for the expendable booster], this would give the military a definite cost advantage. The Air Force, of course, would reap the benefit of reusable payloads during the interim period because the orbiter will be capable of retrieving such objects from space."

A principal advantage of the Shuttle hinges on its ability to permit retrieval or repair of spaceborne systems. In the aggregate, the value of these payloads, which otherwise are either irreparable or irretrievable, is expected to exceed the cost of the Shuttle.

On the other hand, the NASA Administrator said, DoD and the Air Force have indicated that "there is a negative feeling regarding the proposed reduction in the orbiter's payload." He stressed, however, "because we have



Saturn V, the workhorse of the Apollo moon-landing program, which has a payload capability for near-earth orbits of about 280,000 pounds, is shown here, towering above four Shuttle configurations that are currently under review as part of NASA's examination of phased versus concurrent system development. Shown from left to right are: Saturn IC expendable booster deploying an orbiter stage using external hydrogen tanks, as proposed by Grumman; a fully reusable booster-orbiter combination based on a McDonnell Douglas design; a Grumman orbiter with external tanks and a reusable booster; and a reusable North American orbiter and booster system.

as yet not arrived at any specific change from the previous configuration, there is no need to request formal DoD comments. We certainly will not go ahead with a payload configuration that is not in accord with Air Force requirements."

Dr. Fletcher emphasized that "there is basically a very good accord among the Department of Defense, the Air Force, and NASA with regard to the Shuttle's principal parameters." He wryly added, "There may not always be the same good accord among the three of us and OMB; the budget people want to save money while we want the best product."

Fifty-Fifty Chance

Dr. Fletcher said that NASA has no "particular preference for either the phased or the concurrent approach. At the moment there is a fifty-fifty chance with regard to these two alternatives." A senior Air Force official contacted by AIR FORCE Magazine said, "We are not particularly alarmed by the fact that NASA is looking at a number of options. These are preliminaries that only become meaningful to us once a final design emerges. Our principal interest in the Shuttle revolves around the question of whether or not it will permit us to operate more cost-effectively in space than we otherwise could."

Department of the Air Force spokesmen informed this reporter that the Air Force and DoD were "well aware of the value of expanding the study efforts to assist in the selection of a [Shuttle] development concept that is technically feasible and economically sound. The option that is finally selected by NASA will be assessed by the Air Force against DoD mission requirements and for cost benefits."

The spokesmen emphasized that USAF's "preliminary assessment indicates that a reduced payload bay size would affect the accommodation of some payloads and upper stages for high-energy missions, such as communications satellites in geostationary orbits." Such a condition, they went on to say, "would require DoD's retention of at least a portion of the expendable launch-vehicle fleet until a Shuttle with adequate payload capability is available." It does not seem likely that Congress would authorize funding for a Shuttle design that cannot meet principal national security requirements.

Basic Decision by December

Dr. Fletcher was confident that after the present study effort is completed in October and, "certainly not later than in December of this year, we will reach a definite decision regarding phased versus concurrent development of the Shuttle as well as its basic configuration and payload. We are also confident that we will issue the RFPs [requests for proposals] to industry by December."

According to NASA's present schedule, he said, the proposals are to be evaluated and source selection completed by spring of 1972.

To foster international cooperation in space science and also to reduce costs, limited participation by non-Communist European nations is being considered. Dr. Fletcher said such efforts to date do not include the Soviet Union and no change in this policy is contemplated. Cooperation with the Soviet Union in space programs aims, in the main, at joint docking operations and the exchange of scientific data, he said.

Talks with the European scientific community have been confined to "soundings of what the European capabilities are, what they would like to do, and what the percentage ranges are that they might be willing to contribute. We feel at this time that such participation should be held to around ten percent, but we have not established any high or low limits."

Dr. Fletcher added that the US government expects any eventual European participation to be through the supranational, inter-

The T-38. It's been flying since 1580.

The T-38 Supersonic Trainer is now observing its 10th Anniversary with the U.S. Air Force. Over 20,000 Air Training Command student pilots have chalked up 3.1 million hours in the jet—equivalent to one T-38 flying continuously since 1580.

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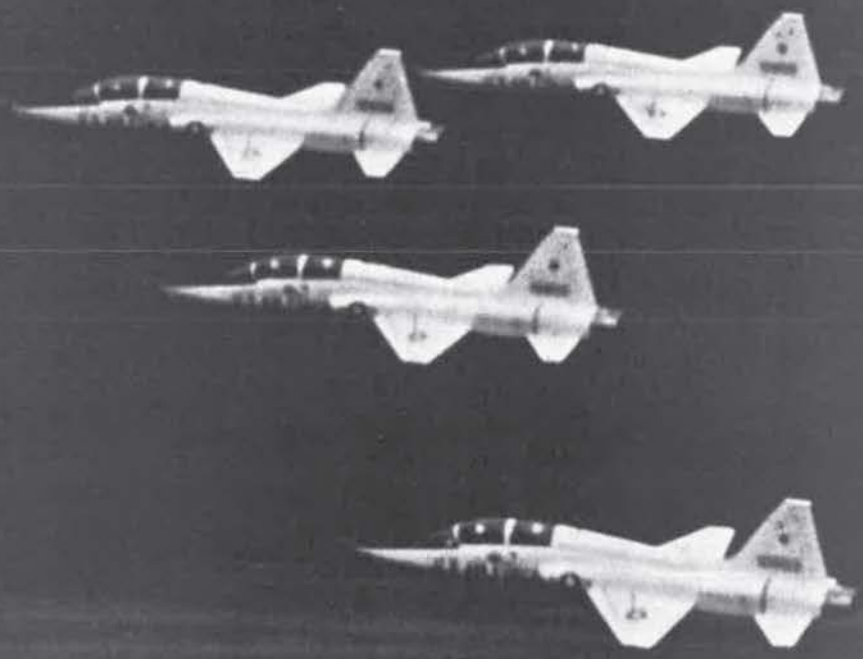

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European space launch organization, ELDO. He emphasized that the discussions to date were strictly exploratory and "are a long way from fruition, although the interest in Europe is formidable."

A Revolutionary Tool

From NASA's point of view, Dr. Fletcher stressed, "the whole idea of space in this decade is to bring the program down to earth, both figuratively and literally. We must ask ourselves the question: Is what we are doing useful in alleviating our problems on the ground?" The crucial criteria of each prospective space program, he said, are "whether it will pay for itself by doing useful work; whether it can be expected to produce valuable scientific knowledge that can only be obtained from space; whether it is important to national security; and whether it will catalyze valuable new technologies or lead to other practical results.

"In the case of the Shuttle, the answer to all these questions is 100 percent affirmative. It gives us a revolutionary tool for near-earth space operations. It gives us all kinds of flexibility that never existed before, including lower costs, reusability, quick reaction missions, satellite repair, and the ability to put more scientific or otherwise useful objects in space than economically possible by other means."

The Shuttle is to replace the present stable of US launch vehicles with the possible exception of Scout (for small payloads of up to 300 pounds) and Saturn V (for very heavy payloads of up to 280,000 pounds that cannot be broken down into Shuttle-size packages). According to NASA and industry calculations, the cost of a Shuttle flight will be about $5 million and, on the basis of original specifications, could place a payload (spacecraft and satellites) of up to 65,000 pounds in earth orbit.

By comparison, the cost of orbiting a payload of 28,000 pounds using a Titan IIIC is more than $20 million. To loft a payload of 45,000 pounds with a Saturn IB costs almost $50 million. The Shuttle's development costs, spread over a nine-year period, will range around $9 billion, according to present NASA estimates.

Other Advantages

The Shuttle offers several other advantages compared to expendable boosters. It can be used as an orbital laboratory for operations of up to seven days. Further, Dr. Fletcher pointed out, the Shuttle "very neatly avoids the dilemma of whether we stress manned or unmanned space activities. With the Shuttle we stress both. The Shuttle will greatly increase our manned spaceflight capabilities for civilian and military purposes. At the same time, it will vastly increase the effectiveness of our unmanned applications and scientific satellites."

As an example, he pointed at the area of high-energy physics research, which could be accelerated and facilitated by the Shuttle. Many defense scientists view with apprehension the lag in US spaceborne, high-energy physics programs, because of much more intensive efforts by the Soviet Union. Exploration of such astronomical phenomena as the "black holes" in space, presumed to be enormous energy concentrations resulting from the implosion of dying galaxies, conceivably could lead to the discovery of natural forces that rival or exceed nuclear energy.

Overall, Dr. Fletcher pointed out, the Shuttle offers the means for overcoming some of the budgetary restraints on the US space program by "enabling us to do more for less money and in that manner perhaps even give us the chance to get a jump on the Soviets so far as near-earth space is concerned."

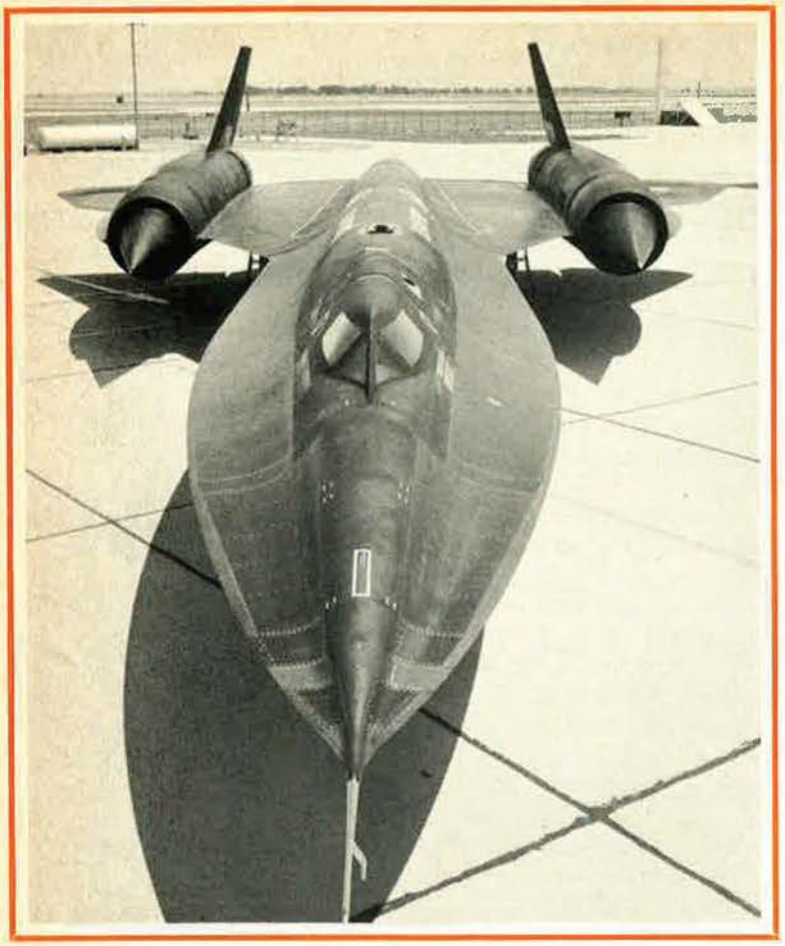
The Space Shuttle program is being managed by NASA's Headquarters Office of Manned Space Flight. Specific responsibilities have been assigned to the three Manned Space Flight centers as follows:

- The Manned Spacecraft Center in Houston, Tex., for program control, overall systems engineering, and system integration, as well as for the orbiter stage.
- The Marshall Space Flight Center in Huntsville, Ala., for the booster stage and the main engines.
- The Kennedy Space Center in Florida, for design of launch and recovery facilities.

The Administration requested an authorization of $100 million for development in FY 1972, but Congress increased this amount by $15 million.

While the fully reusable Shuttle's timetable is not certain at this time, it is likely that the system will enter NASA's operational inventory early in the 1980s. With its ability to reduce the cost of orbiting space payload by a factor of ten, and because of its reusability, it offers this nation a chance to progress from space exploration to space exploitation and to operate man's first "airline to space." ■

This AIR FORCE Magazine report on NASA programs of direct or indirect concern to the Air Force will be continued in the October issue. Leading off the second installment will be a status report on the agency's aeronautical activities as well as on its nuclear, deep-space rocket program, plans for the so-called Grand Tour of the five outer planets, and the "application programs."



A veteran SR-71 pilot describes the thrills of flying SAC's 2,000-mile-an-hour strategic reconnaissance aircraft, and discusses some problems of SST traffic control in this account of the . . .

More than ninety percent of the SR-71's structural weight is made up of advanced titanium alloys, capable of withstanding sustained surface temperatures as high as 600 degrees. Crew members (above right) wear full pressure suits designed for the Gemini astronauts. The hours of preparation for a flight are a far cry from the old "kick the tire and light the fire" days.

SR-71 at Mach 3.0

Col. Patrick J. Halloran, USAF

IT IS frequently apparent that many people —including a lot of pilots—don't appreciate the magnitude of problems associated with the design and operation of an aircraft capable of sustained supersonic cruise. This is because they fail to discriminate between *supersonic dash* and *supersonic cruise*. There is a big difference, centering largely around a successful solution to problems of range (air-inlet systems), and high-temperature heat soak (metallurgy).

Much of the research and development needed to break this "cruise barrier" operationally was achieved when the Air Force met its requirement for a high-altitude, supersonic aircraft. The requirement was based on the need for an advanced reconnaissance vehicle to supplement the aging U-2.

Lockheed Aircraft Corp.'s Clarence L. "Kelly" Johnson and his team of engineers from the "Skunk Works" responded to this requirement by developing the SR-71. It was an outgrowth of the YF-12A interceptor design, but is substantially heavier, with a longer range and an announced performance above Mach 3 and higher than 80,000 feet.

Design Problems

The problems of developing this type of titanium blackbird were gigantic. As Kelly Johnson said of the YF-12, "Everything on the aircraft, from rivets and fluids up through materials and powerplants, had to be invented from scratch." Although "invent" may mean different things to different people, there is no question but that the bulk of design engineering involved pushing well beyond the then-existing state of the art. The *sustained* temperatures of 500–600 degrees Fahrenheit, generated by air

Cruise

friction, to which the components would be exposed, dictated that the aircraft be built primarily of titanium alloy, much of it of an unprecedented 200,000 psi tensile strength. Hydraulic fluid, capable of functioning at the temperatures encountered, required extensive research. To save weight, a prime consideration in the development of the aircraft, a special ejection seat was designed that would operate effectively from zero speed and zero altitude up to aircraft design limits. Use of the Gemini full pressure suit by aircrews made it possible to bypass the heavier capsule-type egress system.

Each Pratt & Whitney J58 engine, especially designed for this twin-engine family of aircraft, provides almost 35,000 pounds of static thrust at sea level. Bill Parks, Lockheed's first Mach 3.0 test pilot, described this power as more than twice that of the combined engines on the *Queen Mary*. An example of advanced engine technology is the unique compressor bypass system, which functions at high Mach.

Kelly Johnson acknowledges that the most troublesome problems encountered in flight tests were those of propulsion system/airframe integration, mainly in the air-inlet system. Inlet unstarts, the aerodynamic disturbance that expelled the internal shock waves within the engine nacelle, caused considerable concern among engineers and flight crews alike.

The expulsion of the shock wave is an instantaneous occurrence. It is accompanied by an ear-shattering explosion or a series of heavy bangs and violent, head-slamming upsets in the yaw axis. The external shock wave dramatically reduces the effective thrust from the affected engine and creates massive drag loads that combine to introduce a gross asymmetric thrust condition. The SR-71's stability augmentation system (SAS) introduces corrective flight control inputs within milliseconds as the giant all-moving, twin rudders slice into the thin air of 80,000 feet. Pilot control without SAS would be marginal under unstart conditions.

It was only through herculean efforts on the part of Lockheed engineers (Kelly Johnson, primarily) that the inlet operation has been refined to such precision that unstarts are now a rarity. In fact, many pilots have undergone training without ever experiencing the thrills of this startling phenomenon.

A Look at the Cockpit

A spirited program of crew training began with the delivery of the first SR-71 to the reconnaissance wing at Beale AFB, Calif. There were few old-timers from whom to learn. The Air Force had little operational experience to draw on, and its instructors were pilots who had made one or two flights at Edwards AFB, Calif., under the supervision of Lockheed test pilots.

The SR-71's two-man crew is composed of a pilot and a reconnaissance system officer (RSO). Although the RSO is a navigator, he performs many of the duties of a copilot. He has duplicate flight instruments, fuel-monitoring systems, annunciator warning panels, and a vast array of reconnaissance systems. He handles all of the checklists for both crew members and takes care of most of the communications. A high percentage of his time is also devoted to monitoring and controlling the superb astro-inertial navigation system.

Although conventional "round dial" pitot static flight instruments are in the cockpit, they are used primarily for subsonic flight. When transitioning to and cruising at supersonic speeds, a Triple Display Indicator (TDI) is used. It provides computer-corrected, digital readouts of knots equivalent airspeed (KEAS),

altitude, and Mach. A conventional flight director system is used, which has been modified slightly to present angle of attack information during cruise, on the glide slope "bug" of the Attitude Display Indicator (ADI). Most SR-71 pilots agree that current flight instrumentation is behind the requirements for Mach 3.0 cruise. The YF-12 (using vertical tapes) and the SR (round dials) both could profit from improvements in the type of flight information presented and the manner of display. This problem also has been documented by numerous NASA studies. An electronic ADI shows promise of reducing some of the high-altitude and speed instrumentation difficulties.

The ultrasophisticated navigational system is also the source of autopilot inputs. The entire mission is "canned" in a computer program by a staff of technicians, and the tape fed into the navigational computer. Film strips are also prepared and installed in projectors in each crew compartment. They automatically display for the pilot and RSO a map presentation of the aircraft position at all times—regardless of speeds flown—and pertinent flight data such as fuel, times, headings, and radio frequencies. A brief look at a training flight reveals the reasons for this automation.

Once the SR-71 begins to accelerate to supersonic climb speed, all maneuvers are avoided. On both climb and descent, special handling by air traffic controllers is a must. Despite the unique problems of supersonic cruise described by the author, SR-71 pilots report that the blackbird is one of the best handling aircraft ever built.

From Liftoff to 80,000 Feet

Liftoff, with full afterburners splitting the air, occurs at slightly over 200 knots. Acceleration is very rapid to the normal subsonic climb speed of 400 knots, which is maintained until reaching 0.90 Mach. Conventional departures can be made, but acceleration to supersonic speeds is delayed until the maneuvering required for the departure is completed and an area of low population density is reached.

Once the acceleration to supersonic speeds has begun, all maneuvering turns are studiously avoided to prevent degradation of performance. This is a time of high fuel consumption, and it is critical to the success of the mission that, once begun, an acceleration maneuver not be interrupted. This requires special handling by air traffic controllers.

During acceleration, the autopilot is engaged in a "KEAS Hold" function, which follows a programmed Mach increase schedule until reaching the desired cruise Mach and altitude combination. At cruise altitude and Mach, the throttles are retarded to near minimum burner position. The autopilot is normally switched to "Mach Hold" for the cruise portion of the flight. The roll axis is also engaged into an "Auto-Nav" function, which provides course inputs to the autopilot from the fantastically accurate astro-navigation set.

A Mach 3.0 turn requires an impressive ninety-mile radius. It can be a frustratingly lengthy experience, particularly when you are trying to get to a landing base in an attempt to forestall a pending emergency.

Cruising at Mach 3.0

Although cruising conditions at extreme altitudes are always VFR (visual flight rules), the pilot is still flying almost entirely on instruments. External visual references are not only limited but can be dangerously misleading when performing certain maneuvers. The tremendous energy of a heavy vehicle moving at such speeds can have a devastating effect on speed and altitude control if unintentional changes or overcorrections in pitch occur. To make precise changes in either Mach, KEAS, or altitude requires a fine technique and considerable practice in both the aircraft and the flight simulator. A momentary excursion beyond the desired value in one parameter results in excessive deviations in the other two.

NASA studies, done at Langley Research Center in flight simulators, confirmed the difficulties of precision instrument flight at Mach 3.0. Highly experienced pilots were able to stay

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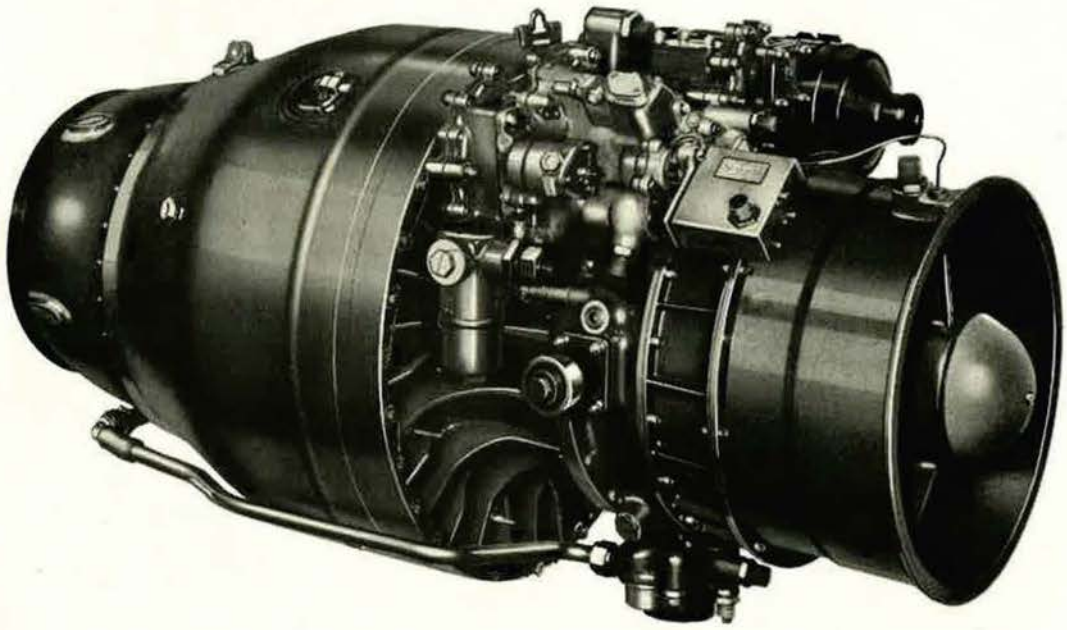

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Since the SR-71 frequently performs on the fringe of the state of the art during cruise, the pilot's time is devoted almost completely to monitoring the very critical performance of the aircraft systems and engines. The RSO shares in this responsibility and is a very essential part of the team. And abnormal conditions can develop swiftly during an otherwise serene and uneventful flight if crew attention wanders. At best, recovery from such a condition can be time-consuming and can reduce operational effectiveness.

Clear air turbulence (CAT) is occasionally encountered at SR-71 cruise altitudes. It can be very disconcerting at high speeds even though the "Q" forces (dynamic pressure exerted on the aircraft) are relatively low. CAT is usually of short duration, and weather forecasting is rapidly becoming quite accurate in determining its location and severity.

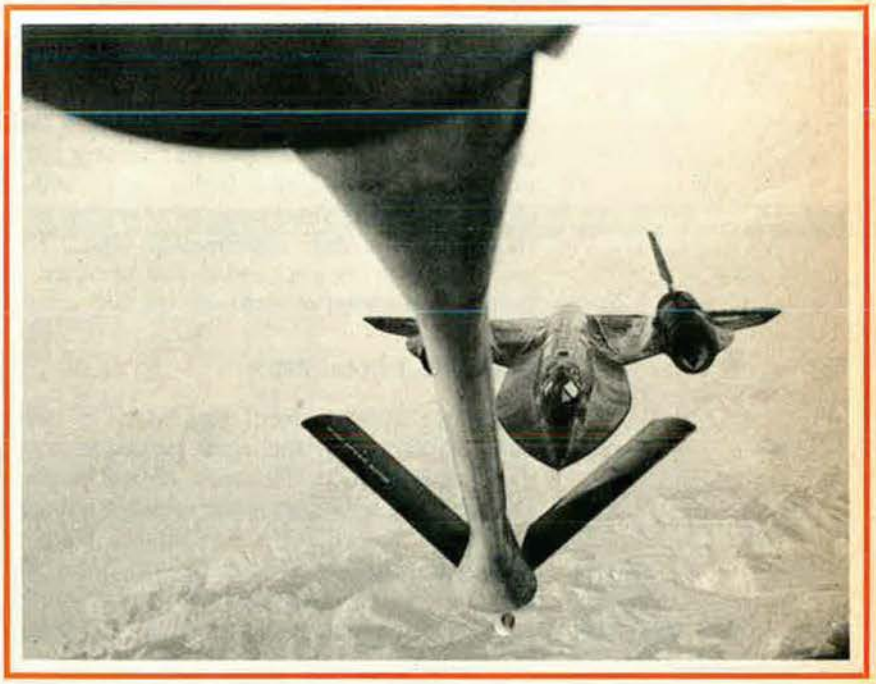
Large air-mass temperature changes are also quite noticeable in supersonic cruise. They are manifested by sudden changes in the indications of Mach, altitude, and KEAS. Temperature changes are passed quite rapidly and generally are more of a nuisance than a discomfort or hazard.

An additional deviation from stabilized cruise is occasionally encountered when flying near the operational ceiling altitude. A long-period oscillation, known as the phugoid (an alternating slight dive and climb, canceled out by increasing and decreasing airspeed) is a common characteristic of longitudinal stability and constitutes a very gradual interchange of potential and kinetic energies about some reference speed and altitude. It normally creates only a minor physical sense of altitude and speed change that would hardly be discernible to an SST passenger.

Handling the Traffic

The military traffic operating above 60,000 feet, in what is generally considered a "see and be seen" environment, is a little more dense than you might expect. Some B-57s and U-2s have been cruising there for years. Air Route Traffic Control (ARTC) has become increasingly concerned over traffic separation above Positive Control Airspace. They have put a modified control system into effect that places all traffic on a common, discrete voice frequency with a common radar identification code. It is now mandatory for flight crews to give their altitude in code to each new controller as they enter his area of responsibility. This is an unwieldy procedure for all concerned, and reporting altitudes in the clear will become a necessity in the future.

Traffic controllers provide advisories to minimize conflicting aircraft tracks and provide a 5,000-foot altitude separation. The difficulty of handling two head-on SR-71s can be imag-



Decelerating from Mach 3.0 cruise at 80,000 feet or higher, and descending for refueling or landing, calls for extremely close cooperation and coordination between SR-71 pilots and traffic controllers. The pilot has some latitude for adjusting his descent profile, but an error of seconds in beginning descent can result in an error of many miles at level-out.

SR-71 VITAL STATISTICS

The SR-71 evolved from the YF-12A development project started in 1959.

The SR-71's vital statistics, like those of some other celebrities, are both fragmentary and imprecise. The following data have been released:

First SR-71 delivered to SAC January 1966

Span	Approx. 55 feet
Length	Approx. 107 feet
Height	Approx. 18 feet
Powerplant	Two Pratt & Whitney J-58 engines of about 35,000 pounds thrust each.
Speed	Mach 3 (more than 2,000 mph or slightly faster than a 30.06 rifle bullet)
Ceiling	Above 80,000 feet
Mission	Strategic Reconnaissance. It can survey 60,000 square miles in an hour.
Prime Contractor	Lockheed Aircraft Corp.

ined when you consider the closure rate of over 4,000 mph and the short lead time each controller has to evaluate the situation and issue instructions. The ability of a Mach 3.0 aircraft to accomplish avoidance maneuvers is obviously also limited. Military aircraft normally use a cruise-climb profile above FL 600 (Flight Level 60,000 feet), but traffic-separation problems would be eased by hard altitude assignments and will probably be a necessity for safety considerations if traffic density ever increases significantly.

One of the most controversial aspects of supersonic flight is, and will continue to be, the sonic boom. The most significant boom effects occur when the aircraft is at lower altitudes during the acceleration and deceleration phases. The overpressure levels at these times reach their maximum for any aircraft, regardless of boom signature characteristics, and great care must be exercised in selecting routes of flight. Daily training flights in the SR-71 cross the country from coast to coast but painstakingly avoid large metropolitan areas. They are also flown on a timetable that prevents too frequent repetition of a specific track.

Descending from Above

The deceleration from high Mach is essentially a reverse of the crew procedures used during acceleration. The most critical phase in planning a deceleration is the accurate initiation of descent procedures a set distance from the projected subsonic level-off point. Since altitude and equivalent airspeed are usually undergoing constant change during cruise, a continual update of descent timing must be made.

It will usually require many miles to decelerate and descend to an altitude from which a conventional instrument approach can be started, or to an altitude for air refueling. A miscalculation of several seconds at altitude can cause errors of many miles at bottom-out. Although some latitude for adjustment of the descent profile is available to the pilot, it is still rather limited because of the established inlet configuration, engine tolerances, and fuel consumption.

All understandings and clearances with traffic controllers have to be confirmed prior to beginning descent, since, for all practical purposes, it is an irrevocable decision. An impasse really develops when there is a conflict between climbing and descending supersonic aircraft. Leveling out descending traffic at intermediate altitudes (35,000–45,000 feet) can easily degenerate into a "behind the power curve" situation with resulting compressor stalls and afterburner or engine blowouts. As previously mentioned, to level an accelerating, climbing supersonic aircraft imposes such high penalties in fuel consumption that it is equally unacceptable.

An investigation of this problem was made at the Langley Research Center while the incorporation of the SST into existing ARTC structures was under study. Their simulator program indicated that it would be preferable to accept the risk of leveling the descending aircraft in lieu of delaying the climbing one. My experiences would dictate a different conclusion.

Upon reentering the subsonic speed regime and altitudes of other aircraft, the SR-71 fits beautifully into normal traffic. Its maneuverability, wide selection of compatible speeds, and adaptability to standard instrument-approach procedures all tend to minimize the dramatic differences that existed only moments before.

Landing—Clean and Hot

The SR-71 is an absolutely beautiful aircraft to land, even though there are no landing flaps or speed-brake devices, as on conventional jets. Ground effect is very noticeable prior to touchdown because of the large lifting area involved. As soon as the aircraft touches down, slightly in excess of 150 knots, the pilot deploys a large landing parachute, which is extremely effective for deceleration. Differential braking is touchy, despite a good antiskid system, and care must be exercised to avoid excessive tire wear. The feel of the brake system is somewhat diluted because of the heavy, pressure-suit footgear worn by the pilot. Visibility from the front cockpit is excellent during the landing and taxi phase.

The aircraft retains a very high residual heat from its exposure to the air friction produced by high Mach cruise, and ground personnel must use care when handling the aircraft immediately after landing. If several turns in the holding pattern or any low-altitude air work is done prior to landing, the temperatures are reduced enough for normal ground handling.

Because the SR-71 is the first and only Mach 3.0 aircraft to enter squadron service, my evaluation is partially biased by lack of another aircraft to which it can be compared. However, crew members previously qualified in a wide variety of high-performance aircraft consider the SR-71 to be one of the best handling, most honest, and operationally capable airplanes they have ever flown. And flying the SR-71 is as much of a thrill the hundredth time as it is the first.

Maybe this view of supersonic cruise has been with only one eye at the keyhole, but in the Kingdom of the Blind, the one-eyed man is King. The trail for sustained Mach 3.0 flight has truly been well blazed by the SR-71. ■

ABOUT THE AUTHOR

After completing pilot training in 1950, Colonel Halloran spent seven years in fighters, including 100 missions in Korea. From 1957 to 1965, he flew U-2s, much of the time overseas. In 1965, he entered the SR-71 program, and during the next five years served as aircraft commander, chief of standardization, squadron commander, and assistant wing D/O. Colonel Halloran is a 1971 Distinguished Graduate of the Air War College and is now assigned to SAC Headquarters at Offutt AFB, Neb.

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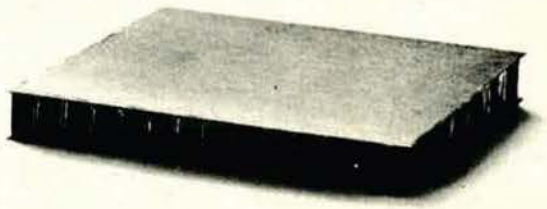

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BRIG. GEN.

Right, General Holm receives stars from Air Force Secretary Robert C. Seamans, Jr., and Lt. Gen. R. J. Dixon, Deputy Chief of Staff for Personnel. In top photo, General Holm exits a T-39 following a staff visit.

ON JULY 16, Jeanne Holm was promoted to brigadier general in the United States Air Force. The special ceremony at the Pentagon, attended by notables of both the military and governmental communities, marked the first time in Air Force history that a woman had achieved general officer rank.

The occasion was more than a milestone in the ascendancy of the feminine gender to the higher peaks of leadership; to a considerable degree, it symbolized public recognition of the quality of Jeanne Holm herself.

Beside the combination of forcefulness and delicacy General Holm has brought to her job as Director of Women in the Air Force, she maintains an overall life-style that could be the basis for envy in many a "liberated" male.

In her professional life, General Holm is responsible for the effective employment within the Air Force of some 1,200 WAF officers and 10,000 enlisted women, a force that is expected to increase considerably in the next several years. She has held this post since 1965.

Jeanne Holm first entered service in 1942 as a private. By war's end she was a captain in command of a women's training regiment. She left the service to attend Lewis and Clark College in Oregon, her home state, and was recalled in 1948 during the Berlin Airlift. In her Air Force career she has served in a series of posts in plans, programming, manpower, and personnel.

A boating and skiing enthusiast, General Holm also lists among her wide-ranging interests archaeology and scuba diving.

In the following interview, General Holm discusses aspects of military life as seen through the eyes of the Air Force's first woman general officer:

Why would a young woman of today want to join the Air Force?

Well, one presumption is that many women join the Air Force to pursue a *career*—as they might in medicine or law. This is not actually the whole story. Today, many women enter the military motivated by the same factors at work throughout the fabric of society in general: They want training, travel, or equality with men in jobs and pay. They want to see what the military life has to offer. And, for these reasons, more women seem interested in joining the military now than in the past.

You once commented that "the more interesting jobs in the military five years ago were closed to women—and we thought we were integrated." Do you think much success has been achieved in opening additional jobs and areas of responsibility for women?

Quite a breakthrough has been made here. Until fairly recently, we listed jobs that were *open* to women in the military—all others were closed. Now, we've done exactly the reverse: All jobs are open to women, except those denied by law, such as the rated, combat jobs. Any girl who comes to us with the right qualifications or background will find very few jobs she can't go into. This is especially true in the officer ranks. In the enlisted ranks, we say that jobs beyond the physical capabilities of most women are still closed. But this is changing constantly—and, as technology revises the job content, new jobs become available to women. We've opened aircraft maintenance to women this year. We've just had the first WAF captain graduate from aircraft maintenance school—and in the top third of her class, I might add. She is now serving in SEA as a maintenance staff officer.

Women are currently excluded by law from pilot/navigator roles that

In mid-July, the first WAF in Air Force history achieved star rank. How does the Number One WAF regard the future for women in the military? This question and others concerning the status of modern women in uniform are answered in this interview with . . .

JEANNE HOLM, USAF

By William P. Schlitz

NEWS EDITOR, AIR FORCE MAGAZINE

might place them in combat situations. Would you anticipate any change in this capacity?

If you are asking whether I would like to see women pilots, the answer is yes. However, I don't see any change in the rule against putting women in combat aircraft.

There are many flying jobs—administrative and logistical—in which women pilots could serve. Do you visualize a more active role for WAF in flying aircraft, since this is the core of Air Force activity and the basis for pilot/manager control throughout the command structure?

Apart from the issue of job equality, there is no question that women can fly military aircraft. And while women have not broken the barrier in becoming military pilots, this is a special problem and one that must be viewed in the context of overall Air Force needs. As of now, the vast majority—all, really—of the pilot forces are expected to be able to fly combat. A while back, a MAC pilot, say, could fly transports for years and years. This has not been true since Vietnam put a strain on pilot resources, so that pilots are rotated to combat—and back—from other flying jobs. The Air Force feels that it simply can't limit its options in this area by putting restricted personnel—women—into cockpits. Unless the law changes—which is unforeseen at this time—or the Air Force has a very difficult time recruiting pilots, the present situation will prevail for some time to come. The Air Force policy is that male pilots are a resource that can be used more widely.

In a parallel area, is there any likelihood and would you be enthusiastic about women being integrated into the Minuteman missile crews?

While there are no plans for it right at the moment, I know of no good reason why women couldn't be in missile crews. However, we will have to solve some facilities problems first.

Generally, do you see a much-expanded role for women in the armed forces of the future, vis-à-vis the prospective All-Volunteer Force? In this regard, what are the chances for increased female participation in Guard/Reserve units?

This has already been programmed. The WAF strength has doubled already to help reduce the pressures on the draft and eventually will triple its original size as we work toward the All-Volunteer Force. By 1976, we expect a strength of 15,000—and it's very clear that we may reach that earlier. We are also working on greater participation in the Guard/Reserve forces.

Do you anticipate that in the immediate future women may command units made up predominantly of men?

We already have that. We have a civil engineering headquarters squadron commanded by a woman. We have had women commanding communications squadrons. This became possible in 1968 with a change in the law. While this is still on a relatively small scale, it is happening more and more as qualified women come along.

Suppose the All-Volunteer Force doesn't work. Do you foresee any requirement for women to register for the draft?

Proposed legislation has existed for some time to provide for women draftees. However, realistically it would require a national emergency of critical proportions to bring this about. The country's not ready for drafting women, frankly.

What points would you emphasize from your own experience to any career-minded woman who would like to get to the top in the Air Force?

I talk to OTS graduates whenever I can about this. I tell them that although both men and women in the Air Force must be very professional in their jobs, a woman officer must be a little more professional—must work harder at her job to be accepted. But this is true in any field where women are in managerial posts; it's not peculiar to the military. She has got to be more sensitive to human relationships and to remain a woman in the process. If she starts to act more like a man than a woman she probably won't succeed. These are facts based realistically on our cultural bias. The keys are professionalism, remaining a woman, and being sensitive to the human relations and foibles of the people she's working with.

Have you studied the manner in which other nations—such as Israel, the Soviet Union, and North Vietnam—utilize women in their armed forces?

Yes, I have discussed this with the Director of Women in the Armed Forces of Israel. There is a popular notion that women are used as combatants in that country. The Israelis do not use women in combat, although they are trained in the use of firearms in case they have to fight in their own streets. While women in the South Vietnamese armed forces are not trained for combat—I've visited there twice and studied their procedures—their counterparts in North Vietnam are. I don't know whether this is a result of the manpower shortage or basic Communist doctrine concerning equality. There is no solid information on it at all, nor have I come across any information on the Soviet Union concerning the subject. Among women in the armed forces of the West, ours are the most integrated by far.

What jobs have WAF done in Southeast Asia?

While no women are in combat, we have them assigned as intelligence officers, computer program-

General Holm and Deputy WAF Director Col. Billie M. Bobbitt examine material sample. Capt. Darlene K. Brewer models new white informal uniform. At home (below), the lady general and Capt. Audrey J. Page, her assistant for WAF Management, study pieces of Roman pottery General Holm found while scuba diving in the Mediterranean Sea.

General Holm receives a lecture while on tour in Greece.

mers, chiefs of consolidated base personnel offices, and many other jobs. We have, on the average, about 100 each of officers and enlisted serving there. As the war winds down, the ratio—and numbers—will probably change. Most are volunteers, but qualified nonvolunteers are ordered there if needed. I don't want to imply that the only Air Force women serving in SEA are WAF; the Nurse Corps has had women there throughout the war.

Turning to the social side of military life, what is your reaction to the relaxation of regulations in today's armed forces? Have any special problems been created for women in the Air Force?

I know of no special problems. As a matter of fact, the relaxation has improved the quality of Air Force life for women. In comparison to men, of course, the women probably have worked harder at developing their privacy and making their dormitories more homelike. Women traditionally have been concerned about their home environment, because they spend more time in it. The atmosphere around the dormitories generally is pretty relaxed. This reduction in the number of inspections and in what they consider to be harassment—which has always annoyed them—is welcome. I, for one, have always felt that our bachelors, male and female, should have more consideration in this regard, to narrow the gap between the relatively free life the married person enjoys and our single people who are subjected to crowded dormitory life.

What are your views on the Women's Liberation Movement? Is it creating problems within the ranks of women in the military?

I think that Women's Lib is a manifestation of the kinds of things that are going on in our society today. Recent changes in Air Force policy reflect the same concern. One has not caused the other. For example, Women's Lib has not created the problems in our culture that women—and women in the Air Force—are aware of today. It has only addressed them in rather bizarre ways to get attention. Equal opportunity, the chance for promotion, for better jobs—the jobs that were arbitrarily closed to women at one time—this is what Women's Lib is really all about. So we are moving in parallel directions, although in less dramatic fashion.

There have been reports of widespread racial strife throughout the services at domestic and overseas installations. What is the racial situation among the WAF?

Above, General Holm "raps" with enlisted women at a USAF hospital. At the right, during a leisure moment aboard her twenty-eight-foot cruiser.

So far, the racial situation has not been a major issue. This is not to say that tensions don't exist. We are not immune to what is going on in our culture. We have had instances of WAF becoming involved in racial issues. It usually is a local problem, where those in charge were just not sensitive to what was happening. The incidents we have had usually related to the men on the base. In other words, the women have been involved in a base activity rather than something that has been particularly unique to the WAF themselves.

How does WAF help young women —especially those from minority groups—adjust to the unusual problems and stresses they encounter on entering military service?

In most cases wherever young WAF are assigned we have a WAF squadron section. The women are attached to it for housing and counseling. Someone is there who is concerned about them and the human relations problems they have. The unit's sole purpose for being is to be interested in the individuals and their environment and this helps prevent many problems from developing. When you have a good noncommissioned officer in charge or a good WAF officer who is either an adviser or squadron commander, one who is aware of what is happening, the problems can be worked out. But, again, if there is racial tension on the base, the women are not immune to it.

What difficulties are you experiencing with drug abuse by WAF? If the problem exists to any degree, what is being done about it?

So far, drug abuse has not surfaced as a major problem among

WAF. Isolated instances, yes. Of course, the threat is there, since we are not divorced from the social scene around us. But drugs are not the root of the problem—it is the *symptom* of a problem. The true problem is the individual's personal life and the reaction to the culture around us. What I'm saying is that if you provide a happy environment, say, in the WAF dormitory and on the base as a whole, then you are less apt to have that kind of problem.

How do you stand on married women in the service having children and then continuing their careers?

We've revised our policy regarding married WAF having children. Historically, not only did we refuse to enlist women with children—including stepchildren or foster children, or even younger brothers or sisters who were their responsibility—but we arbitrarily discharged women who acquired such responsibilities. This was true of all the armed forces. This policy seems odd in 1971, but didn't seem so ten years ago. Now, however, we've made it possible for women to stay in when they acquire children and for those discharged for pregnancy to come back in after they have the child. In some instances, they may remain on active duty while they have the child. We've come a long way in this respect. It is a very dramatic change that came about within this last year. Also, in recent years we have a growing number of married women in the Air Force and are working harder at keeping married people together. I personally feel we have a special responsibility to these couples since they are *both* working for the Air Force.

Regarding that situation, is there equality in the status of a military woman married to a civilian and that of a married military man?

No, and that's a problem. We allow a woman one assignment—if we can find a spot for her—near her husband. But she is either available for worldwide assignment or she isn't. A civilian man married to a WAF has no legal rights to benefits as the husband of a military woman. We are trying to get the law changed. Our personnel policy people and I are working on this, and getting some help from Capitol Hill. Legislation has been proposed for several years now but so far without coming to a vote. We hope for some result within next year.

How is the program to increase women's participation in ROTC coming along?

That is looking very good—beyond our expectations. It opened very late last year at 100 universities and 500 women enrolled. Another fifty-three universities will have it this coming fall. Also, according to [Brig.] Gen. [Benjamin B.] Cassidy, [Jr.], Commandant of AFROTC, this has had a good effect on ROTC. He feels that where women have been in the program the retention rate for men has improved. And a president of one of our largest universities, which started the program two years ago on a test basis, said that the quiet on campus of late as regards ROTC might well be due to some degree to the fact that women are in the program. In fact, the cadet commander at the ROTC detachment there last year was a woman.

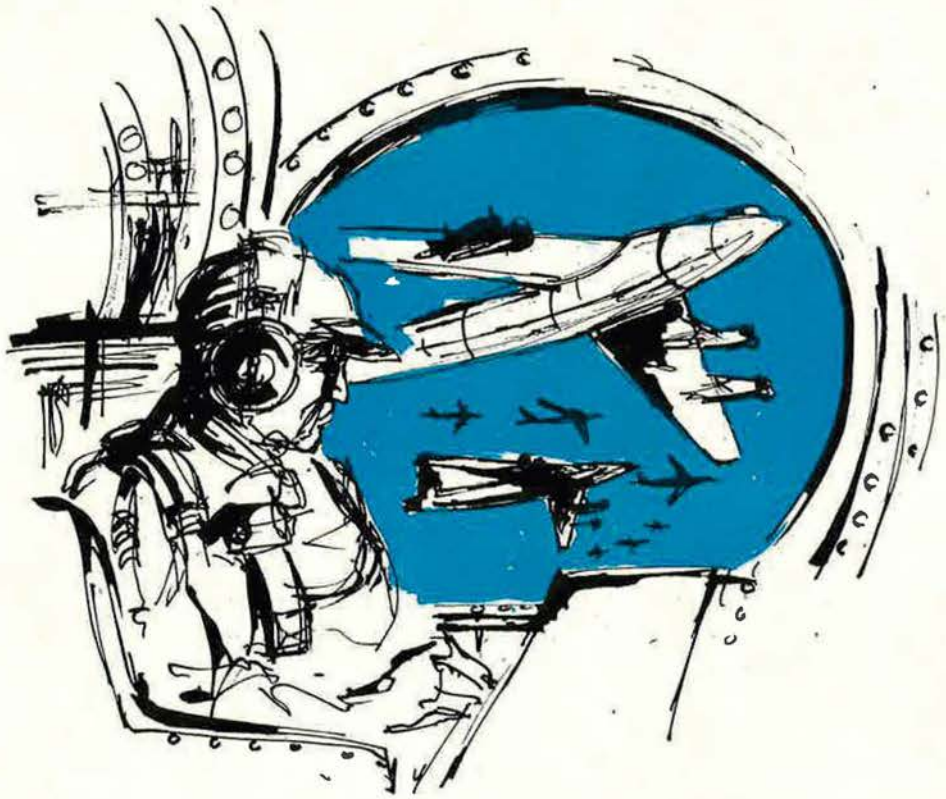
Now a really important question. With women universally interested in fashion trends, and uniforms being a significant factor in a woman's life, how is policy on military clothing styles formulated?

The ideas on uniform changes come from my office, or, as in the case of the new flight nurse uniform, from the Chief of the Nurse Corps. But uniform changes go before the USAF Uniform Board and the Chief of Staff for approval. Minor decisions on such things as skirt lengths and hair styles have historically been left to the Directors of the women's components; and sometimes it's rather a cliff-hanger. For example, we lucked out in that the maxi didn't catch on in the civilian community. It could have been a real headache. Women in the Air Force almost *en masse* let me know that they didn't want maxis. We were lucky, too, that two years ago we decided to let the hem reach from the bottom of the knee to two inches above the knee—just where the fashion has now settled. In any event, armed forces fashions can't go mod; they have to remain on the conservative side—I prefer the word "classical." Let me put it this way: If we ever got too far out, I'm sure we'd hear from the Chief of Staff.

General Holm, during your career, what have you found to be the most attractive side of military life?

I like the total atmosphere and the people in the military. From a pragmatic point of view, it is probably a combination of good jobs and travel—that is, being involved in interesting and challenging jobs in interesting and different places. ■

An experienced planner and frequent writer in the field of military strategy holds that the Air Force has not fully exploited the mobility and flexibility of airpower. He believes that airpower can be made a more effective political and military tool by adapting to air operations Admiral Mahan's ideas for control of the seas. We should, he says, take a new and broader . . .



VIEW FROM THE BLUE

—Illustration by Clifford Prine

By Col. William C. Moore, USAF

The Scenario

MAJ. BILL GRAY, United States Air Force, has been "on station" for five days. "On station" is a point in the sky, 3,000 miles from his home base at Minot, N. D., and 700 miles off the enemy's coast.

Major Gray is the pilot of an aircraft carrying both bombs for precision attacks and ballistic missiles. He commands a crew of five, all trained for dropping bombs and launching medium-range ballistic missiles from aircraft. He and his crew alternate with Captain Rosecrans' crew—now off duty and sleeping, reading, or relaxing just aft of the weapons bay in the small crew lounge that has been their home for five days.

Five days in an aircraft with one day still to go is no picnic. Major Gray has the toughest, most fatiguing task of all the strategic forces now on station.

When the crisis began, Poseidon missile

Col. William C. Moore, a 1943 graduate of the US Military Academy, was a B-24 squadron commander during World War II. In the postwar years, he has served in B-52 operational units and on planning staffs at Aerospace Defense Command, the JCS, Pacific Command, and Supreme Allied Command Europe. He is now Vice Commander of Headquarters Command. Colonel Moore's articles have appeared in US News & World Report, *the Washington* Post, *and several military journals.*

submarines that were not already on station proceeded to launch sites in the ocean areas around the enemy. Aerial Task Force 3.2 and Joint Naval Task Force 3.3 were formed and ordered to the crisis area. The land-based missile men who are always ready for instantaneous launch merely sharpened their countdown procedures.

Major Gray knows that the airborne bomber force is the safest target of all from enemy action. Gray's aircraft, plus others like his, is outside the limits of the enemy's air defense system. He is outside the limits of enemy radar; he is beyond the intercept range of fighters. Enemy defenses can neither see him nor engage him. Nothing in the enemy arsenal can touch him.

Major Gray's mission is fairly simple in concept but technically complex and fatiguing. If he gets the "go code," he will either penetrate enemy defenses for precision attacks or launch his missiles, depending on the option the President has selected.

The Major has expected the code for five days; if it doesn't arrive in the next twenty-four hours, his six-day tour on station will be finished. He will be relieved by another aircraft and head back to the United States.

Major Gray alerts his crew for their last rendezvous with the aerial tanker that has visited them twice daily since the tour began. He wonders how long the crisis will last. He wonders how the aerial task force that has deployed to another crisis area is making out. It is probably on its way home by now.

Brig. Gen. J. C. H. Stout, USAF, the Commander of Joint Aerial Task Force 2.2, is indeed on his way out of the crisis area. He has been relieved by Joint Naval Task Force 2.3.

General Stout's aerial task force had a brief but demanding mission. He was deployed to the crisis area on the same day that Major Gray arrived "on station."

Aerial Task Force 2.2 is a US show of force in support of a friendly nation being blackmailed and intimidated by an unfriendly power. The strength of the task force is formidable. It consists of more than fifty aircraft—some solely gunships; others, both gunships and carriers for paratroopers; still others, bombers, carrying an array of conventional bombs and side-firing guided rockets. One of the aircraft is the Airborne Command Post of General Stout and General Tansey, the Army general commanding the paratroopers.

Occasionally, the aerial task force has been augmented by aerial tankers from the United States, which have come and gone as the need for fuel demanded. Often, long-range fighters have accompanied the tankers in order to make the display more impressive. They were always present when the task force moved close to the land and departed when it moved back out to sea. The Task Force is prepared to conduct an aerial blockade of the enemy's major port. It is capable of sowing mines. It is prepared, if necessary, to seize the principal airport in order to establish an airhead.

The task force is visible evidence of the ability and the determination of the US to deter aggression, to support its friends, and to protect American lives. It has been sent to the area because it could get there fast. Time was critical during the initial phases of the crisis. Although the force could stay on station for only a limited number of days, the duration was carefully calculated to permit it to survive until relieved by the naval task force, which, though slower, has a far greater, less fatiguing capability to remain on station.

The Logic

Does this scenario sound fantastic or impossible? It shouldn't. Major Gray's mission is no more fantastic than the concept behind the Poseidon submarine or the newer ULMS—Undersea Long-Range Missile System. General Stout's Aerial Task Force 2.2 is no more fantastic in concept than the Joint Naval Task Forces of World War II.

The scenario is no more fantastic than current thinking and planning, which envisions astronauts living in outer space for months at a time. It is no more fantastic than experiments by the Navy, which envision men living under the sea in "Sea Labs" for months at a time.

The scenario only sounds fantastic because the Air Force has not been thinking in terms

of men living in the air—in aircraft—for long periods of time. Certainly technology will permit it. The aircraft are large enough to be outfitted as comfortably as a small ship. Aerial refueling is a proved technique, technically and operationally. The gunship concept used in Vietnam and the standoff capability permitted by short-range guided missiles are realities. These capabilities, when coupled with the advances made in electronic sensors and computing devices, certainly give the aerial task force a combat capability essentially the same in concept, if not magnitude, as the surface naval force. Lastly, the development of a greatly improved Airborne Command and Control System (AWACS) permits the aerial task forces to operate as a single, centrally directed unit similar to a naval task force.

In 1929, Gen. (then Maj.) Carl Spaatz and Lt. Gen. (then Capt.) Ira Eaker, with two other pilots and a mechanic, set an endurance record in their aircraft, the *Question Mark*. The *Question Mark* was in the air 150 hours—six hours more than Maj. Bill Gray was scheduled to be on station.

In 1949, Col. (then Capt.) James Gallagher flew the B-50 *Lucky Lady II* around the world nonstop. He was in the air ninety-four hours—almost four days—just two days less than Maj. Bill Gray was scheduled to be on station.

Since the flight of the *Question Mark* in 1929 and Jim Gallagher's flight in 1949, development of a capability for staying or living in the air has not progressed to a great extent. While SAC's airborne command post, Looking Glass, and the twenty-four-hour airborne-alert missions flown by B-52 bombers are milestones, they are only individual efforts to improve the operational readiness of a force that is tied too tightly to its bases. They do not represent significant progress that could lead to a preplanned, operational concept of living in the air.

This lack of progress can be attributed primarily to a lack of perception by airmen on how to exploit the speed and flexibility air travel permits. In this light, airmen have not been as perceptive as Navy men who, guided by the theories of Adm. Alfred Thayer Mahan, have developed a strategy for political, economic, and military control of land areas by exploiting control of the sea.

The Strategic Concept

The Air Force should think of using the air in terms similar to those that Alfred Thayer Mahan applied to the sea. Much of what the Admiral said about control of the sea makes sense for control of the air. Mahan's thesis contends that control of the sea permits control or strangulation of land areas. This concept can be expanded in geographical scope and magnitude if applied to an air strategy. Control of the air permits military and political control to be extended inland whereas maritime strategy must, of necessity, terminate at or near the coastline.

The air strategy as envisioned, however, would be entirely compatible with the nation's maritime strategy. The two would be complementary, not competitive. The advantages of one would serve to offset the disadvantages of the other.

The purpose of this article is to discuss an air strategy that is in line with the scenario presented above, one that is as applicable to the air as Alfred Thayer Mahan's concept is to the sea.

The principal point of Admiral Mahan's concept is this: The well-being, security, and existence of nations is primarily dependent on free access to the world sea lanes, which are used by all nations to acquire or distribute natural resources, food products, manufactured goods, and other economic resources needed by nations for political, economic, and social growth as well as their own security.

If a nation is denied access to these international trade routes, it will wither and die. And, since the aim of any war is to establish some measure of control over the enemy, the most fruitful way to do this is, first, to deny him access to the ocean trade routes, and, second, to exploit this control by seizing a few critical points on land that are vital to the existence of the nation and its political structure.

This summation of Admiral Mahan's theories leads to the definition of the air strategy that is proposed:

> Air strategy is one in which the world's economic trade routes, communication systems, and centers of civilization are the main avenues against which strength may be applied to establish control over one's enemies. The decision is sought primarily by concentration of power at critical points on the land, on the sea, or in the air.

The power used may be strategic bombardment, airborne troops, critical cargoes, or psychological shows of force, to wit: the persuasive threat of an air armada as envisioned in the scenario, or the silent, all-pervasive threat of hundreds of invulnerable airborne bombers unseen yet keenly felt by the enemy.

Air strategy consists of two major phases. The first is establishing control of the air. The second is the exploitation of air superiority by projecting military power into selected critical, decisive areas on the land or on the sea.

The first, or blue-air phase of air strategy (comparable to the blue-water phase in maritime strategy), is often considered the sole

and away to a safe landing

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objective, when in reality it is only a preliminary to the more important second phase. This limited view is understandable because in the short history of air warfare, the greater part of the airman's attention has been focused on the struggle for control of the air—the air battles, the air defense of the homeland, the mass bombings of industries, the air interdiction campaign.

The salient point to remember about the first or blue-air phase of air strategy is this: There are two goals. One of these is to ensure one's own use of the air; the other is to deny to the enemy his use of the air. In the early stages of the struggle for control, these two goals can be separated, conceptionally and operationally, and the tasks to achieve each are purely and simply military problems. However, when one of the contestants emerges as dominant in both of these goals, the two goals merge and present the winner with his greatest challenge: How to exploit his control of the air so as to exert political, economic, and military pressures that will induce the enemy to cease military operations, to seek peace, to negotiate, or to return to the *status quo ante*.

The exploitation or second phase of air strategy—that is, the application of force through and from the air—is conceptually sound. It presents slippery problems, however, because exploitation involves subtle propositions and nuances in which the threat of force and the psychology associated with this threat play the leading role in influencing nations to behave and to cease their aggressive actions, whether these be diplomatic or military.

There is little historical experience wherein an air strategy as envisioned has been used. So once again the theories of Admiral Mahan and the operations of Naval Task Forces set a parallel for how air forces would operate during the exploitation phase. The scenario at the beginning of this article is one example. Little imagination is needed to visualize others involving blockades, shows of force, airheads, and so forth. As a matter of fact, just as the scenario suggests, air strategy complements maritime strategy. Therefore, airpower should be expected to project force or the threat of force quickly, in accordance with the same concept as maritime strategy.

In wars between major seapowers, the defeat of one contending navy has signaled victory provided the winner exploited his strength at sea either by denying the enemy access to the world's economic trade routes or by threatening or seizing control of the enemy's communication systems and power centers.

The seaborne invasions of Sicily and Italy during World War II are examples of exploitation by ground forces after naval control of the surrounding Mediterranean Sea had been attained.

Air strategy is similar to marine strategy. Dominant airpower itself can, by the threat it poses, be the force that serves to control the enemy, or, as in maritime strategy, it can be the means to project another element of force such as a ground force into critical areas, and then assist it to establish control over the enemy on land. The airborne invasion of Crete and the sea- and airborne invasion of Norway by the Germans during World War II are classic examples of exploitation of airpower by a nation with control (even though temporary) of the local air areas.

Application of these examples to a concept of air strategy leads to this: Control of the air over or near vital land and sea areas of the enemy can, if exploited properly, result in a general slow strangulation of the enemy's vital lifelines. The ability to operate with impunity in the air above the enemy nation will weaken the will of the people, destroy their confidence in their leaders, and eventually result in a weakened condition incapable of preventing air or naval forces from projecting a small ground force into vital military and political land areas, the control of which is decisive to the issue in contention.

It is apparent, therefore, that the main difference between air strategy and maritime strategy is not in the concept of operations. Rather, it is the scope and duration of the potential operations. Maritime strategy can utilize the great staying power inherent in a naval task force. An aerial task force is limited in this regard. On the other hand, air strategy can use the swiftness and flexibility of the aerial task force to project itself and the controlling land force to the threatened area more quickly than a naval force and to a greater distance inland. It can reach critical areas that cannot be threatened by naval forces.

The ideal, however, is an air and maritime strategy working in unison. Together they present a formidable military capability, possessing great flexibility to respond to the tactical and strategic situation which may confront the nation.

The Requirement

Such is the scenario. Such is the concept of air strategy. What should the Air Force do about it? What are the requirements to build a capability to fit the concept?

The first thing is to think about the concept. Think about it as it pertains to air operations in the past. Think about it and equate the concept to the things the Air Force is doing now. Think about it and determine the additional things the Air Force needs to do to implement the concept.

Considering the past, there are many things

that the Air Force has done that fit the concept:

- During the Cuban missile crisis of 1962, B-52 bombers were launched on airborne alert and made controlled appearances on enemy radar screens.
- Early in 1950 the Air Force conducted "Exercise Swarmer." Swarmer was the first peacetime operational test of establishing and resupplying entirely by air an independent airhead deep in enemy-held territory. This entailed delivering paratroops to the airhead, air-landing reinforcements in the airhead, and, after the initial assault, establishing a continuation airlift flow into the airhead.
- During the 1950s, the Air Force initiated the Skybolt program. This missile was designed to deliver a nuclear warhead approximately 1,000 miles at speeds greater than 7,000 mph. It would have given the B-52 bomber a capability not unlike that of the Polaris submarines. Unfortunately, the program was canceled by Mr. McNamara in 1962. If it had not been canceled, Skybolt would have become operational in the middle 1960s and be available today.
- The Air Force has developed the SRAM, a missile with shorter range than Skybolt, but one in keeping with the air strategy proposed.
- During the *Pueblo* incident, the Commander, Fifth Air Force, hastily organized a small force of aircraft with the intent of rescuing the *Pueblo* by driving off its attackers. A rescue attempt by surface forces was not possible because none could get there in time. The small band of aircraft was never used. Nevertheless, the concept of rescuing the *Pueblo* by an armada is in keeping with the air strategy.
- During the Vietnam War, airpower has been used as a political weapon. Early in the war, the Viet Cong isolated many outlying hamlets from the central government in Saigon, attempting thereby to force the leaders of the hamlets to join the Viet Cong. Airpower was the means for Saigon to maintain the necessary political and economic links to the hamlets throughout the country; to distribute food, weapons, equipment; to evacuate the sick and the wounded; to move ground troops over dense jungle, inundated fields, and impassable roads; to give tangible proof to the loyal people of the far-flung hamlets that the government was concerned about their security, that they had not been forgotten. Except for this tangible proof, many of the hamlets would not have remained loyal to Saigon. In this sense, airpower refuted the age-old criticism that airpower cannot hold ground.

What About the Future?

These historical examples set the pace of yesteryear. What is the most pressing need in the future to implement the air strategy?

The concept of the aerial task force—of living in the air—is in need of refinement, both physically and in the development of operational doctrine. Aircraft must be made more comfortable. In this regard, aeronautical designers should take note of the wonders that designers of small boats cram into a thirty-foot, ocean-going yacht.

More importantly, Air Force planners must come up with doctrine and operational techniques for living in the air, for scaling off ports, for mining harbors, for denying surface vessels free passage, for shows of force, for new ways to apply military force through and from the air so as to truly capitalize on the great flexibility inherent in air vehicles.

Planners must keep foremost in mind that the strategy is an *airplane* strategy, not a missile strategy. Missiles are only weapons within the concept of the air strategy.

The concept is a logical extension of the historic Roman Legions, which, because of the superb Roman roads, were able to move swiftly throughout the empire. The Legions were, in fact, traveling fortresses. Eventually the idea of the traveling fortresses took to the sea, thereby capitalizing on the increased mobility provided by sea travel. These eventually evolved into the naval task forces of today. It is now time to put the traveling fortresses into the air. This is a logical evolution that will increase their mobility dramatically and capitalize fully on the potential inherent in air travel.

Hanson W. Baldwin, a modern-day Mahan, recently published his book *Strategy for Tomorrow*. Basically, Mr. Baldwin's strategy is in keeping with the concept expressed at the beginning of this article, to wit: decisions in international relations can be attained by applying military strength against the world's economic trade routes, communications systems, and centers of civilization.

Mr. Baldwin concludes that "an oceanic strategy, modified to permit continental intervention, but at times and places of our choosing, is the concept best suited to America's tomorrow."

There is no quarrel with Mr. Baldwin as a global strategist, nor with his evaluation of what will confront the United States in the future. I would contend, however, that his oceanic strategy is a limited view on how to get the job done. Oceanic strategy should be combined with a comparable, complementary air strategy. This combination will provide the leaders of the US with a single oceanic/air strategy possessing flexibility, speed of execution, selective discrimination, and power—the characteristics Mr. Baldwin suggests are so essential for the US to preserve its own security and maintain a position of world leadership. ■

A former Commander in Chief of US forces in the Pacific discusses the air war over North Vietnam. As the man who ran that war at its height, he was intimately acquainted with the restrictions placed on the use of airpower. If we had been allowed to use it properly, he believes that . . .

Airpower

By Adm. U. S. Grant Sharp, USN (Ret.)

THERE has been so much discussion about the Pentagon papers recently that I thought I had better get my comments in while the subject is still hot. It is important to begin by defining exactly what we are talking about when we say "The Pentagon Papers."

In the middle of 1967, Secretary of Defense McNamara commissioned a group to do a history of the United States' role in Indochina. The group was made up of State and Defense Department civilians, a few military officers, and defense-oriented individuals from government-financed research institutes. Some thirty-odd persons contributed to this history; most of them were in the office of the Secretary of Defense and worked on this just part time.

The current discussions of the so-called Pentagon papers are not discussions of the total 3,000 pages of narrative and 4,000 pages of appended documents. People are discussing the information which has been obtained by reading the Pentagon papers as published by the New York *Times*. This history, which appeared in several editions of the *Times* and has now come out in a paperback, does not, of course, comprise a summation of the information which is available in the total narrative.

In reporting the Pentagon history, the *Times* writers said they tried to keep the articles within the general limits set by the narrative analysis and the documents as a whole. Material was brought in from the public record only when it seemed necessary to put the papers into context for the general reader. Mr. Neil Sheehan, one of the writers, states in the book's introduction that the very selection and arrangement of the facts, whether in a history or in a newspaper article, inevitably mirrors a point of view or state of mind. Thus, the articles as written by the *Times* undoubtedly reflect some of the conceptions of the *Times* reporters.

So what we have here is not necessarily an objective history, but rather a distillation of a large document written by people who have a definite point of view. What is the point of view of the *Times* reporters? Well, certainly the editorial view of the *Times*, as frequently expressed, is that the war in Vietnam was a great mistake and that our actions have been ineffective.

We might also ask what is the point of view of the various historians appointed by Mr. McNamara to develop this history. As revealed by the history itself, a great many civilians in the Defense Department in the middle of 1967 were disenchanted with the war, convinced that the bombing of North Vietnam was ineffective and that we should get out of Vietnam as quickly as possible. Thus, the history from which the *Times* writers distilled their summary may also be lacking in objectivity. My study of the *Times* version leads me to believe that it is indeed lacking in objectivity.

Nevertheless, it is interesting reading, contains much information that I knew about quite intimately, and also some with which I was not familiar.

You can be sure that this document is required reading for some people. It certainly is required reading in Hanoi, in Moscow, and in Peking, for this book contains information on the decision-making processes of our government which is of distinct aid and benefit to the enemy. The *Times* has made the job of the enemy intelligence services quite simple. All they have to do is go to the nearest newsstand.

I want to comment on the air war over North Vietnam because as Commander in Chief, Pacific, I was running the air war, with not much help from certain sectors in Washington. I believe that the air war was the most misunderstood part of our whole engagement. It was especially misunderstood by the civilians in the Pentagon who were making the broad decisions and many of the smaller decisions of the air war. The severe restrictions under which our Air Force operated resulted in markedly decreased effectiveness of the tremendous power we had available and resulted in wide misunderstanding of the effectiveness of airpower when properly used.

In February of 1965, the decision was made to conduct a bombing campaign against North Vietnam. From the very first there was a wide divergence of opinion as to how our airpower should be used. The Joint Chiefs of Staff desired that we hit hard at Hanoi's capabilities to carry on the war in order to convince Hanoi that the course of action it was pursuing would be unprofitable, and to let them know early in the game that we were willing to apply the force we had available.

Numerous civilians in the Department of Defense, however, desired that airpower be used very sparingly, in limited doses, well spaced to give the other side the opportunity to contemplate the seriousness of their acts. The civilian advisers won, so our air raids against

Could Have Won in Vietnam

North Vietnam started with minuscule doses of airpower, applied to targets which hardly were worth the effort. Our airpower was never used to its full effectiveness. I should say that throughout the war I got complete cooperation from the Joint Chiefs. They backed me on every recommendation I made.

I wouldn't want to leave the impression that it was only the military that advocated a strong policy on the air war. Mr. John McCone, who in 1965 was the Director of the Central Intelligence Agency, recommended in April that unless the United States was willing to bomb the North, with minimum restraint, to break Hanoi's will, it was unwise to commit ground troops to battle. Mr. McCone expressed these views to the President at least twice in the month of April.

On the other side of the picture, Mr. George Ball, Undersecretary of State, from the very beginning believed that neither bombing the North nor fighting the guerrillas in the South, nor any combination of the two, offered a solution to the problem. He believed that we should cut our losses and withdraw from South Vietnam. Mr. Dean Rusk, the Secretary of State and Mr. Ball's boss, advocated a strong policy in the air war.

The air campaign of 1965 was characterized by excessive restrictions from Washington which limited us to piddling strikes against generally unimportant targets, although toward the end of the year we were beginning to get a few better targets and the numbers of planes we were able to use was beginning to be useful.

The *Times* article says that the Pentagon study of the 1965 period discloses that high-level civilian authorities, including Secretary McNamara, began to have serious doubts about the effectiveness of both the air and ground war as early as the fall of 1965. I must say that I have difficulty understanding how they expected the air compaign to show any measure of effectiveness when it was so heavily restricted, both as to targets and as to numbers of strike aircraft.

A feature of the account of the bombing campaign in 1966 was the intense policy dispute that took place over the question of bombing North Vietnam's oil storage tanks. After much hemming and hawing, I was finally granted permission, in June of 1966, to strike the Haiphong and Hanoi storage sites. The strikes were quite successful, but I am sure the North Vietnamese knew that we would eventually make these strikes and had dispersed their fuel supplies as much as possible. The enemy knew that we did not strike populated areas so the streets of many towns were lined with oil drums in plain view from the air but safe from attack because of our restrictions on striking in any populated area.

In the summer of 1966, Secretary McNamara had a panel of scientists studying the overall results of Operation Rolling Thunder, and this panel, as might be expected, concluded that the air campaign would not achieve the results desired. This panel of scientists recommended an electronic barrier, which at that time was so supersecret that very few people knew about it. We called this barrier the "McNamara Line," or sometimes the "Edsel Line."

Mr. McNamara hoped that this electronic barrier would make it unnecessary to continue with the bombing of North Vietnam and so a great deal of effort was put into the project, which cost well over a billion dollars.

In the meantime, the surface-to-air missile threat was increasing and a few planes were shot down. Thus, our dillydallying with the air war had allowed the enemy to build up a very efficient air defense which was taking an increasing toll of our planes and pilots. Throughout 1966 and into 1967, I sent message after message to the Joint Chiefs trying to get the restrictions on our air campaign lifted and trying to get better targets assigned.

In 1967, we were allowed better targets than in '66 and were allowed to use more strike sorties, so that the air war progressed quite well. Of course, ships were still allowed to come into Haiphong and we weren't allowed to hit close to the docks. We were able to cut the lines of communication between Haiphong and Hanoi so that it was difficult for them to get material through. If we had continued the campaign and eased the restrictions in 1968, I believe we could have brought the war to a successful conclusion.

I regret that we lost the major leverage that we had for bringing the war to a conclusion by successful negotiations. Now the war has dragged on for three more years and the negotiations in Paris have accomplished nothing.

President Nixon's strategy of turning the fighting over to the Vietnamese as fast as they are able to accept the responsibility has been successful so far. I hope the American people, and especially Congress, will permit him to carry out this operation in an orderly fashion so that the Vietnamese will be capable of defending themselves by the time our forces are withdrawn.

There is at least one lesson that we should learn from this war. That lesson is that we should never commit the armed forces of the United States to combat unless we have decided at the same time to use the nonnuclear power we have available to win in the shortest possible time. ■

Admiral Sharp's remarks, as reprinted in the New York Times, *were to the Navy League in San Diego, Calif.*

Here's a collection of songs, old and new, by and about airmen. Everyone who sings them is, at least for the moment, a fighter pilot—one of the jocks for whom we . . .

Throw a Nickel On the Grass

By Lt. Col. George L. Weiss, USAF (Ret.)

IN CASE you think the fighter-pilot song was invented in *your* war, buddy, forget it. Those aeronautical (and some aeronaughty) ditties have been around squadron bars a lot longer than you think. Some can be traced back more than fifty years, and survive almost intact today.

But wherever they came from, one thing is certain: lyrics cranked out by Tin Pan Alley never made the grade. The lyrics that did were put together by men dueling against red triplanes, by kids on their way to "Big B," by retreads climbing toward MIG Alley, and by the latest breed of warriors who flew into "The Valley" and made it "Downtown." Believe it or not, there are even songs written by POWs.

But why call them fighter-pilot songs? Everyone sings them. Like the man said, "Being a fighter pilot is a state of mind." When the hour grows late and the dice get dull, and the drinks seem weaker—shucks, then *everybody's* a fighter pilot. So they sing fighter-pilot songs.

Sometimes it starts like this:

By the ring around his eyeball
You can tell a bombardier.
You can tell a bomber pilot
By the spread around his rear.
You can tell a navigator by
His sextants, maps, and such.
You can tell a fighter pilot—
But you cannot tell him much!

One thing you sure can't tell him is that his aircraft is a dog. He accepts criticism of his aircraft in song only—in one or two lines of pungent analysis. An example is this stanza from *Just Give Me Operations.*

Don't give me a P-39
With an engine that's mounted behind.
It will tumble and roll
And dig a deep hole—
Don't give me a P-39.

They have a cynical flavor of their own, these songs. Some, perhaps, are safety valves for men who cannot, or will not, speak of natural fears, but are able to sing of them.

Death, of course, is a taboo conversation subject. No one is going to risk a jinx by talking about death. But sing about it? You bet! That's socially acceptable.

Songs about death and fear fill literally pages of squadron songbooks. Why not? Singing is a kind of group therapy.

Dangerous to morale? Obviously not! Frank Luke, Billy Mitchell, and Captain Eddie all sang the same or similar lyrics. They roared them with the same gusto as the grandsons do fifty years later.

Many fighter-pilot songs put new words to popular tunes. *Wabash Cannon Ball, On Top of Old Smokey, Red River Valley,* and others have formed the musical background for dozens of variations, in many places, and in different wars.

Service songs are not entirely the property of the blue-suiters. The Army and Navy have them, too (or had them first, we should say).

In 1951, when Gen. Douglas MacArthur made his famous farewell address to the Congress, he quoted a line from one well-known barracks ballad:

Old soldiers never die—
They just fade away. . . .

Within a few days, pop singers were cashing in on a tune which, for the most part, they hadn't heard before. Pity! There were several more stanzas such as:

Old sailors never buy,
Never buy, never, buy.
Old sailors never buy—
They just sail away.

And this companion lyric:

Old pilots never fly,
Never fly, never fly.
Old pilots never fly—
They just draw their pay.

A classic is the one first called *Old 97*. The lyrics were written by Haywood S. Hansell, Jr., who later became an Air Force major general. General Hansell also wrote lyrics to such between-the-wars favorites as *Eight Bucks A Day* (is the pay) and one called *The Formation* ("Here's a health to the formation leader, a jolly good fellow is he"), both of which apparently have found eternal rest in retirees' footlockers.

But in the lyrics to *Old 97*, he struck pure fighter-pilot gold.

The variations of this song are infinite. Even so, each retains the basics of the original. Recall your own favorite version and compare it with General Hansell's original lyrics:

There were ninety-seven airplanes warming up on the apron,
And they didn't have room for more.
The first ninety-six were of new construction,
But the last was a DH-4.

She was old and decrepit and the fuselage was rotten,
And the wings were warped and bent,
And she sagged in the middle like a cow in a pasture,
A cow that was quite content.

She was old 97, and she had a fine record,
But she hadn't been flown that year,
And she creaked and groaned when they started the engine,
For she knew that her time was near.

A Second Lieutenant wandered into the office,
And he asked for a ship for two.
And they said, "Young man, we are very short of airplanes,
But we'll see what we can do.

"Now the first forty-seven are reserved for the Majors,
And the Captains have the next forty-nine,
But there's one more ship on the end of the apron,
The last ship upon the line."

He was headed for Dayton, and from there to Columbus,
And he had to make that flight,
So he said, "OK, if you'll give me a clearance,
I will get there sometime tonight."

Oh, he flew over Birmingham and north Alabama,
And the ceiling began to fall,
And the clouds closed down on the tops of the mountains,
And he couldn't see the ground at all.

He turned to the left and ran into a snowstorm,
And he turned back to the right,
And he turned around, the fog was behind him
And the mountains were all in sight.

He flew through the rain and he flew through the snowstorm
Till the light began to fail.
Then he found a railroad that was going his direction
And he said, "I'll get there by rail."

He flew down the valley and he dodged around the mountains,
And he kept that road in sight,
Till the rails disappeared through a tunnel in the mountains,
And he ended his last long flight.

There was old 97 with her nose in the mountain
And her wheels upon the track,
And the throttle was bent in the forward position,
But the engine was facing back.

L-A-D-I-E-S, listen to my story.
No matter how you yearn,
Never say harsh words to your aviator husband—
He may leave you and ne'er return.

It is hard to come up with a fighter-pilot song that evokes more memories than that one. An old-timer today is the jock who once sang:

They gave him his orders at old Itazuke,
Saying: "Bill, you're 'way behind time.
Take this safe hand mail in your war-weary '80
And put 'er in Nagoya on time."

But Bill didn't do so well either. In fact, only a few verses later his '80 did "three snap rolls" and . . .

He came roarin' down the bottom, doin' a million miles an hour
When the tip tanks came off with a scream
They found him in the wreck with his hand on the throttle,
Still flying the Tokyo beam.

Old 97 still prangs away. Today her home base in Pleiku, where a Captain Barker, or Parker (the tape is one of those that was dubbed too often), put new words and new life to the song. This is the way it sounded one memorable night in Vietnam:

There were ninety-seven airplanes lined up on the apron
As far as the eye could see.
Now the first ninety-six were of modern construction;
The last was an O-1E.

Well, a handsome young Captain stepped up to the ALO,
For FAC-ing was his line.
"Now if the first ninety-six belong to the Majors,
Old 97 is mine."

So he climbed into his Cessna, his carbine beside him,
His rockets tucked snug beneath his wing,
When a cry came from the ground commander,
"Charlie's got us in his ring."

(Chorus) Well, did he ever return? No, he never returned,
And his fate is still unlearned.
He may lie forever in that Vietnam jungle—
He's the FAC who never returned.

The ceiling was low and the rain was a-fallin'
The Birddog was pitchin' all about,
But he said to that soldier, "No sweat, brother—
TAC air will get you out."

Soon the fighters arrived. They were F-100s.
They called down to our FAC.
He told them it was rough but to follow his directions
And this one they could hack.

Now Charlie didn't like the sound of that Birddog,
And the bullets began to fly.
He said, "If that airman brings in those fighters,
Then he is going to die." (Chorus)

Now the leader rolled in and he asked for the target.
The FAC told him where to aim his guns.
With unerring eye, he smoked out Old Charlie,
Until he had 'em on the run.

Oh, the battle was hot and too much for Charlie,
And the soldiers began to shout
"God bless you fighters for saving our asses
And driving those VC out."

But no one noticed the crippled Cessna
As he made his final bow,
But one of those bullets had found its target
And Charlie had kept his vow. (Chorus)

Vietnam, if nothing else, has become the military songwriters' Mecca. Some, like Dick Jonas, are professionals who can turn out their own lyrics and original music. Still others are just good amateurs who can produce a parody on demand for a party.

Back in March 1966, when Maj. Bernie Fisher rescued Maj. Dafford W. "Jump" Myers at A Shau, an incident that earned Fisher the Medal of Honor, a song, *Hobo 51* (Bernie's call sign), became a popular ballad. It was written for the party celebrating the rescue. The author, unfortunately, was killed a few days later after promising Fisher he would clean it up. Fisher will hardly say "shucks" out loud and "his" song was sprinkled with combat verbiage. It's sung to the tune of *The Wabash Cannon Ball* and is sometimes called *The A Shau Canyon Brawl*. The clean chorus went like this:

Oh, listen to the small arms,
Hear the 20 mike-mike roar!
The A-1s are bouncin' off
The A Shau Valley floor.
Hear the mighty roar of engines
Hear that lonesome "Hobo" call.
We'll get "Jump" home to Mother
When the work's all done this fall.

How are such songs born? Here's how one was written. During the early part of the war—or about midway, depending on when you were there—the Special Forces club near Bien Hoa burned during a spirited party. The only item saved was an olive-drab brassiere that had hung over the bar.

The G.I.-issue bra was escorted by the Green Berets to the Air Force club bar and, with a properly noisy ceremony, installed there, "on loan."

It seemed appropriate that a song commemorate the occasion, and in a few days one appeared. Sung to the tune of a fitting ballad, *The Green Beret*, it won instant approval as the *Ballad of the Green Brassiere*. This is the way it goes:

Put silver wings upon her stone
To let her know she's not alone.
We love the maid who's buried here,
The girl who wore . . .
The Green Brassiere.

Now let me tell you about this girl.
She's a true Vietnam pearl.
She wore a flower above her ear,
And on her chest . . .
The Green Brassiere.

A VC shell came from above,
Only left one thing to remind us of
This little girl we love so dear—
A slightly tattered . . .
Green Brassiere.

Put silver wings upon her stone
To let her know she's not alone.
We love the girl who's buried here,
The girl who wore . . .
The Green Brassiere.

The war in Southeast Asia seems to be a shapeless mass to those who never got there. Today sounds like yesterday and tomorrow may be more of the same. But when you're there, it just ain't so. There are benchmarks, even if the bench is a private one. Words like Plei Me, A Shau, and Khe Sanh are only places. If you were there, they were *something else*.

December 18, 1967, went down in many a squadron's history as the day they fought the Battle of Doumer Bridge. Naturally a song came out of it. The music was *Joshua Fought the Battle of Jericho*. It sounds great with a male chorus (about one wing), at around 1:30 a.m., with lots of beer and no mission tomorrow. The first four lines are also the chorus:

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We fought the Battle of Doumer Bridge,
Doumer Bridge, Doumer Bridge.
We fought the Battle of Doumer Bridge,
And the bridge went tumblin' down.

Eighteen December, sixty-seven—
It seemed like a thunderclap.
We dropped Doumer Bridge on down
Into Ho Chi Minh's red lap. (Chorus)

Now you talk about your River Kwai Bridge
And the one at Thanh Hoa too.
We got ten seconds over that bridge,
Then into the mountain dew. (Chorus)

Uncle Ho holds all the cards, boys,
And he plays them with great joy.
Wonder how he liked that game of bridge
Up at old Hanoi? (Chorus)

Now we lost some friends up yonder
Due to SAMs and MIGs and flak,
But if Ho puts that damn bridge up,
Well, we'll all be going back. (Chorus)

For those who've gone before us—
For those who've left our shore
I know we're not forgetting them
So let's sing it just once more! (Chorus, twice)

The time-honored right of servicemen to complain reached perhaps an all-time high in World War II. It almost developed into a science, with units pointing with pride to their champion bitcher.

In Vietnam, if the men who fought the war in the North had a right to complain, they also had reason. It was the war that wasn't a war. For a long time these men flew from bases in Thailand, bases that no one would identify or even admit were operational. When combat pay was authorized, the flyers were considered combat personnel. After all, they were flying against the most concentrated air-defense system ever developed.

But then it was discovered that Thailand was not really involved in the war so naturally these flyers weren't either. So long, combat pay! Then someone else decided that the 100-mission tour would not include any sorties against the Ho Chi Minh Trail. Someone, somewhere, didn't think it was that rough. Maybe it wasn't! But compared to what? Route Package 6?

Lt. Col. George L. Weiss, USAF (Ret.), was given a direct commission by the Air Force in 1950. During much of his career, he served throughout the world as press officer for TAC's Composite Air Strike Force (CASF). After a tour in Vietnam, Colonel Weiss was an information officer at Headquarters USAF until his retirement in 1970. He is now an editor of Armed Forces Journal.

The song *One Hundred Missions* pretty much told it like it was, to the tune of *When Johnny Comes Marching Home.* The terms "Iron Hands" and the "Weasels" refer to a little-known group of men who flew ahead of the strike forces. Their mission: kill the SAM sites. Think of a hot, humid night in Thailand. You can almost hear them singing in the hootches:

One hundred missions we have flown, Aha, aha,
One hundred missions we have flown, Aha, aha,
One hundred missions we have flown,
One hundred bridges we have blown,
But you can't return till Lyndon gives the word.

From one to one hundred we did count, Aha, aha,
From one to one hundred we did count, Aha, aha,
From one to one hundred we did count,
But now one-half or more don't count,
But you can't return till Lyndon gives the word.

They said they'd give us combat pay, Aha, aha,
They said they'd give us combat pay, Aha, aha,
They said they'd give us combat pay,
And then the bastards took it away,
But you can't return till Lyndon gives the word.

We're Iron Hands from Old Takhli, Aha, aha,
We're Iron Hands from Old Takhli, Aha, aha,
We're Iron Hands from Old Takhli,
Our hearts beat fast, we think we'll pee,
But you can't return till Lyndon gives the word.

The Weasels fly around alone, Aha, aha,
The Weasels fly around alone, Aha, aha,
The Weasels fly around alone,
With half a flight they head for home,
But you can't return till Lyndon gives the word.

The force rolls in amidst the flak, Aha, aha,
The force rolls in amidst the flak, Aha, aha,
The force rolls in amidst the flak,
One-half or more won't make it back,
But you can't return till Lyndon gives the word.

Not many will return alive, Aha, aha,
Not many will return alive, Aha, aha,
Not many will return alive
Who fly the bloody one-oh-five,
But you can't return till Lyndon gives the word.

There are a lot of songs that express opinions on the conduct of the war—opinions that professional airmen would never voice in public. Let's look at a few lines from a song titled *Our Leaders.* (Tune: *Mañana.*)

The JCS are generals
And they're not always right.
Sometimes they have to think it over
Well into the night.

When they have a question
Or something they can't hack,
They have to leave the judgment to
That money-saving Mac.

They send us out in bunches
To bomb a bridge and die.
These tactics are for bombers.
Our leaders used to fly.

The bastards don't trust our Colonel
Up in Wing, and so I guess
We have to leave the thinking to
The wheels in JCS!

Another old-timer in the collection of fighter-pilot songs is the one that calls on everyone to "throw a nickle on the grass." Well, it was that for at least thirty years. World War II, Korea, the Cold War, Berlin, the Lebanon Crisis, Formosa, Cuba—fighter pilots gathered and sang dozens of variations of this all-time favorite. Only the chorus remained fairly recognizable. Here's how it went:

Oh, hallelujah, oh, hallelujah!
Throw a nickle on the grass,
Save a fighter pilot's ass.
Throw a nickle on the grass,
And you'll be saved.

Got a surprise for all you old nickle-tossers. Today, the Southeast Asia lads look to something more practical. If you were standing in the bar at a squadron party in Thailand tonight, you'd hear the old favorite happily shouted this way (leading off with the chorus):

Hallelujah! Hallelujah!
Here's a tanker full of gas
To save a fighter pilot's ass
Hallelujah! Hallelujah!
Put your gas hole on the boom
And you'll be saved.

I was cruising at six angels
In my Foxtrot one-oh-five,
Thinking about a young thing
Back in a Takhli dive,
When a sudden burst of ack-ack
Was all around the sky.
Mayday! Mayday! Mayday!
My tanks are running dry. (Chorus)

So I squawked my parrot Mayday
And called up GCI,
Asking for a tanker
To keep me in the sky.
"Well," the Airman Third controller
Said, "Please don't go away.
Let me call up Seventh
To see if it's OK." (Chorus)

Then a friendly tanker pilot
Called out, "Fighter jock, no sweat—
I've got half a jug of coffee
So I'm not Bingo yet.
If you get a vector to me,
I'll be glad to pass some gas.
Turn your twenty mike-mike off
And don't shoot up my ass." (Chorus)

It was really getting hairy
As I sped my old Thud south.
I could feel the cotton rising
All inside my mouth.
Then I saw the silver tanker
And gave a happy shout.
Then I saw the drogue behind
And started punching out.* (Final chorus)

There are no songs sung at Heartbreak Hotel, The Country Club, or the Hanoi Hilton. Seldom do the Thud and Phantom drivers there see each other. When they do, it's never for social purposes. It's for Communist propaganda. But there will be a song someday. The Red River Rats will get together and when they sing that POW song all the jocks, some wearing stars, some in civies, are going to stand and scream and shout because the song will tell it like it was. And if you weren't standing in their corner when they needed you, there will be a line in it just for you.

Until, then, let's remember that once before there were prisoners who survived combat and internment and sometime later found it possible to sing:

Thanks for the memories
Of flights to Germany,
Across the cold North Sea.
With blazing guns
We fought the Huns
For air supremacy—
How lucky we are!

Thanks for the memories
Of ME-109s,
Of flak guns on the Rhine.
They did their bit
And we were hit
And ended our good times—
We hated them so much!

We drifted out of formation
We jumped, and what a sensation
And now to sweat out the duration.
Our jobs are done,
We've had our fun.

So thanks for the memories
Of days we had to stay
In Stalag Luft 3A.
The cabbage stew,
Which had to do
Till Red Cross parcel day—
How thankful we are! ■

*Although the F-105s used in SEA were equipped for either boom or probe-and-drogue refueling, some of the newer pilots arriving in the theater in 1965 had received very little training in drogue refueling. This particular Thud driver must have been one of them.

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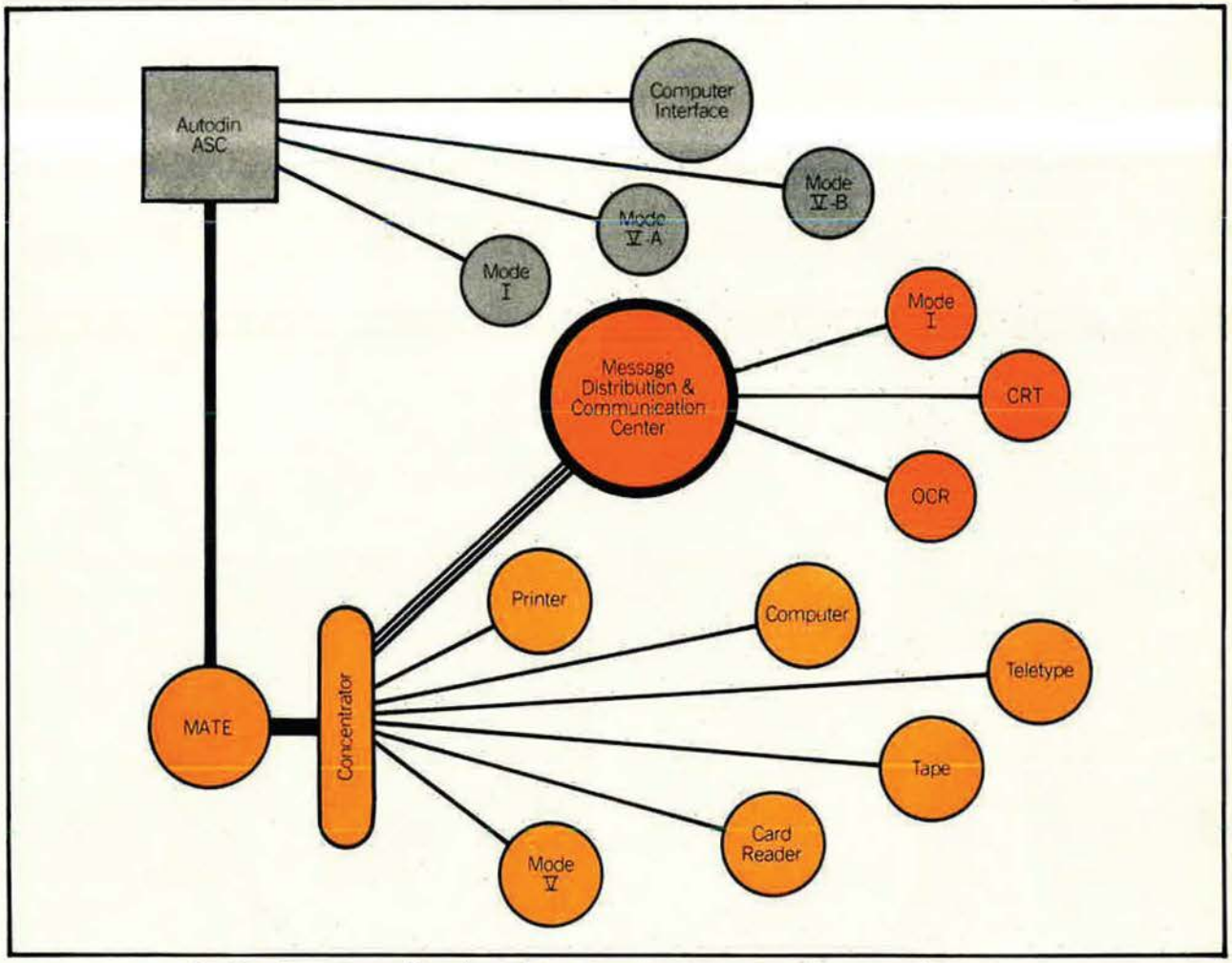

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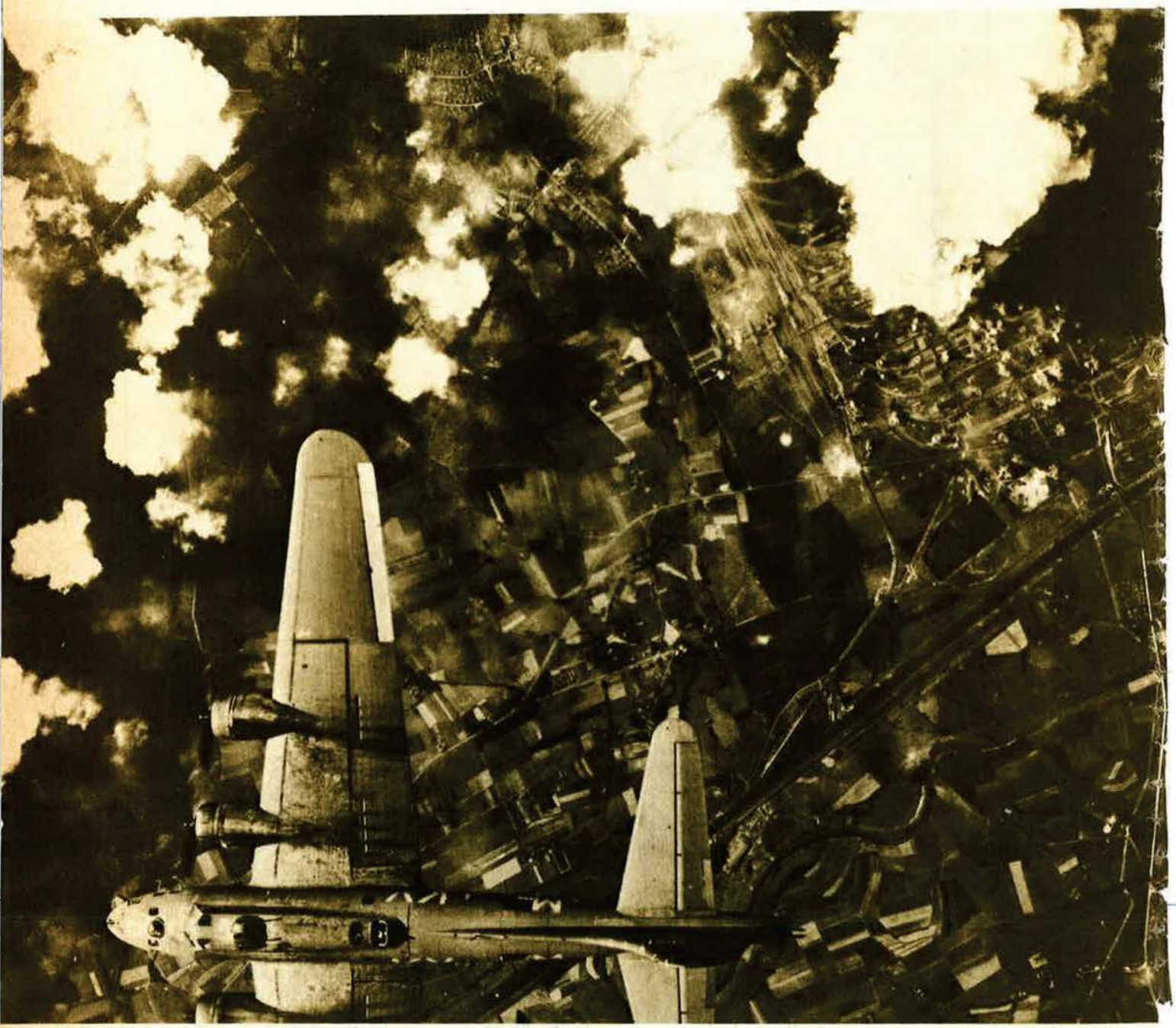
A complex tactical plan had to substitute for fighter escort the first time Eighth Air Force B-17s attacked a target in the Ruhr Valley. There were lessons and losses . . .



THE DAY THE FORTS HIT HÜLS

By Col. A. P. Sights, Jr., USAF (Ret.)

THE mission was to have been flown that morning. It was called off at 2:00 a.m. when fog closed down several bomber bases. Now, according to the afternoon forecast issued at 4:00 p.m., a cold front would move across England during the evening and be beyond the Ruhr valley by the next morning. The high-pressure area behind it should bring fair weather at departure bases and only scattered clouds in the target area.

Planning for the operation was complete. The aircraft still had their bombs aboard. Possibly enemy intelligence had learned of the planned attack, but Brig. Gen. Newton Longfellow, commander of the US VIII Bomber Command, decided that was a risk worth taking. He ordered his staff to reschedule the same mission for the following day.

The target, *Chemische Werke Hüls,* was the second largest synthetic rubber plant in Germany. It accounted for almost a third of the country's entire production capacity. Situated near the small village of Hüls, about sixteen miles northeast of Essen, the plant was less than 300 miles away—within easy reach of the American B-17 Flying Fortresses based in England, but also, unfortunately, well beyond the combat radius of their fighter escorts.

And at this particular time, June 22, 1943, the air defenses in and around the Ruhr industrial area presented a formidable threat to unescorted bomber formations. The Hüls mission would be VIII Bomber Command's first major attempt to penetrate these defenses.

The German day fighters on the Western front were positioned well forward toward the coast, with about 100 each in the three general areas of northwest Germany, the Low Countries, and the Channel coast of France. Should the bombers simply fly directly to and from Hüls, most of these 300-odd enemy planes could be concentrated against them during that portion of the flight when they had no fighter escort.

The B-17Fs then in use each sprouted a dozen .50-caliber machine guns. Flying in large formations, they could theoretically outgun fighter planes approaching from any quadrant. But in actual combat they had proved vulnerable. During the VIII Bomber Command's most recent raid, on June 13, enemy fighters had shot down twenty-two of the sixty B-17s attacking Kiel.

Such losses could not continue.

The strategic bombing attack on the synthetic rubber plant at Hüls, Germany, described by Colonel Sights in this article, was the first major deep penetration of Germany by bombers of the Eighth Air Force. It also signaled the start of a massive air offensive against Germany, known as Operation Pointblank.

Prior to the Hüls mission of June 22, 1943, VIII Bomber Command had flown sixty-four missions during its ten months of operations. The earliest were small-scale tests of equipment and tactics, gradually expanding to attacks on submarine pens in the occupied countries and, early in 1943, against pens at German ports.

Hüls was the initial large-scale test of the bombers' ability to defend themselves, by firepower and tactical maneuver, against Luftwaffe fighters. It, and the costly attacks on Schweinfurt and Regensburg of August 17, 1943, painfully demonstrated the need for long-range fighter escort. But despite its heavy losses, the Hüls mission was an important step in the evolution of strategic bombing which, by war's end, was to become a decisive force in the defeat of the Axis powers.

—THE EDITORS

Some means had to be found to disrupt the opposing air defense system —to induce the German air controller to hold back some of his fighters and to commit others at the wrong time and place. To do this, the Combined Operational Planning Committee, otherwise known as the "Jockey Committee," had devised a complex tactical plan for the Hüls mission.

The Tactical Plan

Bombers of the main attack force, proceeding without fighter escort, would follow a dogleg course to the target. Initially, they would head northeastward over the North Sea on the same course taken by American bombers on several recent attacks in the Wilhelmshaven-Bremen area. Upon coming abeam of the north tip of Holland, they would turn south toward Hüls while a smaller decoy force continued eastward. This feint should pin down the defensive fighters in northern coastal Germany long enough to prevent their being deployed against the main force *(see map)*.

Meanwhile, before the main force turned south, two diversionary forces, each with strong fighter escort, would attack targets in the Low Countries. The first strike, on a Rotterdam shipyard, would stir up German fighters in the Holland-Belgium area. The second, delivered fifteen minutes later on Antwerp truck factories, would draw in fighters from northern France. Then, before these defending aircraft could be refueled and rearmed, the main bomber force would complete its attack on Hüls and rendezvous with Allied fighters sent to cover its withdrawal. How well the plan succeeded would depend in large measure on how closely all the participating air units adhered to the established time schedule.

In the underground control room of VIII Bomber Command headquarters at High Wycombe, some thirty miles west of London, the field order for the attack was ready for distribution by 8:15 on the evening of June 21. Action copies went to the two B-17 wings: the 1st Bomb Wing under Brig. Gen. Frank A. Armstrong, Jr., a colorful veteran who had led VIII Bomber Command's first combat mission and was to become the prototype of the fictional hero in the postwar novel, *Twelve O'Clock High!;* and the 4th Wing commanded by Col. Curtis E. LeMay, a taciturn, cigar-chomping newcomer who won early fame by training his crews to ignore the flak, fly straight and level on the bomb run, and—as a consequence—hit the target. Information copies of the order went to the fighter commands and the many other organizations, British and American, scheduled to take part in the operation.

At 6:00 o'clock on the morning of June 22, the weather en route and in the target area still looked favorable. Early morning fog was reported at Ridgewell, home of the 381st Bomb Group. However, it seemed to be lifting and so, after a bit of last-minute indecision, VIII Bomber Command cleared the Hüls mission to go as planned.

A total of 235 four-engine bombers, including a few spares, was dispatched to make up the main attack force. After assembling their respective formations, the 1st and 4th Wings, each precisely on schedule, left the English coast at 12,000 feet over radio beacons spaced sixty miles apart. They climbed out northeasterly on converging courses calculated to bring them together at bombing altitude at 8:45. At that time they would turn southward toward Hüls while a decoy force of twenty bombers continued flying eastward to maintain the threat against northwest Germany. The latter were to parallel the coastline, far enough out to make hostile interception unlikely yet close enough in to ensure that the German air defense system would notice them and plot their progress.

Enter—The Weather

The newly arrived "freshman" 100th Bomber Group at Thorpe Abbotts was to execute this feint. Fearing that the fog at Ridgewell might upset the timing of the day's operations, VIII Bomber Command had ordered the 100th to delay its departure. When the group received this directive at 6:13 a.m., its B-17s were taxiing out and a few had actually taken off. All were recalled. Back at their hardstands, some of the crews failed to stand by on radio for further instructions. Thus, when the takeoff order came through shortly thereafter, at 6:25, much time was lost getting word out to the aircraft dispersal areas. Although the 100th flyers completed their mission, they were an hour and a half behind schedule—too late to have any effect on the deployment of German fighters.

At 7:54, six minutes before the main force left England, the Rotterdam diversionary force rendezvoused with its fighter escort over Orfordness. Remaining below 500 feet to avoid detection by German radar, the twelve twin-engine Mitchells of the Royal Air Force Bomber Command's No. 2 Group started across the Channel, accompanied by four squadrons of Spitfires. Fifteen miles out, they commenced the climb to their assigned bombing altitude of 12,000 feet. At 8:30, five minutes late but close enough for the purpose, they dropped forty-eight 1,000-pound bombs on the Wilton Ship Yards. About forty-five German fighter planes rose to meet them. Two Focke-Wulf 190s were reported "probably destroyed" and another "damaged." One Spitfire was lost, but all the bombers returned safely.

The second diversionary attack was scheduled for 8:40—fifteen minutes after the strike on Rotterdam and five minutes before the main attack force was to turn south toward Hüls. Targets were the Ford and General Motors plants at Antwerp. VIII Bomber Command had given this task to the 381st and 384th Bomb Groups, two more freshmen B-17 units.

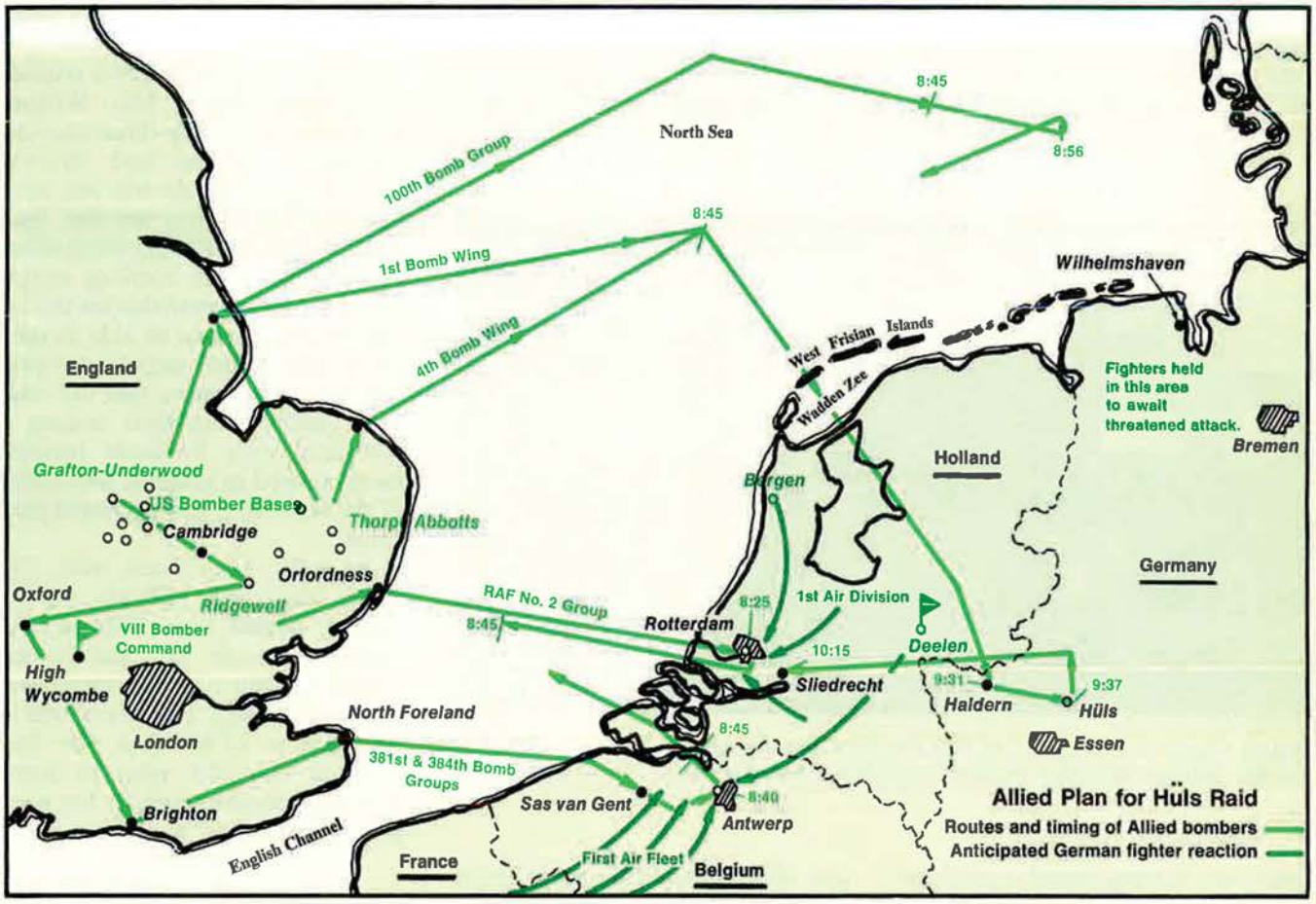
Departing Grafton-Underwood at 6:19, the 384th, with its com-

mander, Col. Budd J. Peaslee, in the lead plane, proceeded to Ridgewell to pick up the 381st. That field, however, was still blanketed with fog. Visibility was less than 100 yards. Peaslee circled, waiting for the fog to lift enough for the 381st to join him. When it did so, the two groups were fifty minutes behind schedule.

The US VIII Fighter Command, scheduled to furnish eight squadrons of P-47 Thunderbolts as escort, was advised of the delay and requested to fly the mission fifty minutes late. Now, however, Peaslee decided to make up some time by cutting corners on the planned routing. In doing so, he apparently acted on his own as it was only through Royal Observer Corps reports that VIII Bomber Command learned the bombers had already made up ten minutes by the time their fighter escort was scheduled to take off.

At this point, Bomber Command sent word to the already departing fighters to fly the mission forty minutes late instead of fifty, and radioed the bombers to do likewise. Peaslee failed to receive this instruction and in due course made up another ten minutes. Thereafter, Bomber Command tried first to inform the bombers that they were ten minutes ahead of schedule, then to recall them, and finally to cancel the recall order. None of these messages got through.

Crossing the Belgian coast at 8:56, still thirty minutes behind the original schedule, Peaslee approached the fighter rendezvous point at Sas van Gent. There was no sign of his fighter escort. What to do now? To turn back would mean the failure of his diversionary mission. On the other hand, as he wrote afterward, "To penetrate the Continent in the face of overwhelming enemy fighters could be a frightful error, costing many B-17s and men." Peaslee decided to continue on course, hoping the P-47s were up ahead clearing the way. Actually, of course, they were far behind.



At the time of the Hüls raid, there was considerable skepticism of the AAF's ability to penetrate German defenses in daylight, without fighter escort, and with acceptable losses. The tactical plan, shown here, depended for its success on precise timing by relatively inexperienced crews operating under what now seems rudimentary command and control.

The Feint That Failed

Meanwhile, the main attack force, reduced to about 200 planes by the inevitable "aborts," had turned to-

ward the target at 8:47, only two minutes behind schedule.

In the German air defense control center at Deelen, Holland, some sixty miles east of Rotterdam, the progress of the main and diversionary attack forces was being plotted on a huge, eerily lighted, frosted glass panel. From balconies overhead, fighter-directing officers gave the orders to defensive units participating in the battle.

At 9:00 o'clock, the fighters they had sent against the Rotterdam raiders were back on the ground, out of fuel and ammunition. To the west, some forty bombers were approaching Antwerp. To the north, about 200 more, over the West Frisians—Holland's outer chain of islands—were now heading inland toward the Ruhr. But this might be a ruse. Would they again change course to strike some target in northern Germany? The German controller decided, correctly, that they would not, and ordered fighters already en route from Deelen to Antwerp to reverse course and intercept, instead, the larger force approaching from the north.

Thus, due to late timing, the Antwerp force produced an effect just the opposite of what had been planned. Instead of diverting fighters from the main force, the main force diverted fighters from it. Perhaps this was just as well because it was still without its P-47 escort, and veteran fighter pilots of the German Third Air Fleet, based in northern France, were already boring into the freshmen bomb groups with their usual vigor.

The Antwerp raiders pressed on to the target, where they dropped 191 1,000-pound bombs. Two of these hit the General Motors plant, and seven burst on or among the Ford plant buildings. All thirty-nine bombers survived the "moderate, fairly accurate flak" over Antwerp but on the way out four of them were shot down by German aircraft before, halfway to the coast, their P-47 escorts finally came to the rescue. Taking the badly outnumbered Germans by surprise, the P-47s destroyed six FW-190s and one ME-109 without loss to themselves.

Though the Hüls raiders had no fighter escorts, they did have some novel defenders. Eleven YB-40s, distributed through the formation, were undergoing their first major test in battle. These so-called "destroyer escorts" were essentially B-17s modified to carry extra guns, ammunition, and armor plate in place of bombs. The hope was that they could protect bombers on deep penetrations—a futile hope, as it turned out, for the YB-40s added little to the defensive strength of the bomber formation and nothing to its offensive strength since they dropped no bombs. They flew a few more missions, but were soon withdrawn from combat.

This is believed to be a picture of VIII Bomber Command ops room at the time of the Hüls mission. Brig. Gen. Newton Longfellow is seated at right.

The Main Attack

When the main attack force came inland, a *staffel* of ten FW-190s from Bergen, an airfield in northern Holland, made the first contact at three minutes after 9:00, high above the Wadden Zee. While the bombers continued toward Hüls, other German fighters joined in the running battle, replacing those that had exhausted their fuel and ammunition. At various points along the way, antiaircraft batteries put up scattered bursts of flak.

However, as the bombers crossed the German border, Maj. William R. Calhoun, twenty-three-year-old commander of the lead aircraft, *Lady Luck,* probably was less concerned about fighters and flak than about the gradually thickening cloud cover below. Blind bombing equipment was not yet available for B-17s. Bombardiers had to be able to take visual aim at their targets, and past experience had shown that the odds were much against their making a successful drop if clouds beneath them covered as much as five-tenths of the sky—as it now appeared they would.

At 9:36, *Lady Luck,* with 170 B-17s and eleven YB-40s trailing behind, passed over Haldern, the Initial Point or IP, and turned onto the bomb run. The target was six minutes away. *Lady Luck* was in the clear at 27,450 feet. Her true airspeed was 250 miles an hour. The wind howling around her open gun hatches was a chilling thirty

Col. A. P. (Pete) Sights, Jr., a 1938 graduate of the US Military Academy, retired from the Air Force in 1965. A command pilot, his post-World War II assignments have included faculty duty at the Armed Forces Staff College, planning assignments in Hq. USAF, and several years at the Air University's Aerospace Studies Institute. He has written extensively on strategy and military history, including an article, "Tactical Bombing: The Unproved Element," in the July 1969 issue of this magazine. Colonel Sights now lives in Arlington, Va.

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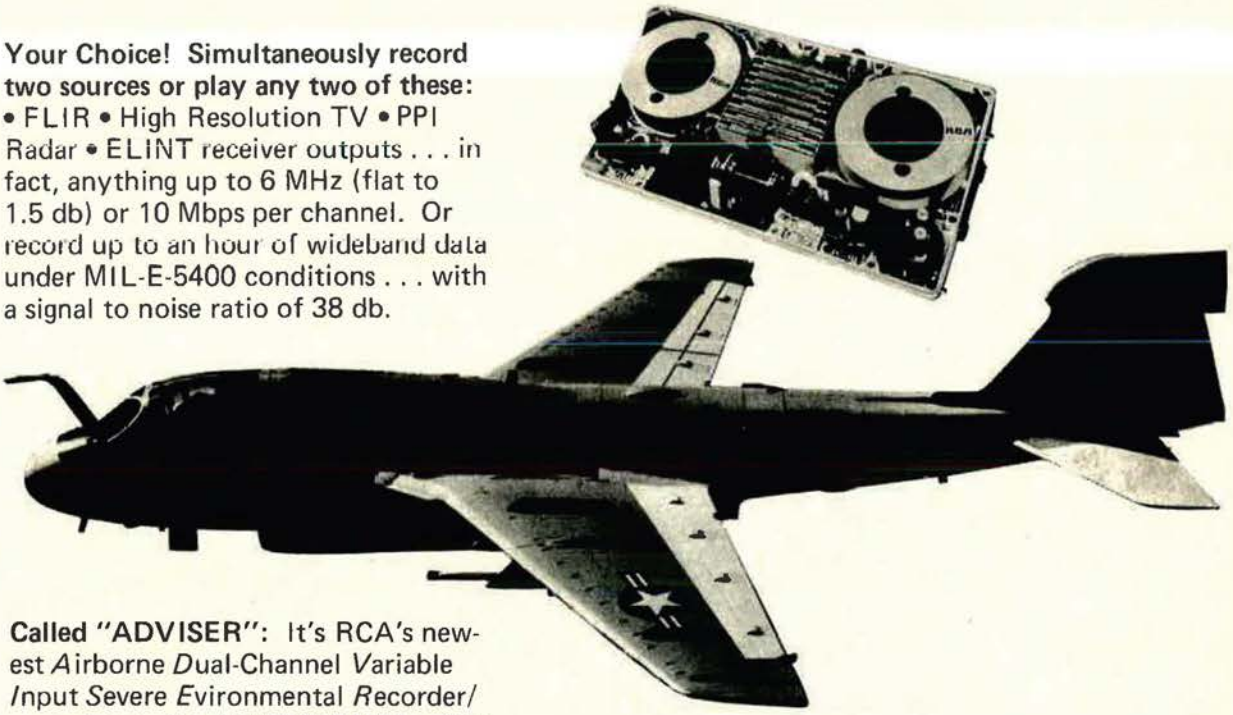

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RCA Government and Commercial Systems

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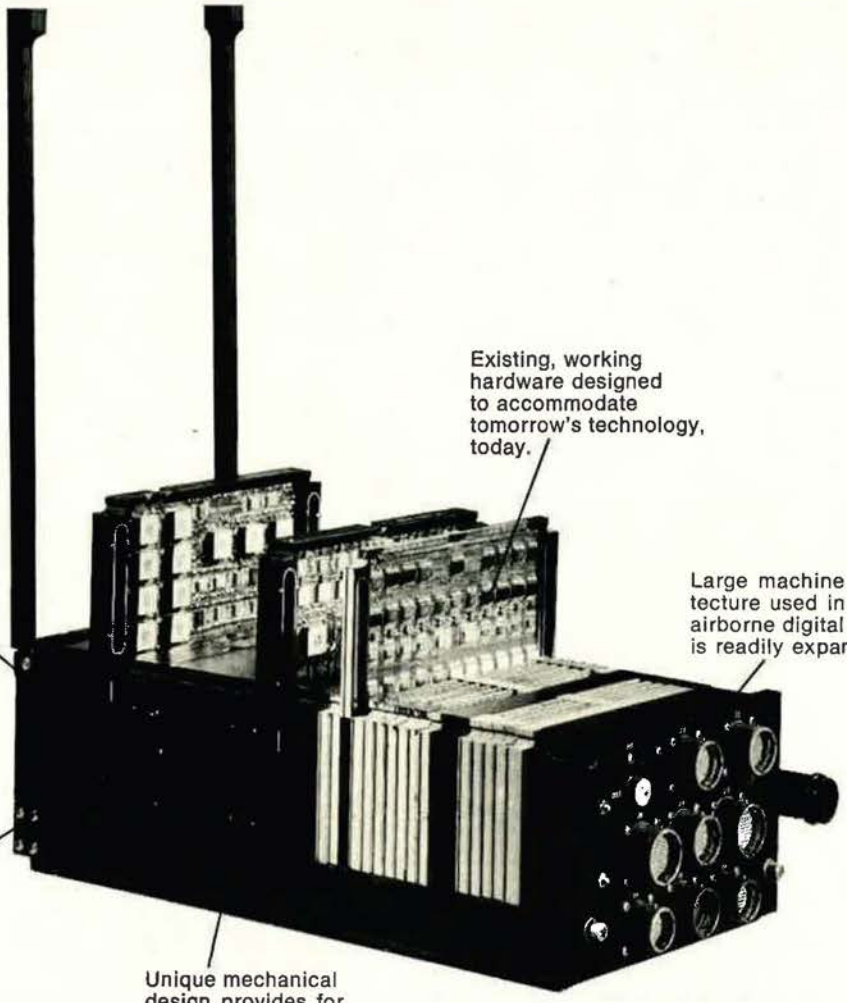

Here's a general purpose, high performance digital computer based on a single data and control bus, and an interconnecting series of modules. Modules that can be combined to form a simplex central computer, a multi-computer or a multi-processor—simply, quickly, efficiently.

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SINGER
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Typical Characteristics (CPU)	
Number Systems	Binary, floating point and two's complement fixed point
Data words, Floating Point	24 bit mantissa, 8 bit exponents
Data words, Fixed Point	32 bits including sign
Instruction Words	16 bits short, 32 bits long
Instructions	99 total long & short
Address Modes	Direct, indirect, relative, immediate
Average Execution Times For 1.9μ sec memory (LSI)	Add-2.125μ sec, multiply-5.875μ sec Divide -5.875μ sec
Memory words directly addressable	131,072

below zero. At about four minutes out, whining electric motors announced the opening of bomb-bay doors. Fortunately, Lt. M. S. Fonorow, the bombardier, got a clear view of the rubber plant through a break in the clouds. He centered the crosshairs of his bombsight on his aiming point, the coke ovens.

At *Chemische Werke Hüls,* which had not been attacked since 1941, it was business as usual as the high-flying bombers approached, dimly visible through a slight haze. A number of workers stepped outdoors for a better look at this impressive formation of what must surely be

In June 1943, B-17s had no blind bombing equipment. Five-tenths cloud cover often meant a missed target. Fortunately, there was a break over Hüls.

German planes on this bright June morning. No alarm had sounded; the antiaircraft guns were silent.

The lack of warning at Hüls seems unaccountable since German air defense forces had been engaging the attackers for more than half an hour. But, for whatever reason, the alert was not given, and the flak batteries went into action only seconds before the first bomb exploded. There were shelter facilities for fewer than half the 8,800 workers in the plant at the time of the attack. A near-miss and a direct hit on two overcrowded shelters killed ninety people. Total casualties came to 186 dead, ten missing, and about 1,000 wounded. However, the object of the attack was not to produce casualties, but to stop rubber production. As the last bombers left the target, their crews saw a column of smoke and steam towering 7,500 feet above the main factory area. The mission had apparently succeeded and it was almost over—but not quite.

The flak around Hüls had become intense and accurate once the batteries opened up. Four aircraft were shot down over the target, and several others left the area with one or more engines knocked out. Many of these cripples fell victim to German fighters during the withdrawal. At Sliedrecht, Holland, a swarm of friendly fighters—twenty-three squadrons of Spitfires and three of Typhoons, reaching out to the limit of their range—met the sorely pressed bombers to escort them home.

Who Was the Victor?

Strike photos taken during the bomb run were quickly processed and rushed to higher headquarters by parachute delivery. They showed a well-distributed pattern of bomb bursts on the built-up area of the Hüls plant. This brought a congratulatory message from Air Marshal Trafford Leigh-Mallory, chief of the RAF Fighter Command.

"To attack the heart of Germany in daylight with such conspicuous success," he said, "opens a new chapter in air warfare."

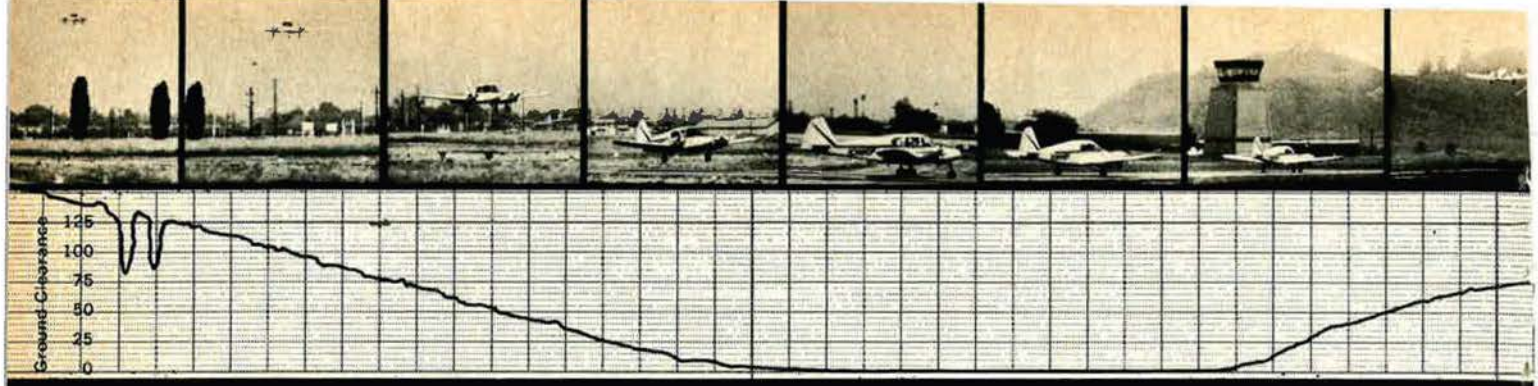
And so it must have seemed to many Allied airmen at the time. But how do the results look now with the benefit of more information and a longer perspective?

The main attack force was rightly credited with some of the best bombing up to that time, even though only 170 of its 1,445 bombs hit within 2,000 feet of the aiming point. The bomb damage at Hüls was widespread and severe. All manufacturing was brought to a halt—though not for long. Partial production was restored in one month, full production in six. Nevertheless, the German war economy suffered a substantial loss, amounting to three full months of production from a vital war plant. For this, however, VIII Bomber Command itself paid a high price.

As we have seen, the diversionary tactics were only partially successful in deceiving the German defenders. Of the 277 four-engine planes dispatched to attack targets, twenty were lost: fourteen to fighters, five to flak, and one for reasons unknown. Ninety-two more—one of every three dispatched—returned with battle damage, some beyond repair. Aircrew casualties numbered two dead, sixteen wounded, and 191 missing, of whom many survived to become prisoners of war.

Who then won the battle? The Americans, who knocked out an important enemy war plant? Or the Germans, who, with relatively minor losses, destroyed or damaged more than 100 enemy bombers and soon put the war plant back in operation?

It would seem, perhaps, that the Germans were winners. Yet, in another sense, they were the losers. The battle was part of a continuing air campaign that became more and more enervating to Germany as time went on. Coming in a trying period of that campaign, the Hüls raid encouraged the Allies to persevere because they construed it, rightly or wrongly, as a clear-cut American victory. ■



Actual data recorded during one of a series of flight tests at Brackett Field, California, July, 1971. Touch-and-go maneuvers are checking in-flight performance of the Hoffman solid-state, single-antenna, coherent pulse doppler radar altimeter (AN/APN-201)—without false lock-on or double bounce.

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Technical information on:
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The Bulletin Board

By Patricia R. Muncy

ASSISTANT FOR MILITARY RELATIONS

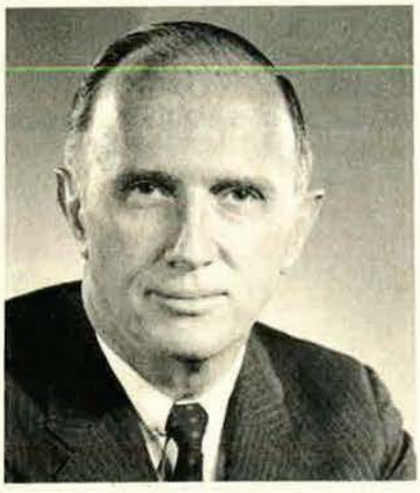
Reserve/Guard Incentives

Assistant Defense Secretary Roger T. Kelley recently outlined to Congress plans under study for maximizing the total-force concept by more effectively utilizing Guard and Reserve units.

One proposal involves increasing basic rates of drill pay, particularly for the lower grades in the less-than-two-years-service category.

Also being considered are enlistment and reenlistment bonuses. Secretary Kelley stated that these should be paid to selected Reservists in amounts that would vary according to supply and demand. There is some concern about how to recoup a bonus from a Reservist or Guardsman should he fail to fulfill his contract. However, the Secretary is confident that effective procedures can be devised.

Secretary Kelley, who is Chairman of the President's Inter-Agency Committee established to recommend new survivor and retirement benefits, said the Committee's studies have included the full range of such benefits for both the active and Reserve armed forces.



Assistant Secretary Roger Kelley: "The need for increased future reliance on the Guard and Reserve is unquestioned."

Secretary Kelley pointed out the critical need to educate employers about the role of the National Guard and Reserve components. More enlightened employer policies would encourage more active participation by Reservists and Guardsmen.

A greater emphasis on preseparation counseling of members leaving the active forces also is in the works. Secretary Kelley emphasized the benefits to be gained by increasing the number of prior service enlistees in the Guard and Reserve components.

Additional incentives being considered are (1) extending FHA loans to members of the selected Reserve in the same way they are presently available to active duty personnel; (2) providing educational opportunities on a reduced scale to selected Reserve members; and (3) arranging utilization of active-force retirees as nontechnician members in Guard and Reserve units.

Secretary Kelley also affirmed DoD support for legislation providing certain medical, dental and death benefits to Guardsmen and Reservists and to their survivors when death is connected with active duty. AFA has long fought for these provisions. At the same time, DoD recommends against legislation providing proficiency pay for members of the Guard and Reserve, according to the Secretary, in the belief that the effectiveness of increased pay and other initiatives should be tested first.

New Head for Correction Board

Samuel Hanenberg, Assistant General Counsel of the Air Force and a career government attorney, has been appointed Chairman of the Air Force Board for the Correction of Military Records by Air Force Secretary Robert C. Seamans, Jr. His new duties are in addition to those of his present assignment.

Retiring Board Chairman Aaron J. Racusin, Deputy Assistant Secretary of the Air Force for Procurement, was presented the Air Force Exceptional Civilian Service Award by Secretary Seamans for his services from January 1966 through June 1971. Mr. Racusin thus became the second four-time recipient of the Air Force's highest award for civilian achievement. He previously received the award in 1955, 1965, and 1969.

The Board, created by statute and composed of departmental civilian officials, considers and acts on cases concerning possible errors and injustices in Air Force military personnel records.

Military Wives Association

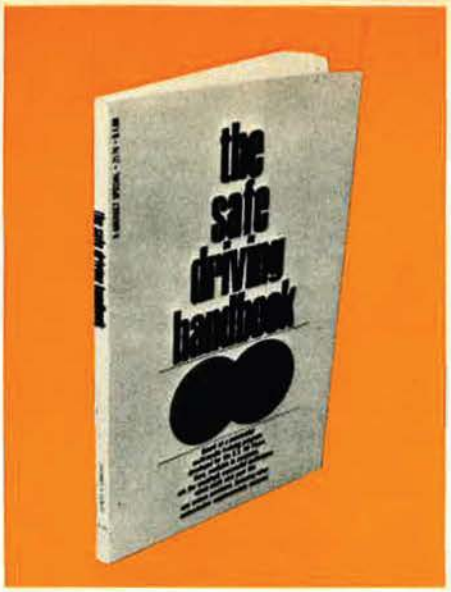
The Military Wives Association, Inc., now in its second year, has strongly supported the swift passage of an adequate survivor benefits bill, as well as recomputation of retired pay. In a recent statement, Mrs. Raye (Justin H.) Dickins, current President, said, "The Military Wives Association feels that today's economy is no excuse for the government not paying its debt to the military."

Assistant Secretary of the Air Force for Manpower and Reserve Affairs Richard T. Borda will head a panel of speakers at AFA's annual Air Reserve Forces Seminar on September 22, during the National Convention in the nation's capital. Top people in Guard and Reserve management will be featured as speakers.

MWA is a nonprofit national volunteer organization open to wives and widows of officers and enlisted men of the Regular, Reserve, or Retired forces, including the Public Health Service. It is also open to women members of the armed forces.

Further information on MWA, now more than 2,500 members strong, can be obtained by writing to Box 1981, Annapolis, Md. 21404.

This Book Could Save Your Life . . .



The Safe Driving Handbook is published for AFA's Aerospace Education Foundation. Based primarily on the Air Force's highly successful safe driving program, more than 200,000 copies are in print. Many people have said good things about it. Here is a sampling:

- "More than just another book on safe driving. It covers topics well known to many who work in traffic safety but it does so in a clear, easy-to-read, and practical manner that makes it impressive—regardless of how many other books you have read on the same subject."—From the newsletter of the American Association of Motor Vehicle Administrators.

- "One of the great advantages of this useful reference is that it can be studied with profit by every kind of driver—beginner and veteran alike—and for every kind of driving, from the short trip to the supermarket to the long cross-country journey on the superhighway. It makes a particularly invaluable introduction to the subject for the young person about to get his first driver's license."—Book-of-the-Month Club, which picked **The Safe Driving Handbook** as a "Pro Bono Publico" special selection.

- "It is the finest book that I have ever read on the subject. I hope that it becomes part of every driving course. I learned more from your book than from all the courses I have taken in safe driving."—Mrs. Agnes Beaton, Women's Safety Director, Allstate Foundation.

- "As good a text for average men and women as any I have seen."—Bill Gold, columnist, *The Washington Post*.

- "If a man cares about his car, about passengers who ride in it, and about his own safety, the book is probably the best accident insurance ever bound between two covers."—**The Retired Officer.**

The Safe Driving Handbook is the best dollar's worth you can find. And all royalties go to AFA's Aerospace Education Foundation. For your copy, direct and postpaid from the Air Force Association, fill in the coupon and mail with one dollar today. Please allow three to four weeks for delivery.

9/71

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The Bulletin Board

John A. Lang, Jr., Administrative Assistant to the USAF Secretary since 1964, retired from his post in the government on August 17 to become Vice President of East Carolina University in his native North Carolina. He is a Major General in the Air Reserve.

Star Promotions

In late July, the Senate confirmed the nominations of fourteen Air Reservists and five Air Guardsmen for advancement to star ranks. Promoted to major general were Earl O. Anderson, Russell F. Gustke, Maurice I. Marks, Evelle J. Younger, and Clarence E. Atkinson (Delaware ANG). To brigadier general, Richard Bodycombe, Byron K. Boettcher, Arthur W. Clark, William J. Crandall, Mortimer I. Gordon, John H. Grimm, William G. Hathaway, William Lyon, Oscar D. Olson, John S. Warner, George N. Masterson (Oklahoma ANG), Raymond C. Meyer (New York ANG), Stanley L. Vihtelic (Michigan ANG), and Roland R. Wright (Utah ANG).

Three more Air National Guard officers were nominated for advancement to brigadier general shortly thereafter. They are William A. Browne, Assistant Adjutant General, Mississippi; William S. Elmore, Adjutant General, Alaska; and Wendell G. Garrett, Assistant Adjutant General, Indiana.

Veterans Benefits

• On August 15, the Veterans Administration, US Office of Education, and Department of Labor began a joint counseling program for overseas servicemen and women. VA has been counseling servicemen in Vietnam on a personal basis and in group orientations since 1967.

The new cooperative program is being sponsored by the Department of Defense on a three-month test basis to determine its effectiveness. Headquartered in Okinawa, Germany, and Vietnam, the new program uses a three-man team concept (one each from VA, Education, and Labor) to brief service personnel in Vietnam, Japan, Korea, and in Europe.

On team visits, the Labor Department representative, for example, will review the labor market and such topics as how to apply for jobs and unemployment compensation. The Education representative will discuss scholarships, liberalized entrance requirements available at certain colleges and universities, types of curricula at various levels of education, and, in some cases, provide individual counseling. The VA member will review veterans' programs, services, and benefits.

• The VA has intensified its campaign to help employers develop GI Bill on-the-job training opportunities for returning servicemen. At the same time, VA is taking steps to simplify the procedures employers must follow in setting up their veterans' programs.

VA Administrator Donald E. Johnson said that special help is available to interested small businesses, which lack resources for developing training programs. VA regional offices will send training experts to survey OJT possibilities and help set up acceptable training situations.

Under approved programs, veterans are paid subsistence allowances while training. The salary paid by the employer increases as the trainee develops skills useful to the employer. In an approved VA program, employers may pay new veteran trainees as little as one-half of the target journeyman wage.

Mr. Johnson said that more than 100,000 veterans are currently taking on-the-job training, and almost 200,000 have participated in apprenticeship or OJT programs since the current effort was first authorized less than four years ago. He pointed out, however, that more jobs and training opportunities are needed, and one way to provide them is through greater employer participation in the OJT program.

Briefly Noted

• AFA's continued resolve to obtain an increase in the Air Guard Technician ceiling may soon come to fruition. A recent Senate bill would raise the current ceiling of technicians (Air and Army) from 42,500 to 49,200 the first year, and to 51,100 the second year.

Mrs. John D. Ryan (left), wife of the Air Force Chief of Staff, and Mrs. Donald L. Harlow, wife of the present AF Chief Master Sergeant, assist CMSgt. Dominick N. Masone during ceremonies to mark the opening of the Air Force Enlisted Men's Widows and Dependents Home Foundation offices at Bolling AFB, D. C. Sergeant Masone is foundation chairman and has set a target date of 1975 for the project's completion.

SPECIAL!

This December issue of AIR FORCE Magazine will be a combined AIR FORCE Magazine and AEROSPACE INTERNATIONAL edition. Advertisers in this issue will reach the more than 12,000 non-US readers of AIR FORCE Magazine and readers of AEROSPACE INTERNATIONAL. In addition to the 115,000 are hand-picked government officials, ranking military officers, and aerospace executives in more than 95 countries outside of the United States.

Air Force Magazine

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in December

a major report from

The Institute for Strategic Studies, London

"THE MILITARY BALANCE" 1971

By special arrangement, we are privileged to present The Institute for Strategic Studies' prestigious annual report, "The Military Balance," a country-by-country analysis of the world's military forces and equipment. The Institute, a world-famous military authority, has long been recognized for its scholarly research. "The Military Balance" is one of their most respected and sought-after military research studies. The December issue of AIR FORCE Magazine, containing this report, will not only be widely read, but is sure to serve as a tabletop reference throughout the year. Your advertising can be part of this important publication. Closing for advertising reservations is October 29. Contact your nearest AIR FORCE sales office for further details.

The Bulletin Board

Maj. Gen. Winston P. "Wimpy" Wilson the first Air Force officer to be Chief of the National Guard Bureau, has retired from active duty, ending a career that began in 1929 when he enlisted as an airplane mechanic in the Arkansas National Guard. Army Maj. Gen. F. S. Greenlief will succeed him.

• The Air Force Officer Training School (OTS) at Lackland Military Training Center has been upgraded from group to wing level, thus eliminating certain command-level inequalities that existed among the three AF precommissioning agencies—OTS, the Air Force Academy, and AFROTC. When current production and facility programs are complete, OTS will have facilities to support an onboard strength of 2,000 officer trainees. This will give OTS an overall capability of producing 8,000 officers annually.

In existence for eleven years, OTS has graduated 109 classes of second lieutenants, totaling 48,736 college-trained officers. It is the largest source of newly commissioned line officers for active duty, Reserve, and National Guard components of the aerospace arm.

• Dr. Alexandra C. Roesler of Chicago recently became the Air Force's first female veterinarian. She was commissioned a captain in the AF Reserve in Washington by Brig.

Fort Worth Mayor R. M. Stovall presents Col. Claude G. Lawson, Commander of the 916th Military Airlift Group at Carswell AFB, Tex., a proclamation naming the C-124 Reserve unit the city's "International Goodwill Ambassadors."

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Gen. C. H. Snider, USAF's Assistant Surgeon General for Veterinary Services. Dr. Roesler is assigned to the 30th Medical Service Squadron at O'Hare International Airport. In civilian life she is a research associate at the University of Illinois' Research Laboratory in Chicago.

• The annual USAFR General Officers Conference has been scheduled for October 18–19 in Washington, D. C.

Senior Staff Changes

Col. (B/G Selectee) Earl J. Archer, Jr., from Cmdr., 479th TFW, TAC, George AFB, Calif., to DCS/P, Hq. TAC, Langley AFB, Va., replacing B/G (M/G Selectee) Levi R. Chase . . . **B/G Frederick C. Blesse,** from Asst. DCS/Ops, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, to Asst. DCS/Ops, Hq. PACAF, Hickam AFB, Hawaii, replacing B/G Victor N. Cabas . . . **M/G Jones E. Bolt,** from DCS/Ops, Hq. USAFE, Lindsey AS, Germany, to IG, Hq. ATC, Randolph AFB, Tex., replacing Col. (B/G Selectee) James L. Stewart . . . **Dr. John A. Burgess,** from Chief Scientist, Rome Air Development Center, AFSC, Griffiss AFB, N. Y., to Dep. Dir., SHAPE Technical Center, The Hague, Netherlands . . . **B/G (M/G Selectee) Levi R. Chase,** from DCS/P, Hq. TAC, Langley AFB, Va., to V/C, 9th AF, TAC, Shaw AFB, S. C. . . . **B/G William P. Comstock,** from Dep. Dir., Alaskan Rgn., FAA, Anchorage, Alaska, to Dep. Dir., Joint Continental Defense Systems Integration Planning Staff, Arlington, Va.

Col. (B/G Selectee) Wilbur L. Creech, from Cmdr., 401st TFW, USAFE, Torrejon AB, Spain, to DCS/Ops, Hq. USAFE, Lindsey AS, Germany, replacing M/G Jones E. Bolt . . . **Mr. Walter J. Crichlow,** from Department Engineer, Structural Mechanics and Matériels, Lockheed Aircraft Corp., Burbank, Calif., to Engineering Adviser (Aircraft Structural Fatigue), Dep. for Engineering, ASD, AFSC, Wright-Patterson AFB, Ohio . . . **B/G Alfred L. Esposito,** from Dep., Systems Management, ASD, AFSC, Wright-Patterson AFB, Ohio, to DCS/P, Hq. AFSC, Andrews AFB, Md., replacing Col. (B/G Selectee) Donald L. Werbeck . . . **M/G Andrew J. Evans, Jr.,** from Dep. Cmdr., 7th AF/13th AF, Udorn Airfield, Thailand, to Cmdr., USMAC, and Chief, JUSMAG, Bangkok, Thailand . . .**B/G (M/G Selectee) William J. Evans,** from Dir., Operational Rqmts. and Development Plans, to Dir., Development and Acquisition, DCS/R&D, Hq. USAF, replacing M/G David V. Miller.

B/G Paul G. Galentine, Jr., from Cmdr., European Communications Area, AFCS, and add'l duty as DCS/Communications, Hq. USAFE, Lindsey AS, Germany, to Dir., J-6, US Readiness Cmd., MacDill AFB, Fla., replacing B/G Charles E. Williams . . . **Col. (B/G Selectee) William W. Gilbert,** from V/C, AF Flight Test Center, AFSC, Edwards AFB, Calif., to Cmdr., European Communications Area, AFCS, and add'l duty as DCS/Communications, Hq. USAFE, Lindsey AS, Germany, replacing B/G Paul G. Galentine, Jr. . . . **B/G Morton J. Gold,** from Asst. JAG, Hq. USAF, to Staff Judge Advocate, Hq. PACAF, Hickam AFB, Hawaii, replacing B/G Harold R. Vague . . . **M/G Lee V. Gossick,** from DCS/Systems, to C/S, Hq. AFSC, Andrews AFB, Md., replacing retiring M/G Clifford J. Kronauer, Jr. . . . **Col. (B/G Selectee) Abbott C. Greenleaf,** from Asst. DCS/Ops, to DCS/Ops, Hq. AFSC, Andrews AFB, Md., replacing B/G (M/G Selectee) Alton D. Slay.

M/G Robert E. Hails, from DCS/Maintenance, Hq. AFLC, Wright-Patterson AFB, Ohio, to Cmdr., Defense Personnel Support Center, Defense Supply Agency, Philadelphia, Pa. . . . **B/G (M/G Selectee) Homer K. Hansen,** from Cmdr., USAF Tac. Ftr. Weapons Center, TAC, Nellis AFB, Nev., to Dir., Operational Rqmts. and Development Plans, DCS/R&D, Hq. USAF, replacing B/G (M/G Selectee) William J. Evans . . . **B/G Malcolm P. Hooker,** from Cmdr., 316th Tac. Airlift Wg., Hq. TAC, Langley AFB, Va., to Dep. Cmdr., Military Traffic Mgmt. and Terminal Service, Washington, D. C., replacing retiring B/G Otis E. Winn . . . **B/G William A. Jack,** from Asst. DCS/M Mgmt., to DCS/Maintenance, Hq. AFLC, Wright-Patterson AFB, Ohio, replacing M/G Robert E. Hails . . . **B/G Warren D. Johnson,** from Cmdr., US Forces, and Cmdr., 1605th AB Wg., MAC, Lajes Field, Azores, to DCS/P, Hq. SAC, Offutt AFB, Neb., replacing retiring Col. William H. Working.

B/G Jessup D. Lowe, from Cmdr., Arnold Engineering Development Center, AFSC, Arnold AFS, Tenn., to Cmdr., Space & Missile Test Center, AFSC, Vandenberg AFB, Calif., replacing M/G Louis L. Wilson, Jr. . . . **B/G Herbert A. Lyon,** from Asst. DCS/Systems, Hq. AFSC, Andrews AFB, Md., to Dep., Reentry Systems, SAMSO, AFSC, Norton AFB, Calif., replacing B/G Abner B. Martin . . . **B/G Abner B. Martin,** from Dep., Reentry Systems, to Dep. for Minuteman, SAMSO, AFSC, Norton AFB, Calif., replacing M/G Kenneth W. Schultz . . . **B/G Michael C. McCarthy,** from DCS/M, to C/S, Hq. ATC, Randolph AFB, Tex., replacing B/G John R. Dyas . . . **B/G Edward P. McNeff,** from Cmdr., 835th Air Div., TAC, McConnell AFB, Kan., to V/C, USAF Tac. Air Warfare Center, TAC, Eglin AFB, Fla. . . . **Col. (B/G Selectee) Charles F. Minter, Sr.,** from Student, National War College, Washington, D. C., to V/C, Ogden AMA, AFLC, Hill AFB, Utah.

Col. (B/G Selectee) Milton E. Nelson, from Chief, Tac. Div., D/Ops, DCS/P&O, Hq USAF, to DCS/Plans, Hq. ATC, Randolph AFB, Tex. . . . **Col. (B/G Selectee) James G. Randolph,** from Asst., DCS/P&O for Program Analysis, Hq. AFLC, Wright-Patterson AFB, Ohio, to V/C, San Antonio AMA, AFLC, Kelly AFB, Tex., replacing B/G George Rhodes . . . **B/G George Rhodes,** from V/C San Antonio AMA, AFLC, Kelly AFB, Tex., to Asst. DCS/M Mgmt., Hq. AFLC, Wright-Patterson AFB, Ohio, replacing B/G William A. Jack . . . **B/G Jack B. Robbins,** from C/S, AF Communications Service, Richards-Gebaur AFB, Mo., to Dir., Data Automation, AF Comptroller, Hq. USAF . . . **M/G Kenneth W. Schultz,** from Dep. for Minuteman, SAMSO, AFSC, Norton AFB, Calif., to DCS/Systems, Hq. AFSC, Andrews AFB, Md., replacing M/G Lee V. Gossick.

B/G (M/G Selectee) Alton D. Slay, from DCS/Ops, Hq. AFSC, Andrews AFB, Md., to Asst. DCS/Ops, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam . . . **Col. (B/G Selectee) Howard P. Smith, Jr.,** from DCS/Intelligence, Hq. PACAF, Hickam AFB, Hawaii, to Dep. ACS/Intelligence, Hq. USAF, replacing B/G Edward Ratkovich . . . **B/G William Y. Smith,** from Military Asst. to Secretary of the AF, OSAF, Hq. USAF, to V/C, Oklahoma City AMA, AFLC, Tinker AFB, Okla. . . . **Col. (B/G Selectee) James L. Stewart,** from IG, to DCS/M, Hq. ATC, Randolph AFB, Tex., replacing B/G Michael C. McCarthy . . . **Mr. Charles F. Tiffany,** from Head, Structures Research and Development, Boeing Co., Seattle, Wash., to Engineering Adviser (Aircraft Structural Matériels), Dep. for Engineering, ASD, AFSC, Wright-Patterson AFB, Ohio.

Col. (B/G Selectee) Eugene F. Tighe, Jr., from Dir., Intelligence Applications, ACS/Intelligence, Hq. USAF, to DCS/Intelligence, Hq. PACAF, Hickam AFB, Hawaii, replacing Col. (B/G Selectee) Howard P. Smith . . . **B/G Harold R. Vague,** from Staff Judge Advocate, Hq. PACAF, Hickam AFB, Hawaii, to Asst. JAG, Hq. USAF, replacing B/G Morton J. Gold . . . **Col. (B/G Selectee) Donald L. Werbeck,** from DCS/P, Hq. AFSC, Andrews AFB, Md., to C/S, AFCS, Richards-Gebaur AFB, Mo. . . . **B/G Charles E. Williams, Jr.,** from Dir., J-6, US Readiness Cmd., MacDill AFB, Fla., to Vice Dir., TRI-TAC, Fort Monmouth, N. J. . . . **M/G (L/G Selectee) Louis L. Wilson, Jr.,** from Cmdr., USAF Space and Missile Test Center, AFSC, Vandenberg AFB, to IG, Hq. USAF, replacing retiring L/G Selmon W. Wells.

PROMOTIONS: (Air National Guard) To be **Brigadier General:** William A. **Browne;** William S. **Elmore;** Wendell G. **Garrett.**

RETIREMENTS: M/G Allison C. **Brooks;** M/G Lester F. **Miller;** M/G Clifford **J. Kronauer,** Jr.; M/G Von R. **Shores;** M/G Anthony T. **Shtogren;** L/G Selmon W. **Wells;** M/G Winston P. **Wilson;** B/G Otis E. **Winn;** B/G Edwin S. **Wittbrodt.** ■

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Edited by John W. R. Taylor, F.R.Hist.S., A.F.R.Ae S., F.S.L.A.E.T.

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Some Reflections on the MIA/POW Issue

By John F. Loosbrock

THE INTEREST of the Air Force Association and this magazine in the well-being of Americans who have been captured by the enemy in the course of doing their duty is as natural as it is consistent. Airmen shot down over enemy territory tend to be viewed with a special animosity by their captors, a view that can be understood if not condoned. Additionally, in the Korean War, and most particularly in the Indochina conflict, airmen have formed the vast majority of American war prisoners due to the very nature of these conflicts.

By the same token, the status of American war prisoners, and especially airmen, in both the above conflicts has differed from that of prisoners in previous wars. Korea, for example, provided the first example of legitimate prisoners of war being exploited for political propaganda purposes by their captors. That example has been followed with a vengeance in North Vietnam. While the lot of World War II prisoners was not a happy one, at least in Germany they were generally treated humanely and in accordance with the provisions of international law. In the case of Japan, prisoners did not fare so well physically, but they were not, to our knowledge, exploited for purely political purposes. The difference, in our judgment, is that our wars with Communist nations have had ideological overtones, on both sides, in a different and more pervasive way than in previous conflicts. This is point one.

Point two is the difference in nature of the war in Indochina from any previous American war, including Korea. This relates to the open-ended nature of the conflict, with no end—whether it be victory, defeat, withdrawal, or armistice—firmly in sight. In World War II, the longest stretch of internment any American prisoner endured was less than four years. This conclusion is not based on research, but on a calculation that begins with the Bataan Death March and ends sometime after V-J Day. In Indochina, in contrast, we have American prisoners in their eighth year of captivity. This fact in itself, even if our prisoners were treated with the utmost humanity, introduces a cruel psychological pressure on both the prisoners and their families that has no precedent in our history.

Point three is the fact that the status of an extremely high proportion of Americans listed as missing in action has never been resolved. There is good reason to believe that many, probably most, of them are prisoners, but neither our government nor their families can know for sure. Surely this is the cruelest, most wanton kind of punishment of all.

Point four is the political divisiveness on the home front relating to the war. Again for the first time in our history, American prisoners of war have become objects for political exploitation, not only by the enemy, but by their fellow Americans. They have been caught up in the prowar/antiwar, pro-Nixon/anti-Nixon, hawk/dove debates about withdrawal dates, Vietnamization, and the extent and duration of any American presence in South Vietnam. Even the families of the prisoners themselves are choosing sides, and this cannot be to the benefit of anyone concerned.

The antiwar people are saying, and the North Vietnamese negotiators are agreeing, that any wholesale release of American prisoners of war must be tied to a specific date for withdrawal of American forces from South Vietnam. Some even say Southeast Asia. For valid political and military reasons not relating in any way to the prisoners' plight, the Administration is extremely reluctant to set a specified date. Nor can it be expected to without some kind of guarantees, or at least solid expectations, as to what is to happen in South Vietnam after we get out.

In all fairness, we as a people and as a government have obligations other than those we bear to our fellow Americans in the Hanoi Hilton. We must in conscience consider the prospective fate of those South Vietnamese who would be unwilling, or indeed unable, to live under a Communist government or even a Communist-dominated coalition. We also have an obligation to the men, and their survivors, who have fallen in Southeast Asia and the thousands more who will bear disabilities to their graves. Their sacrifices cannot be permitted to have been made in vain. Conversely, we have still another obligation to those as yet unscathed but of whom unknown numbers will suffer and die before all fighting stops.

It is a cruel dilemma, and we are not going to attempt to solve it here, in this small space.

Meanwhile, though, the basic principles on which we have based our Association and editorial campaigns on behalf of Americans missing in action and held prisoner continue to be valid. Putting aside all of the considerations discussed above—political, military, ideological, what have you—the plight of the prisoners remains a burning humanitarian issue. Yet, there is a growing tendency among certain elements in the various antiwar groupings deliberately to sidestep, and in some cases even attack, the humanitarian aspect of the MIA/POW issue.

It is said that the war in Southeast Asia is a civil one and hence falls under a different section of the Geneva convention, that a war "not of an international character" does not require the free flow of mail to and from prisoners nor the inspection of prisons by the International Red Cross, that our prisoners are being treated about as well as can be expected under the circumstances.

We can't buy it. The issue remains a humanitarian one, a matter of basic human rights. Any man, be he friend or foe, soldier, sailor, airman, or marine, who puts on his country's uniform and goes forth to battle is entitled to assurance, in advance, that the capture he risks will not put an end to his status as a human being.

In our October 1969 issue, which contained Lou Stockstill's magnificent (and first anywhere) exposé

of the plight of Americans missing in action or held prisoner in Southeast Asia, we said editorially that Hanoi had refused to:

- Permit neutral inspection of its prisons;
- Release the sick and wounded;
- Allow the exchange of letters and packages; and
- Protect US prisoners from public abuse.

These basic criticisms are still valid. True, a trickle of mail has been permitted but in a pitifully restricted manner. A handful of prisoners have come home. And one would expect that public abuse of prisoners has waned together with the numbers being captured. But there still has been no neutral inspection permitted and, where other than lip service to humanity has been performed, it has been in a manner designed to make international and domestic political propaganda hay. Notably, this has occurred under the auspices of the Committee of Liaison With Families of Servicemen Detained in North Vietnam, headed by New Lefters Cora Weiss and David Dellinger. This group's activities have been unabashedly political and in perfect harmony with those of Hanoi.

On the other hand, the League of Families of American Prisoners and Missing in Southeast Asia, under the capable leadership of Mrs. Bobby Gene Vinson, has done a magnificent job of rallying public and official support for their men in prison and missing. AFA has worked hand in glove with them from the beginning, and the accomplishment of AFA members, singly and in unit activities, has been of consistently high quality and effectiveness.

It has been said, and we agree, that the MIA/POW campaign has been the most important work ever performed by the Air Force Association in its twenty-five years of existence. We have tried faithfully to chronicle it in these pages.

But the unhappy facts remain before us. The men are still there, and they and their families are still being treated inhumanely. The pressure must be kept on. And we will keep it on.

MIA/POW Action Report

Virginia

At the April meeting of AFA's Roanoke, Va., Chapter, members heard about the Southeast Asia MIA/POW issue from two different perspectives: an Air Force colonel who works for the welfare and eventual return of Americans who are missing in action or held prisoner of war in Southeast Asia, and a woman who hopes he succeeds—the wife of a POW.

Lt. Col. Charles Peters is handling MIA/POW matters for the International Aviation and Special Operations Branch of the Office of the Director of Plans, Deputy Chief of Staff for Plans and Operations. Colonel Peters' office is concerned with both the welfare of the POWs and their families, and the planning of the return of these prisoners.

"We hope these men will come back physically and mentally strong. But we don't know—we won't know—until they do come back," Colonel Peters said. If it is required, he said, "We're prepared to give them the very best medical care possible."

Colonel Peters said the plight of American prisoners in Southeast Asia should be the concern of every American. He said everyone can help, citing what he called the grass-roots prime movers, people who write elected officials, wives of POWs who travel the world to bring their story before other governments, students who pitch in to keep the issue alive and before the people.

"One day our men will come home," Colonel Peters said. "We couldn't look them in the eye if we knew we hadn't done everything we could to bring them home." The Colonel's purpose in talking to civilian groups "is not to discuss the war—but to strive to impart to you the issue of humane treatment for our men held captive."

Mrs. Valerie Kushner of Danville, Va., the wife of Maj. F. Harold Kushner, an Army flight surgeon who has been a prisoner of the Viet Cong in South Vietnam for three and a half years, shared the podium with Colonel Peters.

Mrs. Kushner has traveled to Cambodia and Paris trying to get medical supplies to her husband. She didn't succeed. The only news of her husband has come to her through the few prisoners who have been released.

Mrs. Kushner said the problem of American prisoners of war is not a new problem "although you may have heard of it only in the last two years." There are prisoners entering their eighth year of captivity, she said.

During their stay in Roanoke, Mrs. Kushner and Colonel Peters appeared on local TV stations and were interviewed on local radio stations.

Georgia

During the awards banquet of the Georgia AFA's annual convention, held recently in Savannah *(see details on p. 113)*, AFA Certificates of Honor were presented to the Middle Georgia Chapter and to Georgia AFA Presi-

Georgia AFA President W. H. Kelly, right, presents AFA's Certificate of Honor to Dr. Dan Callahan, President of the Middle Georgia Chapter, for the Chapter's MIA/POW work. Kelly also received a Certificate of Honor at the same function.

At the Washington State AFA convention in Seattle, AFA National President George D. Hardy, on the left, presents an AFA Certificate of Honor to Svein Gilje, military-affairs writer for the Seattle Times, *in recognition of his newspaper articles on the plight of the MIA/POWs and their families.*

At the Florida AFA convention, recently held in Orlando, MacDill AFB furnished the display pictured here, and "prisoner" Cadets of the Florida Civil Air Patrol took turns at incarceration in the "cage" while others of their members solicited signatures from spectators for MIA/POW petitions.

dent William H. Kelly "for outstanding service to the cause of human rights by virtue of taking positive action on behalf of Americans who are missing in action or held prisoners of war in Southeast Asia."

Also, AFA Awards of Merit were presented to the following organizations and individuals for outstanding service to the AFA's MIA/POW program: the Savannah *News-Press*; television stations WTOC, WSAV, and WJCL; William Reed and Jack Lord of the Savannah office of the State Department of Veteran Affairs; Sam C. Elkins of Savannah, state chairman of the MIA/POW program; State Representative Sam Nunn of Perry; and the 165th Military Airlift Group of the Georgia Air National Guard.

The Georgia AFA's efforts in behalf of the MIA/POW program have been consistent and effective, and Georgia was among the first of AFA's state organizations to take action when the program was established in late 1969. We congratulate the Georgia AFA, and the units and individuals honored at their recent convention in Savannah.

Texas

The opening function and one of the highlights of the Texas AFA's recent convention *(see p. 111)* in Fort Worth was a dinner honoring MIA/POW wives and families living in Texas. Featured speakers included Mrs. Anna Chennault, adviser to the National League of Families of American Prisoners and Missing in Southeast Asia and the widow of Lt. Gen. Claire Chennault, leader of the Air Force's World War II Flying Tigers; Murphy Martin, President of United We Stand, a nonprofit, nonpartisan corporation that has been very active in behalf of the MIA/POW program; and AFA President George D. Hardy.

In her remarks, Mrs. Chennault said, "We can negotiate only from a position of strength, not weakness."

Mr. Martin claimed that dissidents in the United States today are not intellectually honest. "If they [dissidents] were honest, why would they question the American invasion of Cambodia of 1970 and the Vietnamese invasion of Laos in 1971 and not question the North Vietnamese invasion of those two countries?" He also posed questions to the North Vietnamese as to why they would not release a full list of all prisoners held in Communist camps.

Mr. Hardy spoke briefly on AFA's MIA/POW efforts, then presented an AFA Certificate of Honor to Mrs. Gregg Hartness, an MIA/POW wife, for her efforts in behalf of the MIA/POW program.

At the convention awards banquet, Mr. Hardy presented Certificates of Honor to another MIA/POW wife, Mrs. Michael O. McElhanon; to the Fort Worth Airpower Council, accepted by the Council Chairman, Sam E. Keith, Jr.; and to the Fort Worth *Press,* accepted by Jack Moseley, Managing Editor.

MIA/POW wives and families were guests of honor throughout the entire convention. Among those attending were: Mrs. Ginger McPhail, Mrs. Nora Copeland, Mrs. Irine Mason, Mrs. Chris Wilke, Mrs. Mary Larson, Mrs. Quin Stine, Mrs. Marylin Myers, Mrs. Sandy Sunderland, Mrs. Bette Vander Eykel, Mrs. Paula Hartness, Mrs. Ann Jayroe, Mrs. Joy Jeffrey, Mrs. Shirley Johnson, Mrs. Marlene Klemm, Mrs. Patricia Knight, Mrs. Sandy McElhanon, Mrs. Beverly Mims, Mrs. Sally Stratton, Mrs. Bonnie Singleton, Mrs. Jackie Sparks, and Mrs. Wanda Elliot.

District of Columbia

In an interview in the Washington, D. C., *Evening Star*, Mrs. Iris Powers, mother of Chief Warrant Officer Lowell S. Powers, an Army helicopter pilot missing in action since April 1969, said she came away from a recent meeting with President Nixon's foreign affairs adviser, Henry Kissinger, "heartened because of his interest" in the prisoner-of-war situation.

Mrs. Powers attended the "off-the-record" White House meeting in two capacities—as a member of the board of the National League of Families of American Prisoners and Missing in Southeast Asia, which meets with Kissinger every two months, and as special consultant to the Army for next of kin of MIA/POWs.

"I'm a staunch supporter because he makes such sense when he says the meeting is off the record, then he answers our questions as frankly as possible.

"We came away heartened because of his interest, and it takes a lot to impress me." She is impressed, she said, with President Nixon, Secretary of State Rogers, Secretary of Defense Laird, Army Chief of Staff Westmoreland, and Army Vice Chief of Staff Palmer.

"They're interested," she said. "You couldn't fake interest like that. If they did, I could smell it a mile off. They anguish." ■

By Don Steele

AFA AFFAIRS EDITOR

THE TEXAS STATE ORGANIZATION

cited for effective programming in support of the mission of AFA, most recently exemplified in its annual state convention.

The **Texas AFA's** 1971 convention, held in Fort Worth, June 25–27, was hosted by the **Fort Worth Chapter** and was one of the most effective meetings in the history of the state organization.

In conjunction with the convention, and in observance of the twenty-fifth anniversaries of the **Strategic Air Command** and the **Air Force Association,** and the thirtieth anniversary of **Carswell AFB,** a combined Open House and Air Show was held at Carswell on June 26.

The Open House and Air Show drew more than 150,000 spectators and featured flying exhibitions by Fort Worth's **Charlie Hillard** in a Spinks Acromaster and **Bob Hoover** in a P-51 and then in an Aero Commander Shrike.

The SR-71, a C-5A, B-52s, a KC-135, C-124s, and other static displays of Air Force hardware—past and present—filled the ramp and thrilled the thousands visiting the display area.

Now, back to the convention functions held in the Green Oaks Inn. A POW/MIA dinner opened the convention program *(see report beginning on p. 109).*

At the business session Saturday morning, delegates elected **Brig. Gen. Herbert G. Bench,** USAF (Ret.), of Dallas, to succeed **John Allison** as President of the State AFA. Others elected: **Jack Morris, Dorr Newton, Harmon Burns,** and **A. J. Statser,** Vice Presidents; **Vic Kregel,** Secretary; and **George Avinger,** Treasurer.

Gen. Jack J. Catton, Commander, Military Airlift Command, was the guest of honor and speaker at the convention luncheon. General Catton opened his address by saying, "My frequent associations with the AFA have told me one thing for sure—you always are working on the important issues—not necessarily the easiest ones. Case in point—your great work with the POW/MIA problems. Case in point—continued support for needed force modernization. And so today I would expect to find you involved in more of the same—and I was right. You have the kind of aggressive organization that doesn't walk away from an opportunity to do something positive for this nation."

Gen. George S. Brown, center, Commander of the Air Force Systems Command, was guest speaker at a recent Cape Canaveral, Fla., Chapter meeting. With General Brown are Chapter President Dan Callahan, left, Maj. Gen. USAF (Ret.), and Maj. Gen. David M. Jones, right, Commander, Air Force Eastern Test Range. More than 300 persons attended the affair.

General Catton then spoke on an important issue of our day—**"Project Volunteer."** He suggested making military service more attractive as a means of maintaining the cream of the crop in the Air Force.

During the luncheon program, Mr. Allison presented Texas AFA awards to several who had distinguished themselves in their Air Force career fields during the past year. **Lt. Col. Jefferson C. Davis,** Brooks AFB, was named the Texas AFA's "Scientist of the Year"; **Maj. Constance R. Stirum,** Brooks AFB, received the Texas AFA's "Nurse of the Year Award"; and **CMSgt. Tom M. Schiffer,** 446th Tactical Airlift Wing (Reserves), was named the State AFA's "Reservist of the Year."

Guest of honor and speaker at the convention banquet was the Honor-

Brig. Gen. James D. Kemp, USAF, on the left, Commander of the Defense General Supply Center, a joint DoD agency located in Richmond, Va., was both host and principal speaker at the June meeting of AFA's Richmond Chapter. Chapter President Ray E. Ricketts, center, and Kenneth A. Rowe, Richmond Chapter's immediate Past President, are shown here with the General.

able **Robert C. Seamans, Jr.,** Secretary of the Air Force. Dr. Seamans' address, entitled "Our Nation's Dual Goals: Security and Progress," focused on the need for modernization in order to maintain an effective, balanced deterrent force, and the important contributions to our nation's social and economic progress that result from our defense programs. Dr. Seamans cited the successful use of selected Air Force-programmed instruction in Utah public schools as an example of how Air Force education programs are contributing to domestic progress. He pointed out that "AFA's Aerospace Education Foundation is now studying the potential for a broader range of course material to be applied in other areas of our country."

Rep. James C. Wright, Jr. (D-Tex.), introduced the Secretary, and Texas AFA President **John Allison** was Master of Ceremonies at the luncheon and the banquet.

AFA National President **George D. Hardy** presented POW/MIA awards *(see p. 109),* then made brief but hard-hitting remarks in behalf of the B-1 strategic bomber program.

During the program, National AFA citations were presented to the following personnel of the Air Training Command: **Maj. Donald G. Plummer,** "Outstanding Navigator Instructor"; **Capt. Harvey B. Cox,** "Outstanding Pilot Instructor"; **TSgt. Ernest R. Parisi,** "Outstanding Technical Instructor"; and **Sgt. Jan Woellhaf,** "Outstanding Instructor." These awards were presented by **B. L. Cockrell,** Vice President for AFA's Southwest Region, and AFA National Directors **Joe L. Shosid** and **Sam E. Keith, Jr.**

Alamo Chapter Vice President F. N. Villasana, left, admires the plaque presented to Arthur O. de la Garza, Alamo Chapter President, who was named the Texas AFA's "Man of the Year," at the state convention in Fort Worth.

Head-table guests at Texas AFA's twenty-fifth anniversary convention, from left, Mrs. Anna Chennault, widow of the famed World War II Air Force leader of the Flying Tigers, Commander of the Second Air Force Lt. Gen. Russell E. Dougherty; AFA National President George D. Hardy; Representative James Wright (D-Tex.); and the Secretary of the Air Force, Dr. Robert C. Seamans, Jr.

At Washington AFA's convention, National President George D. Hardy, left, congratulates Clyde Stricker on his two years as President of the Washington AFA and presents a Past President's pin.

Texas AFA President Allison presented the State AFA's "Man of the Year" award to **Arthur O. de la Garza,** President of the **Alamo Chapter;** and the "Chapter of the Year" award to the **Fort Worth Chapter,** accepted by its President, **Don Hansen.**

Entertainment at the luncheon and the banquet was supplied by the Air Force's **"Good Timers"** from Bolling AFB, D. C.

A Saturday morning Ladies Fashion Show Brunch at Neiman Marcus featured an address by **Mrs. Anna Chennault,** widow of Lt. Gen. Claire Lee Chennault, Air Force leader of the World War II Flying Tigers.

Distinguished guests not already mentioned included: **Gen. Gabriel P. Disosway,** USAF (Ret.); **Lt. Gen. Russell E. Dougherty,** Commander, Second Air Force; **Maj. Gen. H. Reddell,** Commander, San Antonio Air Materiel Area; **Brig. Gen. Thomas P. Coleman,** Deputy Director, Office of Information, Office of the Secretary of the Air Force; **Brig. Gen. Ray B. Sitton,** Commander, 19th Air Division (SAC), and Military Host to the Convention; **Brig. Gen. William C. McGlothlin,** Commander, USAF Recruiting Service; **Brig. Gen. John Hoff,** Commander, Central Air Force Reserve Region; Fort Worth **Mayor R. M. "Sharkey" Stovall;** AFA National Secretary **Nathan H. Mazer;**

AFA National Director **Jack T. Gilstrap; Col. E. C. "Mike" Cook,** Military Aide to the Secretary of the Air Force; Louisiana AFA President **Toulmin H. Brown;** Oklahoma AFA President **Edward L. McFarland;** Arkansas AFA President **Alexander Harris;** and **Norman Flemens,** National Commander of the Arnold Air Society.

The convention's General Chairman, **John Long,** and his committee chairmen and workers planned and conducted an outstanding convention. In recognition of their efforts, and the efforts of the Texas AFA staff, we are proud to recognize the **Texas AFA** as AFA's "Unit of the Month" for September.

Robert C. Olson, center, and Nick J. Volcheff, right, Phoenix, Ariz., Sky Harbor Chapter President and Past President, respectively, present the Maj. Gen. Barry Goldwater award to Harold J. Bills as the outstanding Chapter member for 1970.

The Washington AFA's fourth annual convention was held in Seattle's Sea-Tac Holiday Inn, May 14–15, and was hosted by the **Seattle Chapter, Sherm Wilkins,** President.

A Friday evening hospitality reception opened the convention program. On Saturday morning, delegates elected the following slate to head the State AFA during the coming year: **Les Keiser,** President; **Dave Tate, Mario Iafrate,** and **Dave Levitch,** Vice Presidents; **Tommie Keiser,** Secretary; and **Norman Rowley,** Treasurer.

At a luncheon held in his honor, AFA National President George D. Hardy spoke briefly on the current objectives of AFA.

Lt. Gen. James V. Edmundson, Deputy Commander, Strike Command (recently renamed Readiness Command), headquartered at **MacDill AFB, Fla.,** was the guest of honor and principal speaker at the convention banquet.

Mr. Hardy addressed his remarks to the POW/MIA situation and pledged "that we will continue to intensify our national and chapter-level programs aimed at 'telling it to Hanoi' until there is full redress. And we will not rest until the ultimate goal is achieved—the freeing of *all prisoners.*"

Following his remarks, Mr. Hardy presented an AFA Certificate of Honor to **Svien Gilje,** military-affairs writer for the Seattle *Times,* in recognition of his positive action through newspaper articles in behalf of Americans who are missing in action or held prisoner of war in Southeast Asia.

The Washington AFA's "Man of the Year" award was presented to State President **Clyde Stricker. Richard M. Bond,** Vice President of the **Spokane Chapter,** was Master of Ceremonies.

Honored guests included **Mrs. Linda Ferguson, Mrs. Mary Jane Jensen, Mrs. Marsha Welch, Mrs. Judy Collins, Mrs. Gail Orell,** and **Mrs. Gerri Kerr,** all of whom are POW/MIA wives.

Special guests included **Maj. Gen Howard McGee,** Adjutant General, state of Washington; **Col. Van N. Backman,** Commander, 62d Military Airlift Wing, McChord AFB; **Col. John Burke,** Professor of Aerospace Studies, AFROTC, University of Washington; **Lt. Col. John Allen,** PAS, Central Washington State College; **Col. Stephen Mills,** Commander, Washington Wing, Civil Air Patrol; **Dr. Clayton Gross,** immediate Past President, Oregon AFA; and **Cadet Colonels Steven Crider,** Washington State University, **Scott Stiltner,** Central Washington State College, and **James Daily,** University of Washington, 1971 recipients of AFA's AFROTC Silver Medal.

The **South Carolina AFA's** annual business meeting was hosted by the **Columbia Chapter** at the Town House Motor Inn on May 22.

Maj. Gen. James F. Hackler, USAF (Ret.), was reelected to serve a second term as the President of the State AFA. Other officers elected: **Walter Andrews** and **Grady L. Patterson,** Vice Presidents; **H. Foster Hamilton,** Secretary; and **James Kendrick,** Treasurer.

Plaques were presented to **James C. Alexander, Paul O. Batson, III,** and **Michael L. Fox,** outstanding ROTC cadets from the University of South Carolina, Clemson University, and The Citadel, respectively.

Lt. Gen. Alvan C. Gillem, II, Commander, Air University, was guest speaker. General Gillem gave an up-to-date and vivid account of the air war in Southeast Asia, and expressed concern over the distortion of news stories reaching the American public.

Lester C. Curl, National Vice President for **AFA's Southeast Region,** was a special guest at the meeting.

More than 300 **AFA** members attended the **Georgia AFA's** annual convention in Savannah, June 5–6, at which delegates adopted resolutions pertaining to the addition of a sophisticated offensive manned-bomber fleet to the Strategic Air Command, National Guard Technician Retirement, and lowering the retirement age for Reservists.

H. L. Everett of Macon was elected to succeed **William H. Kelly** as President of the state organization. Elected to the office of Vice President: **Edwin R. Johnson** of Atlanta, **Dr. Dan Callahan** of Warner Robins, and **Don Devlin** of Savannah.

During the awards banquet, highlight of the convention, AFA Certificates of Honor and Awards of Merit were presented to a number of individuals and organizations *(see p. 109).*

An AFA citation was presented to US **Rep. G. Elliott Hagan** (D-Ga.) for "outstanding service" as a member of the House Armed Services Committee. The citation was presented by **Maj. Gen. S. Ernest Vandiver,** Adjutant General of Georgia, and the first President of the Georgia AFA.

Citations also were presented to **Dr. Callahan** as the **Georgia AFA's** "Man of the Year"; to the **Savannah Chapter** as the most outstanding chapter with membership under 500; and to the **Middle Georgia Chapter** as the most outstanding unit with a membership exceeding 500 persons.

Certificates of Merit went to outgoing state officers **Edwin R. Johnson, J. D. Walker, Don Devlin, Corley Shearouse,** and **Homer V. Hockenberry;** to the 165th Military Airlift Group; the 128th Military Airlift Squadron; to committee members **Bob**

This Is AFA

The Air Force Association is an independent, nonprofit airpower organization with no personal, political, or commercial axes to grind; established January 26, 1946; incorporated February 4, 1946.

Membership

Active Members: US citizens who support the aims and objectives of the Air Force Association, and who are not on active duty with any branch of the United States armed forces—$10 per year.

Service Members (nonvoting, nonofficeholding): US citizens on extended active duty with any branch of the United States armed forces—$10 per year.

Cadet Members (nonvoting, nonofficeholding): US citizens enrolled as Air Force ROTC Cadets, Civil Air Patrol Cadets, Cadets of the United States Air Force Academy, or a USAF Officer Trainee—$5.00 per year.

Associate Members (nonvoting, nonofficeholding): Non-US citizens who support the aims and objectives of the Air Force Association whose application for membership meets AFA constitutional requirements—$10 per year.

Objectives

• The Association provides an organization through which free men may unite to fulfill the responsibilities imposed by the impact of aerospace technology on modern society; to support armed strength adequate to maintain the security and peace of the United States and the free world; to educate themselves and the public at large in the development of adequate aerospace power for the betterment of all mankind; and to help develop friendly relations among free nations, based on respect for the principle of freedom and equal rights to all mankind.

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Norman Flemens (ex-officio), National Commander, Arnold Air Society, Austin, Tex.

VICE PRESIDENTS

Information regarding AFA activity within a particular state may be obtained from the Vice President of the Region in which the state is located.

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(916) 458-2616
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708 Francis Palms Bldg.
Detroit, Mich. 48201
(313) 564-5000
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Michigan, Wisconsin, Illinois, Ohio, Indiana

AFA News

Herbison, Charles E. Miller, Jr., and **H. L. Everett;** to **Col. Clarence Parker,** Moody AFB; and to the Savannah plant of the **Grumman Aerospace Corp.,** for its outstanding community relations efforts.

Special guests included **Brig. Gen. Joel B. Paris, III,** Assistant Adjutant General of Georgia; AFA National Vice President **Lester C. Curl,** Melbourne Beach, Fla.; AFA National Director **Martin H. Harris,** Orlando, Fla.; Florida AFA President **Taylor Drysdale,** Orlando; Florida AFA President-elect **Dan Callahan,** Maj. Gen., USAF (Ret.), Cocoa Beach; **Col. Carl G. Schneider,** Commander, 3550th Pilot Training Wing, Moody AFB; and ten Vietnamese student pilots who are undergoing pilot training at Hunter Army Airfield.

The military host was **Brig. Gen. Eugene M. Lynch,** Commander of the Hunter AAF-Fort Stewart complex.

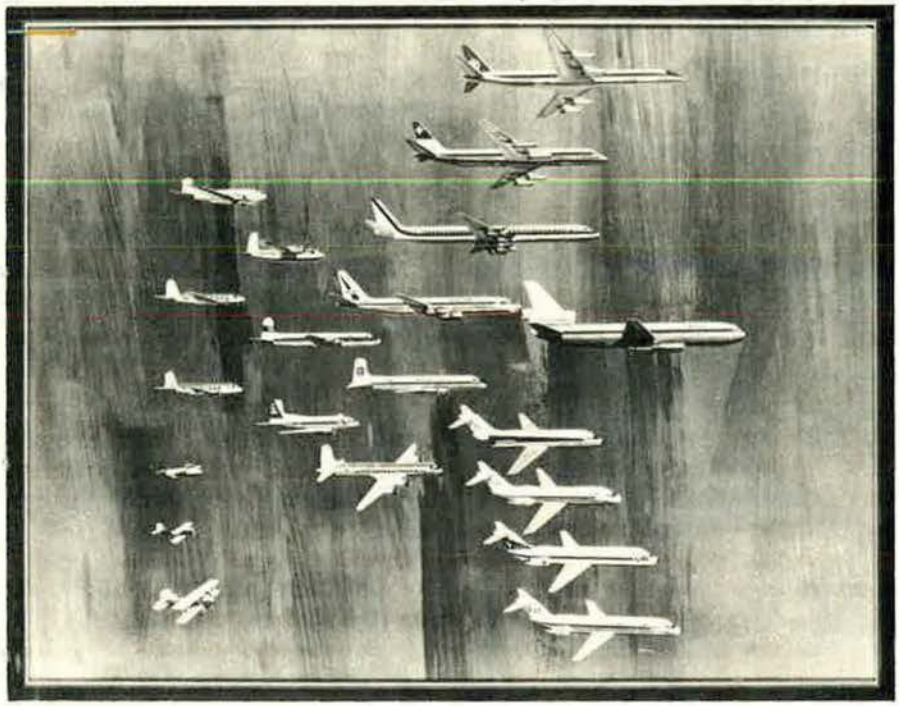
Meeting in the Olde Colony Motor Lodge Conference Center in Alexandria, delegates to the **Virginia AFA's** 1971 convention reelected the following incumbent officers: **Richard C. Emrich,** President; **Kenneth Rowe** and **Orland "Jack" Wages,** Vice Presidents; **Leonard C. Woody,** Secretary-Treasurer; **Clifford A. Dougherty,** Judge Advocate; and **Ray Ricketts,** Organization Director.

The business session agenda included a presentation by **Lt. Col. John Walton,** Office of Information, Office of the Secretary of the Air Force, on **"Project Aware,"** which depicts the Air Force as a national resource.

Hosted by the **Northern Virginia Chapter,** the convention dinner-dance featured an address by AFA National President **George D. Hardy.**

Speaking of the critical requirement for the Air Force's B-1 strategic bomber, Mr. Hardy said, "I would like to talk to you about a weapon system, caught up in a symptomatic way, in destructive polemics and threatened by narrow politics. Defending it in the star chamber pro-

At a Middle Georgia Chapter meeting, gold watches went to ***CMSgt.*** *James H. Tucker, Air National Guard "Airman of the Year"; and to MSgt. Ernest G. Burris, "Outstanding Airman" at Robins AFB. From left, Brig. Gen. Joel B. Paris, III, Assistant Adjutant General of Georgia; Sergeant Tucker; Sergeant Burris; and Georgia AFA President William H. Kelly.*



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AFA'S BOLDEST, NEWES

EXTRA INCOME

THREE PLANS TO CHOOSE FROM

☐ MEMBER ☐ MEMBER & SPOUSE ☐ ENTIRE FAMILY

WHAT IS AFA EXTRA INCOME HOSPITAL INSURANCE?

For every day you (or members of your family, if you have elected family coverage) are hospitalized AFA sends you money for up to 365 days . . . money you can use as you wish, without restrictions of any kind.

WHO IS ELIGIBLE?

Any United States citizen under the age of 60 who is or becomes a member of the Air Force Association is eligible to apply for AFA Extra Income Hospital Insurance for himself, his spouse, and unmarried children more than 14 days and less than 21 years of age.

HOW ARE BENEFITS PAID?

Once AFA receives verification that hospitalization has taken place, you will receive a benefit check within seven days with additional checks thereafter on a weekly basis upon AFA receiving certification of your continued hospitalization.

FIRST TIME OFFERED TO ACTIVE DUTY MILITARY PERSONNEL

HOW MUCH EXTRA INCOME DO YOU NEED? CHOOSE THE BENEFIT AMOUNT YOU REQUIRE FROM THIS FLEXIBLE GROUP PLAN!

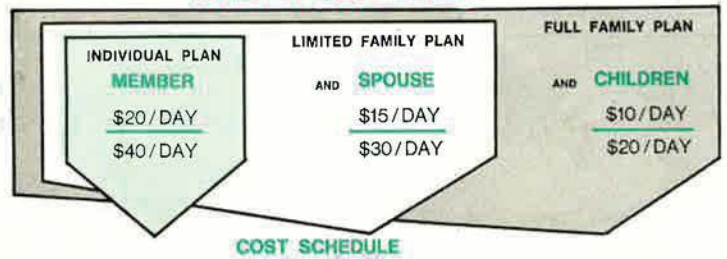
1. You are the key to family finances. How much extra money would your family need if you were hospitalized? Check Plans A-1 and AA-1.

2. Does part of the family income depend on a working spouse? Would a cook, or maid or housekeeper be needed during a wife's hospitalization? How much would this, and other expenses cost? Check Plans A-2 and AA-2.

3. If you have a family, you should consider providing extra income for children's hospitalization. Accidents involving whole families *do* happen, especially with military families living around the world. Check Plans A-3 and AA-3.

And remember: Benefits are paid up to 365 days of hospital confinement for *each* accident or sickness for *each* insured person while the patient is under the care of a legally qualified Doctor of Medicine.

BENEFIT SCHEDULE



COST SCHEDULE

Member's Age	INDIVIDUAL PLAN A-1 Member: $20 per day		LIMITED FAMILY PLAN A-2 Member: $20 per day Spouse: $15 per day		FULL FAMILY PLAN A-3 Member: $20 per day Spouse: $15 per day Children: $10 per day	
	Annual	Semi-Annual	Annual	Semi-Annual	Annual	Semi-Annual
Under 40	$ 29.00	$15.50	$ 59.00	$ 30.50	$ 74.00	$ 38.00
40-49	$ 37.00	$19.50	$ 72.00	$ 37.00	$ 86.00	$ 44.00
50-59	$ 53.00	$27.50	$103.00	$ 52.50	$118.00	$ 60.00
60-64	$ 76.00	$39.00	$147.00	$ 74.50	$162.00	$ 82.00

Member's Age	PLAN AA-1 Member: $40 per day		PLAN AA-2 Member: $40 per day Spouse: $30 per day		PLAN AA-3 Member: $40 per day Spouse: $30 per day Children: $20 per day	
	Annual	Semi-Annual	Annual	Semi-Annual	Annual	Semi-Annual
Under 40	$ 54.00	$28.00	$107.00	$ 54.50	$134.00	$ 68.00
40-49	$ 68.00	$35.00	$132.00	$ 67.00	$159.00	$ 80.50
50-59	$100.00	$51.00	$195.00	$ 98.50	$222.00	$112.00
60-64	$147.00	$74.50	$284.00	$143.00	$312.00	$157.00

WHY DO YOU NEED EXTRA INCOME HOSPITAL INSURANCE?

Hospital costs for Non Military Families are climbing out of sight!

In 1966, according to the American Hospital Association, average *total cost* per hospital admission was $380.39 — *up 412%* in just 20 years.

Average 1966 cost per hospital day, over an average hospitalization of 7.9 days, was $48.15 — a figure which includes only basic costs.

And costs are going higher. Other authorities estimate that average cost per hospital day may reach $100 by 1980.

Would your present hospital benefits begin to cover this cost? Do they even cover today's costs?

Military Families Can Have Severe Money Losses Caused By Hospitalization

Military families as well as civilian families can be financially hurt by the indirect expenses of hospitalization and serious illness.

Even if every cent of direct hospital cost is covered by government benefits (or hospital insurance) there may be hundreds or thousands of dollars in indirect losses. For example:

Loss of income, especially when more than one member of the family works

Extra travel expense (sometimes for long distances) for other family members

Cost of housekeeper or "sitters"

Special diets, sometimes for long periods

Expense of special home care.

AFA EXTRA INCOME HOSPITAL INSURANCE PROVIDES THIS MONEY. BENEFITS ARE PAID DIRECTLY TO YOU — AND YOU USE THIS MONEY TO BEST SUIT YOUR NEEDS.

SURANCE PROGRAM

HOSPITAL INSURANCE

Pays CASH benefits up to $40 per hospital day for each insured person!

All AFA members — military and civilian — and their families are eligible.

OTHER BENEFITS

Protected AFA members may continue their coverage at the low, group rate to Age 65, or until they become eligible for Medicare, whichever is earlier. Hospitalization for **all** sicknesses and accidents is covered, except for a few standard exceptions listed under "Exclusions."

LIMITATIONS

Hospital confinements separated by less than three months for the same or related conditions will be considered continuations of the same confinement.

Coverage will continue through the life of the master policy unless terminated for whichever of the following reasons occurs first for the protected person: (a) attains age 65; or (b) becomes eligible for Medicare; or (c) AFA membership dues are due and unpaid; or (d) a premium payment is due and unpaid. For dependents, coverage will continue through the life of the master policy unless terminated for whichever of the following reasons occurs first: (a) such dependent ceases to be an eligible dependent; or (b) the protected person's insurance terminates hereunder; or (c) the dependent spouse either attains age 65 or becomes eligible for Medicare; or (d) any required dependent premium payment is due and unpaid.

EXCLUSIONS

The plan does not cover losses resulting from (1) declared or undeclared war or act of war; (2) service in the armed forces of a country *other than the United States;* (3) acts of intentional self destruction or attempted suicide while sane or insane; (4) pregnancy (including childbirth or resulting complications); (5) confinement in any institution primarily operated as a home for the aged or engaged in the care of drug addicts or alcoholics; (6) illnesses for which the insured has received medical treatment or advice or has taken prescribed drugs or medicines within 12 months prior to the effective date of his insurance. Coverage for such pre-existing illnesses will begin after 12 consecutive months during which he is covered under the policy and receives no such medical treatment or advice and takes no such prescribed drugs or medicine; (7) hospital confinement commencing prior to the date the protected person or eligible dependent becomes insured under this policy.

HOW TO APPLY

Fill out the attached application and mail it to AFA with your first premium payment. You may elect to pay premiums either annually or semi-annually.

APPLICATION

AFA EXTRA INCOME HOSPITAL INSURANCE

Underwritten by ***Mutual of Omaha Insurance Co.*** *Omaha, Nebraska*

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

DATE OF BIRTH _____ CURRENT AGE _____ HEIGHT _____ WEIGHT _____ SEX _____

PLAN OF INSURANCE

MEMBER ONLY	MEMBER & SPOUSE	MEMBER SPOUSE & CHILDREN
☐ PLAN A-1	☐ PLAN A-2	☐ PLAN A-3
☐ PLAN AA-1	☐ PLAN AA-2	☐ PLAN AA-3

METHOD OF PAYMENT ☐ Annual ☐ Semi-Annual

This insurance coverage may only be issued to AFA members. Please check the appropriate box:

☐ I am currently an AFA member.

☐ I enclose $7 for annual AFA dues (Includes subscription ($6) to to AIR FORCE/SPACE DIGEST).

I enclose my initial premium in the amount of $_____ (Refer to premium table to determine correct premium amount.)

Please complete this section only if you are requesting coverage for dependents (Limited Family or Family Plan) and list only those persons for whom you are requesting coverage.

FULL NAME	RELATIONSHIP TO AFA MEMBER	SEX	DATE OF BIRTH
	WIFE (HUSBAND)		
	child		
	child		
	child		
	child		
	child		
	child		

In applying for this insurance coverage, I understand and agree that:

1. coverage shall become effective on the last day of the calendar month during which my application together with the proper premium amount is mailed to AFA;
2. only hospital confinements commencing after the effective date of insurance are covered, and
3. any condition for which I or any of my eligible dependents received medical treatment or advice or have taken prescribed drugs or medicine within twelve months prior to effective date of the insurance coverage will not be covered until the expiration of twelve consecutive months of insurance coverage without medical treatment or advice or having taken prescribed drugs or medicine for such condition.

DATE _____ SIGNATURE _____

Application must be accompanied by check or money order. Send remittance to:

INSURANCE DIVISION, AFA, 1750 PENNSYLVANIA AVE., N.W., WASHINGTON, D.C. 20006

Form 2332MGC App. 9/71

ceedings of the antidefense coalition is AFA's most pressing task at this time.

"The weapon system in question is vital to the defense of the United States, and the attacks against it are really the opening round of a campaign that could enfeeble the military posture of this country to a point of hopeless prostration, if we let it succeed.

"I am talking about the massive and well organized attack in the Congress on the defense budget that is lethal in intent and ingenious in its use of half-truths and no truths at all, and whose first target was the Air Force's B-1 bomber program."

During the awards portion of the program, Mr. Hardy presented the Virginia AFA's "Exceptional Service Award" to **William M. Magruder,** Director, Office of SST Development, Department of Transportation, in recognition of his outstanding efforts on behalf of the SST program. The **Richmond Chapter** was named the State AFA's "Chapter of the Year," and **George W. McKay,** President of the **Roanoke Chapter,** received the "Member of the Year" award.

William R. McCall, Jr., President of the host chapter, was Master of Ceremonies, and special guests included **David Spangler,** National Vice President for AFA's Central East Region; and **A. Paul Fonda,** a permanent member of AFA's Board of Directors.

Cheyenne, Wyo., Chapter President Conley B. Stroud, Jr., left, presents the Chapter's newly established "AFA Outstanding Junior Officer Award" to Capt. Edward Burchfield, a missile combat crew commander at F. E. Warren AFB. The award will be presented annually to the outstanding junior officer of F. E. Warren AFB, Wyo.

The **Steel Valley, Pa., Chapter,** one of AFA's newest chapters, held its Charter Night Dinner on June 26 in West Mifflin's Holiday Inn.

Arthur E. Anderson, Engineering Manager of **Westinghouse Electric Corp.'s Specialty Electronics Division** in Pittsburgh, was guest speaker. Pennsylvania AFA President **Robert Carr** presented the Chapter's AFA charter and **Judge John Brosky,** National Vice President for AFA's **Northeast Region,** installed the officers of the newly chartered chapter. The officers are: **Jaye Bigda,** President; **Dorothy Luptak,** Vice President; **Mary Filo,** Secretary; and **Helen Dudas,** Treasurer.

Other program participants included AFA National Director **Carl J. Long,** Master of Ceremonies; Greater Pittsburgh Chapter President **Edmund J. Gagliardi,** welcoming remarks; and **Rev. Robert C. Armstrong,** invocation.

Ogden, Utah, soon will be sporting a brand new fire engine—or at least it will look like one after the **Utah AFA** gets through rebuilding it.

The engine is a type formerly used by the Air Force and declared surplus to its needs. It has been turned over to the city of Ogden, and Utah AFA members have volunteered to rebuild the truck, using the automotive shops at **Weber State College.** It is estimated that the job will take 4,000 man-hours and should be completed in the fall.

The Utah AFA established a skilled labor force for such tasks a little over a year ago when members reconstructed an F-4 jet fighter and presented it to the Air Force Academy, where it is now on display.

"Rebuilding a fire engine presents no great problems," Utah AFA President **Glen Jensen** said. "AFAers can do the job." With such enthusiasm and determination, it is no small wonder that the Utah AFA is successful in every task it undertakes and contributes much to AFA's mission.

IN SYMPATHY . . . AFA mourns the loss of two of Florida AFA's outstanding leaders. **Tom Davis,** who had served AFA with distinction at both state and chapter levels, died on May 18. Then, on August 2, Florida AFA's Treasurer, **Leonard T. Geyer,** passed away. AFA extends its deepest sympathy to the families of these two dedicated AFAers.

COMING EVENTS . . . **AFA's Twenty-fifth Anniversary National Convention and Aerospace Development Briefings,** Shoreham and Sheraton-Park Hotels, Washington, D. C., September 19–23 . . . **Alabama AFA Convention,** Birmingham, October 9 . . . **New Jersey AFA Convention,** Atlantic City, October 15–17 . . . **Pennsylvania AFA Convention,** Lewistown, October 29–30 . . . **Michigan AFA Convention,** Detroit, November 6. ■

At the Virginia AFA's 1971 convention banquet, AFA National President George D. Hardy, left, presents the State AFA's "Exceptional Service Award" to William M. Magruder, Director, Office of SST Development, Department of Transportation, for his outstanding efforts in behalf of the SST program.

Air Force Association

SILVER ANNIVERSARY MEDALS

struck in Solid Palladium * and Solid Sterling Silver

Lt. Gen. James H. Doolittle (Ret.) examines AFA's 25th Anniversary medallion presented to him during ceremonies commemorating the Silver Anniversary event on February 9, 1971.

A limited edition commemorative medal has been commissioned to honor the Silver Anniversary of the Air Force Association and its dedication to American achievement in the aerospace field.

These serially numbered, deep relief medals and medallions will be struck in solid palladium * and in sterling silver by The International Mint whose master engravers created the personal presentation medals for each Apollo flight crew.

The obverse design of the heavy gauge, jeweler's antique finish medal depicts the Air Force Association wings as interpreted by the well-known medallic designer, Donald Struhar, whose work includes the International Mint "History of America's Men in Space" and commemorative art for the United States Air Force Academy.

The finely detailed reverse design bearing the legend "Power for Freedom", recreates the World Congress of Flight symbol over an arc of 25 stars.

To insure the limited edition status of this medallic tribute to the Air Force Association, The International Mint will restrict the serially numbered commemorative issues to the following mintages:

SOLID PALLADIUM *	
2½" Medallion	25
39mm Medal	250
SOLID STERLING SILVER	
2½" Medallion	2,500
39mm Medal	10,000

Those wishing to subscribe to all four issues or to both sizes in either palladium or sterling will receive matched serially numbered sets. These sets and the 2½" medallion will be housed in handsome desk-top collector displays. Subscribers to the 39mm medals will receive a specially designed Clear-Vue holder which allows display of both sides of the medal without requiring its removal.

Subscription details are included in the limited edition subscription form below. Since applications will be handled in strict rotation, may we suggest you act now, so as to ensure acquisition of this unique medallic tribute to the Air Force Association.

* A rare, lustrous, silver-white metal approximately equivalent in value to 24K Gold.

© Air Force Association, 1971

Air Force Association Silver Anniversary Medal

Limited Edition Subscription Application

9/71

Please make check payable to: **Air Force Association**
and mail to: **1750 Pennsylvania Avenue, N.W.**
Washington, D.C. 20006

Please enter my order for the following AFA Silver Anniversary medallic issue(s):

QUANTITY	ITEM	PRICE	EXTENSION
_____	Complete set of four issues	$1195.	_____
_____	Set(s) of Palladium issues	$1150.	_____
_____	Set(s) of Sterling Silver issues	$ 45.	_____
_____	2½" Palladium issue(s)	$1000.	_____
_____	39mm Palladium issue(s)	$ 150.	_____
_____	2½" Sterling Silver issue(s)	$ 35.	_____
_____	39mm Sterling Silver issue(s)	$ 10.	_____
	Washington, D.C. residents, please add 4% sales tax	TOTAL	_____

I understand that all orders will be handled in strict rotation and that my check will be refunded promptly should this edition be over-subscribed.

NOTE: As a convenience to subscribers, The International Mint will embed your medals in clear lucite vertical wedges for use as desk ornaments. Add $5.00 for each 39mm medal and $8.00 for each 2½" medallion.

The International Mint, Inc. is a wholly-owned subsidiary of The Robbins Company Medallists since 1892. It is not affiliated with the U.S. Mint or any other government agency.

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STREET _____

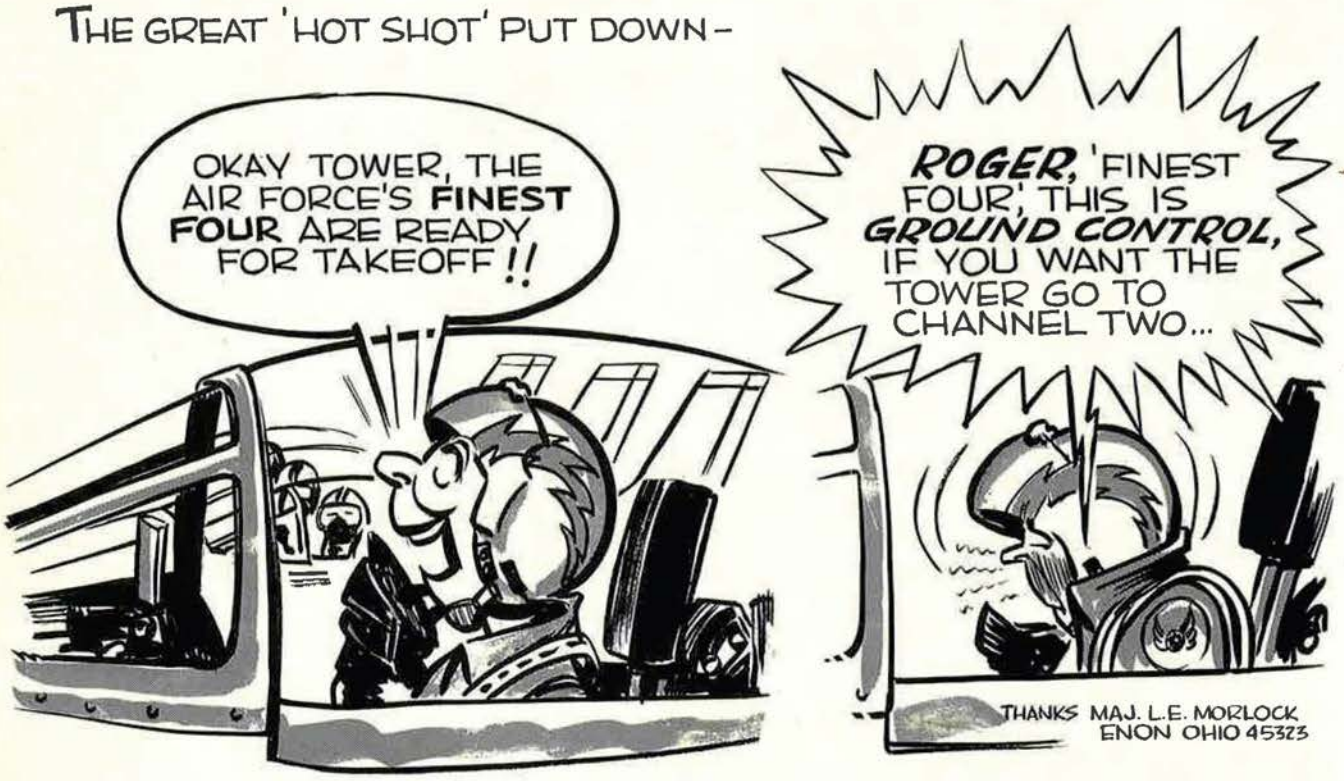
CITY _____ **STATE** _____ **ZIP CODE** _____

Bob Stevens'

"There I was..."

To tell the world in line-of-sight
That you're a horse's rear,
Just mash the mike before you think,
And everyone will hear.

THE GREAT 'HOT SHOT' PUT DOWN –



THE AIR HOG–

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Bob Stevens

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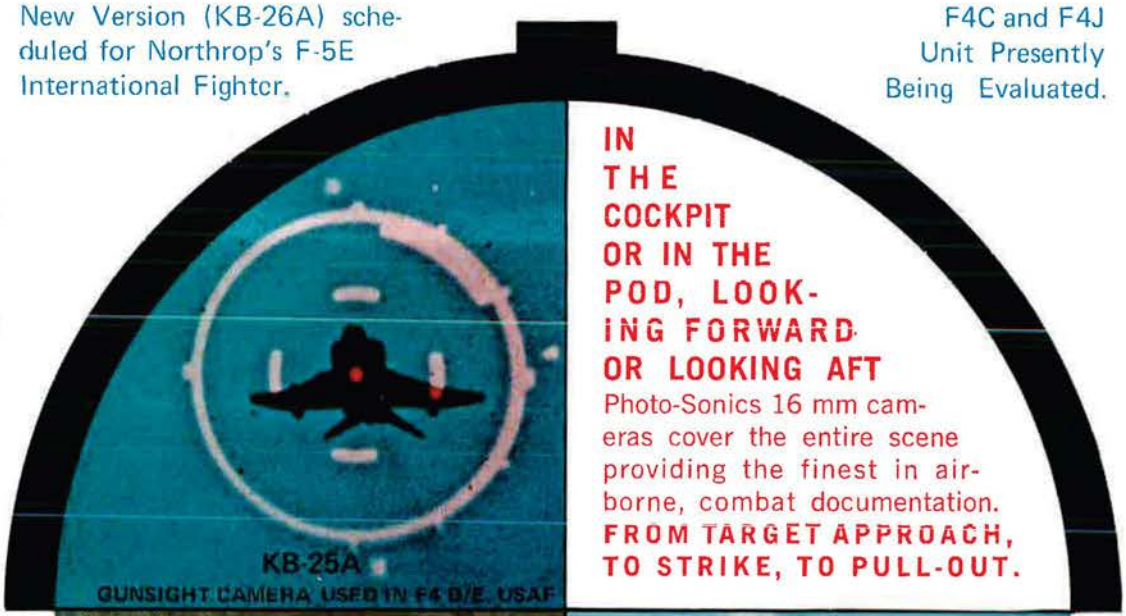

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Pod-mounted, forward-looking.
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in the air battle arena.**

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