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AIR FORCE

PUBLISHED BY THE AIR FORCE ASSOCIATION MAGAZINE

Aerospace Review

AEROSPACE REVIEW 72/73

By John W. R. Taylor
Editor,
Jane's All the World's Aircraft

Augmentor Wing Jet STOL Research C-8A

STOLAND: Sperry's there... with integrated digital avionics.

Sperry is developing STOLAND—a guidance, navigation, control and electronic display system to be used by the NASA Ames Research Center to investigate approach and landing techniques for STOL transport aircraft. The investigation is part of a joint DOT/NASA STOL operating systems flight experimental program.

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SPERRY

AIR FORCE MAGAZINE
PUBLISHED BY THE AIR FORCE ASSOCIATION

VOLUME 56, NUMBER 1

JANUARY 1973

THIS MONTH

THIS MONTH'S COVER . . .

Aerospace—today and tomorrow—is the subject of the special report starting on p. 24, by John W. R. Taylor, internationally renowned editor of Jane's All the World's Aircraft.

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An Editorial

Vietnam: Something to Remember

By John L. Frisbee
EXECUTIVE EDITOR, AIR FORCE MAGAZINE

THE YEAR past has special significance for airpower. For once, critics agree with supporters: Airpower was the prime force in halting North Vietnam's invasion of the South. And so we have reached the down side of the mountain. For the first time in the better part of a decade—our concern for the POWs excepted—Vietnam is not at the top of the Air Force list of priorities and preoccupations, though there undoubtedly will be USAF forces in Southeast Asia for some time.

It will be many years before an objective evaluation of our total Vietnam experience can be struck. Now it appears that the level of US involvement reached between 1965 and 1969 was not in the national interest. But nations, like people, learn through experience, sometimes with unexpected rewards. It took World War II to convince Americans that isolationism was not in their best interests. That particular lesson came at a time when the USSR was able and willing to extend its control over all of Europe had it not been for the power of a no longer isolationist America. In the long run, the positive side of the Vietnam experience may also offset—perhaps even justify—its terrible costs.

Undeniably there are negative aspects, both political and military, to our involvement in Vietnam. There is no dearth of commentators to expose that side of the ledger, and, insofar as they stick to facts, they must be heeded. Not so for the instant revisionists who would have it that the US is responsible for inflicting the horrors of war on the innocents who run things from Hanoi. General Giap's open invasion of South Vietnam and the brutality with which it was conducted have left the revisionists without a rug to stand on, in any case.

On the positive side of the Vietnam ledger, we cite three items. The first has to do with protecting vital national interests that may be threatened by force. Deterring such threats depends on forces in being, but our willingness to use them if necessary must be obviously credible. That credibility rests in turn on an unambiguous commitment that is crystal clear and firmly articulated.

Whether the independence of South Vietnam was, or wasn't, a vital US interest remains debatable. But it is not debatable that we made a commitment to South Vietnam and that the great majority of Americans have supported it, even though they had little enthusiasm for the war itself. This despite a sustained barrage of propaganda and argumentation against US involvement in the war.

Perhaps only by honoring a national commitment that was *not* clearly in defense of a vital interest could the credibility of other US commitments, present and future, be made absolute.

To understand the tragedies that can result from commitments that were not believed, because both the forces and the will were obviously lacking, we need only turn to the trail of broken promises of the 1930s, which set the stage for World War II and its 40,000,000 killed and wounded.

The second and third items are corollary to the first. They bear on the definition and the implementation of national policy.

When a national commitment is entered into, whether or not it involves a vital national interest, it carries with it a moral obligation comparable to the obligations that go with adopting a child. The protected one cannot be abandoned until it is able to fend for itself, unless the protector is willing to forfeit his standing in the community. This argues for a better definition of national interests than has usually been the case in the past.

Finally, as we learned after nearly four years of combat in Vietnam, there can be no acceptable outcome to this kind of problem so long as the immediate cause of the problem is ignored. In the case of South Vietnam, the immediate cause of our massive involvement was South Vietnam's weakness—political, economic, and military—that threatened total collapse in 1965.

In the name of "efficiency" our defense policy-makers chose, between 1965 and 1969, to take over the war, rather than to remedy the most critical weakness by developing indigenous forces that could defend the country. It was not until 1969 that a serious effort to build a viable economy, acceptable political institutions, and credible defense forces got under way. The Vietnamization program, and the dedication and professionalism of our airmen who bought the time and provided much of the training to make it a success, are two bright chapters in the long and dismal history of the war.

US national interests aside, 18,000,000 South Vietnamese, the vast majority of whom do not want to live under Communist rule, have been saved from that fate. Whether we have put them firmly on the road to a better life, or only granted a reprieve, is now theirs to decide.

These are things that Americans, who have some voice in the formulation of national policy, should remember. The calendar can no more be turned back to 1964 than it can be turned ahead to 1984. Who can say that our constancy in Vietnam will not, in times to come, avert even greater tragedy? Or that the lessons we learned there may not save us from the follies that have beset once great nations which are no more. ■

The Air Force A-7D
A classic in its own time

VOUGHT AERONAUTICS

Progress Report:

New Westinghouse passes roof-top tests.

The WX-200 radar in system test. The radar is coherent, and provides a "Clean Scope."

WX-200 radar Flight test next!

The cassegrain antenna provides greater-than-hemispheric coverage. Has simple electric drive, no rotary joints.

Unique programmable signal processor allows changes in radar characteristics via software.

Westinghouse has developed a new family of radars to a cost, with high reliability/maintainability, balanced performance, and modular design—to minimize the cost of ownership.

Example: the WX-200 (centerline design) weighs 350 lb, will cost $200K. It's modular, will provide 100 hours MTBF, will fit most aircraft. The seven autonomous LRUs have built-in test functions. The unique antenna provides greater-than-hemispheric coverage.

Take a moment to look at these photos of the WX-200 test area. For more information, call Dallas Knudson, Marketing Manager at 301 765-2237. Westinghouse Defense & Electronic Systems Center, Baltimore, Md. 21203.

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

Airmail

Communication of Ideas

Gentlemen: Col. William R. Edgar's article, "Communicating With the Young," in the October issue, has sage advice for all of us in the Air Force who would like to transmit ideas more effectively.

It's not simple, as Colonel Edgar knows well from his background as a wing commander and a major command director of information. With his kind of experience, he should be heeded when he says we can succeed only in internal mass communication "by individuals, up and down the line, achieving mutual rapport and mutual respect. This calls for everyone in the Air Force doing his part to understand and be understood."

I'm sure that all of us involved in the Internal Information program throughout the Air Force share Colonel Edgar's concern that we constantly try to develop and use the most effective methods in maintaining a highly motivated US Air Force.

COL. JOHN R. DELMORE
Chief, Internal Information Div.
SAFOI
Washington, D. C.

Air Commandos/Green Berets

Gentlemen: On page 14 of your October 1972 issue, Claude Witze, Senior Editor, states: ". . . and we paid the bill, a high one, for the Green Berets, who could not win a war in the jungle. Neither could the Air Commandos." The implication is that the Green Berets and the Air Commandos cost the American taxpayer huge sums of some indefinite substance —money, prestige, public esteem, world opinion—which is of great value. ". . . we paid the bill, a high one, for the Green Berets . . . [and] the Air Commandos." What was the cost of the efforts of the US Army Special Forces and the USAF Air Commandos in Vietnam vs. the cost of the efforts of all the other US military units which were committed to that unended struggle?

. . . I submit that the mission of these organizations was not to win a war but to help the South Vietnamese to win their war. I further submit that President Nixon's current, and successful, "Vietnamization" program is merely a logical follow-on to the original Special Forces/Air Commandos missions.

How quickly everyone has forgotten that the Green Berets and the Air Commandos were among the first organized US military units to become actively engaged against the Viet Cong in combat. I am speaking of 1961, 1962, and 1963, when Vietnam was completely unknown to most military men, let alone the average American. Eleven years later the Air Commandos are still fighting in Vietnam. The 8th SOS and 56th SOW are merely Air Commandos with the name changed.

Don't forget this: Capt. Roger Donlon, US Army Special Forces, was the first US Army officer to win the Medal of Honor in Vietnam. And Maj. Bernard Fisher, USAF Air Commando, was the first USAF officer to do the same. What bill did we pay for these men?

LT. COL. WILLIAM R. COX
APO San Francisco

Good Photo-Interpreters

Gentlemen: Reference the review of James McGovern's book, *To the Yalu,* by Capt. Robert J. Scauzillo in the October 1972 "Airman's Bookshelf," I want to set the record straight.

The 8th Tactical Reconnaissance Squadron (formerly the 82d TRS), Fifth Air Force, FEAF, stationed at Yokota Air Base, Japan, not only had photo-interpreters in 1950, but had damn good ones, including people who learned the trade in World War II and had been at it continuously since. We took our RF-80s into action on the second day of the war, first out of Itazuke, then K-2, and those technicians did an exceptional job.

Stateside, TAC's 363d Tactical Reconnaissance Group, first of Langley and later Shaw Air Force Bases, had similarly well qualified people, as did SAC's Strategic Reconnaissance units and some of the ANG recce outfits we retrained from Mustangs to jets on recall to active duty.

While those were lean days for reconnaissance, a lot of talent was on hand and working at the trade.

MAJ. GEN. BRYCE POE II
Hq. USAFE
APO New York

• *In his review of* To the Yalu, *Captain Scauzillo cautioned readers about some of author McGovern's statements. One such statement is that in 1950, USAF "had not one expert qualified in the art of photo interpretation."*—THE EDITORS

Second Hat

Gentlemen: Speaking for the Command, the Commander, and myself, thanks for publication of "The Triad . . . Plus 'One'" in the November issue. . . . I thought the layout was particularly outstanding!

. . . There was an error in the introduction at the top of page 48. The second sentence reads, "ADC's Commander wears a second hat as Commander of the Continental Air Defense Command (CONAD), the same NORAD organization minus its Canadian members." It should, of course, have said that CINCNORAD (not the ADC Commander) "wears a second hat as. . . ." Lt. Gen. Thomas K. McGehee, the ADC Commander, does *fill in* as Commander CONAD, *but only* in the absence of CINCNORAD. . . .

COL. SHELDON I. GODKIN
Ent AFB, Colo.

Airmen of SEA

Gentlemen: My compliments on John L. Frisbee's fine article about the 8th SOS [*"Mission: Troops in Contact," October '72*]. The 8th has been one of the stars in the crown of the 377th. As noted, the 8th has a long and special pedigree. The men who have served with the 8th in Vietnam have lived up to and tremendously enhanced that reputation.

He picked fine men to write about in the article. There's something special about men like Uncle Al Moore and Jim Pueppke, who fight so hard to see the job through. In

other respects, they are typical of all the fine young men who served in the 8th and in their close combat companion outfits like the 21st TASS, the Air Cav, and MAG 12. Their identification with the guys on the ground, their dedication to the mission, and their professionalism speak for themselves.

As you said in your final paragraph, "Vietnam isn't the crunch for the US, but if the crunch ever comes, they're our survival kit, and we'd better not forget it. Ever." To this I say, "Amen."

COL. DAVID A. ODELL
Commander
Hq. 377th Air Base Wing (PACAF)
APO San Francisco

Tales of the B-26

Gentlemen: I read with interest Col. William R. Fitzgerald's letter in the November 1972 issue, responding to a previous letter asking, "Could a Martin Marauder B-26 fly single engine?"

Colonel Fitzgerald is quite accurate in his reply that it could. I will attest to this by adding to his data the following:

I, too, was in Col. Wilson R. Wood's 323d Bomb Group, as well as in his squadron (454th Bomb Squadron) before he was promoted. I was the squadron bombardier and, on a mission to Amsterdam/Schipol Airdrome, Holland, in December 1943, while flying with Maj. George P. Gould, we lost our right engine to flak over the target just after bomb release. George Gould, with elevator control shot away and on single engine, flew back to England, where we crash-landed at Woodbridge Emergency Airstrip. One tire was pierced by flak, and the nosewheel collapsed on landing, causing the aircraft to explode and burn. All crew members escaped without injury. Later we found the good engine had a jug shot out by flak.

The old bird not only could, but did fly on a single engine when required, and flew well enough for me to be able to tell about it.

If anyone from the 454th Bomb Squadron or 323d Bomb Group is interested in a reunion, please contact me.

COL. WALTER J. WILSON, USAF (RET.)
El Dorado Hills, Calif.

Gentlemen: To add to the lore of the B-26, and the discussions which have centered around its performance on a single engine, let me add this—it flew very, very well with *both* props feathered!

In mid-1943, I was Engineering Officer of the 313th Squadron, 21st Bomb Group—the OTU outfit at MacDill Field, Fla., where the "plane a day in Tampa Bay" saying originated. We had noticed that B-26s required to make belly landings, because of landing gear or other malfunctions, invariably overshot the runway whenever both props had been feathered at the last instant before such a landing.

Some of the "veteran" pilots—those who had a few months' experience—felt that the plane had excellent aerodynamic characteristics, and also felt that the hazards of flying this plane had been overemphasized. To check these observations, two of the pilots went up one day, and I rode along as aerial engineer. At about 10,000 feet over Tampa, we feathered both engines and flew the plane as a glider. We were amazed at how well it handled.

All three of us were, of course, becoming concerned about the consequences of reporting the incident, as disciplinary action might well have resulted. . . . The lessons learned were, however, very guardedly incorporated in instructions given to new B-26 pilot trainees in our squadron as a part of their power-off emergency landing instructions and probably saved some lives.

WARREN G. MOSES
New Orleans, La.

Gentlemen: . . . the B-26 (Marauder) would fly on one engine. The 2d at Tampa doing the crew training ("one a day in Tampa Bay") said it couldn't be *landed* on one. Demanded all production stopped. Asked for a demonstration. Jack Carter and I went down from Wright Field and did. (Keep high and close and drop the gear latest.)

Designed for 26,000 pounds and flown combat at 36,000 pounds, it had lowest bomber operational loss rate of World War II. The whole flap was a great example of the results of a mixture of: (1) Hap Arnold's sacred cow, (2) early severe teething pains, (3) arrogant contractor, (4) wartime pressures, and (5) political opportunism.

FRANK COOK
Former Colonel, USAF, and Chief, Bombardment Branch, Wright Field
Potrero, Calif.

Chaplain's Program

Gentlemen: Your September edition of AIR FORCE Magazine with the Silver Anniversary review was excellent. . . .

There is, however, one thing I looked for and did not find either in the Anniversary Issue or the May Almanac Issue. I find nothing about the Chaplain's Program. I did not read every word of the magazines, but the only mention I can find of the Chaplain's office is in the Almanac on page 55, when the command and staff are mentioned. I am sure you will agree that the Chaplain's program is a very important part of the military and the Air Force. There have been chaplains in the military since the beginning, and their work has helped greatly in so many ways. I am sure that an article or two on their work in the past twenty-five years would be informative and an inspiration to all your readers.

(REV.) RICHARD F. VAUGHAN
Auxiliary Chaplain
Sheppard AFB, Tex.

Women in the Air Force

Gentlemen: I recently ran across the magazine which you publish and was very pleased with it. However, as a future member of the Air Force, I feel that it lacks something very important.

. . . I will be joining the United States Women in the Air Force. As a future part of the Air Force, I feel that the women do not receive the credit they deserve in your magazine. It is important for citizens to realize the role the women take in the Air Force—their jobs and accomplishments. Also, it is important that the civilians and military are presented with the change that has taken place within the WAF since the last World War.

I'm afraid that you're probably thinking that I am a women's lib fanatic. That's not the case at all. I'm just trying to make evident the need for the WAF to be made publicly known and acknowledged.

DEBRA A. PETERS
St. Louis, Mo.

Fifth Air Force Book

Gentlemen: While working on a book about the B-24 Liberator, my next project began to take shape.

The title of the projected book is *Flying Buccaneers: The Story of the Fifth Air Force.* This will be a large, semipictorial book containing several hundred photos.

Airmail

I am anxious to hear from all veterans of the Fifth Air Force . . . the pilots and crews, the ground crews, the air depot people who turned the B-25s and B-24s into remarkably effective weapons . . . in fact, everybody with something to tell about Kenney's air force.

I particularly need to hear from the fighter pilots, and their help will make or break this book—but anybody from the Red Raiders, Hawkeyes, Jolly Rogers, Flying Circus, Ken's Men, and the Air Apaches will be equally welcome, and the people who flew those A-20s with the Runyon names.

I need to borrow photos, documents, and unit histories, all of which will be returned in original condition with a copy of the completed book. Anybody who'd rather send a tape cassette than a letter, please feel free to do so.

The Fifth made all the headlines in the Pacific during World War II, and I hope to be able to get the story together again all these years later. To do it, I need your help.

STEVE BIRDSALL
53 Wycombe Road
Neutral Bay 2089
Sydney, Australia

World War I Magazine

Gentlemen: I am looking for original cover paintings from some of the pulp magazines published in the nineteen thirties. They were depicting scenes of various World War I aircraft, and the magazines were titled *Wings, War Birds, Aces,* and the like. One of the better known artists simply signed "Blakeslee." The magazines were published in New York on a weekly or monthly basis.

Can anyone give me a lead from which to proceed?

COL. J. HARRISON MANGAN
4515 North 25th Rd.
Arlington, Va. 22207

UNIT REUNIONS

20th AF Vet Tours

The 20th Air Force Association plans two tours in '73. The first will depart March 10 for a 10-day visit to Mexico City, Guadalajara, and Acapulco. In August, for the fourth straight year, the veterans will tour former Pacific Island bases and Asia. All vets and families are eligible to participate at reduced fares. Details may be obtained from

20th Air Force Association
Box 5534
Washington, D. C. 20016

4th Fighter Group

A reunion of members of the 4th Fighter Group, WW II, stationed at Debden, England, during 1942–45, will be held June 22–24, 1973, in St. Louis, Mo. Further information from

R. A. Claspell
909 McKeighan
Flint, Mich. 48507

Class 1949-B

USAF Pilot Class 1949-B is making plans for a reunion. Please contact

Ernie Ozavath
5 Winchester Rd.
Bedford, Mass. 01730
or
Chuck Rakestraw
P. O. Box 146
Bedford, Mass. 01730

49th Fighter Group

A reunion of the 49th Fighter Group will be held at The Holiday Inn West in Asheville, N. C., July 19–21, 1973. For details write

Wm. D. (Doc) Reid
326 Summit Pl., S. W.
Lenoir, N. C. 28645

98th Bomb Group (H)

The 98th Bomb Group (H) Veterans Association will hold their reunion at Virginia Beach, Va., July 31 through August 2. For further details, write to

Joe C. Price
1202 Dellwood Dr.
Valdosta, Ga. 31601

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I certify that the statements made by me above are correct and complete.
John F. Loosbrock

100th Bomb Group, 8th AF, WW II

Have monitored "Unit Reunion" section for years and do not recall seeing notice for a reunion of Century Bombers, Thorpe Abbots, England. Would appreciate comments from former members. Also, is there a copy of a Group History available?

Col. Charles B. Benyunes, USAFRes
3115 Evans St.
Morehead City, N. C. 28557

147th F-I Group

The 147th Fighter-Interceptor Group is holding a 50th Anniversary Reunion at Ellington AFB, Houston, Tex., June 22–23, 1973. Former members of the 147th F-I Group, 11th F-I Squadron, and the 111th Observation Squadron are invited. Emphasis will be on the historical, with displays of vintage aircraft, photographs, and stories that chronicle the rapid development of air weaponry in which the 147th participated. Former members are encouraged to loan or donate any materials that may be of interest. A hardback 50th Anniversary Pictorial Publication is being prepared. For further information contact

Lt. Col. Leroy Thompson
147th Fighter Group
P. O. Box 34567
Houston, Tex. 77034

466th Bomb Group (H)

The 466th Bomb Group (H), stationed at Attlebridge, England, during WW II, will hold its second annual reunion in Colorado Springs, Colo., on July 18. Please send 466th related orders, photos, insignia, current addresses, and requests for additional information to

Lt. Col. J. H. Woolnough, USAF (Ret.)
Unit Historian
7752 Harbour Blvd.
Miramar, Fla. 33023
Phone: (305) 961-1410

Missed Our Deadline

The American Eagle Squadron Association rendezvoused September 22 in Colorado Springs, Colo., for a 3-day reunion of the pilots who flew combat in WW II prior to the US entry in the war. The Association voted to hold its 1973 reunion in March, at Harlingen, Tex. For further information write

James R. Patterson
2714 Logan Circle
Colorado Springs, Colo. 80907

Combined 20th/48th Tactical Fighter Wing reunion was held in Las Vegas, Nev., on October 27–29, 1972. For information on future reunions write

Capt. Donald L. Hutchinson
9 Rickenbacker Dr.
Las Vegas, Nev. 89110

May 5, 1961	Mercury III	Alan Shepard
July 21, 1961	Mercury IV	Gus Grissom
Feb. 20, 1962	Mercury VI	John Glenn
May 24, 1962	Mercury VII	Scott Carpenter
Oct. 3, 1962	Mercury VIII	Wally Schirra
May 15-16, 1963	Mercury IX	Gordon Cooper
March 23, 1965	Gemini III	Gus Grissom, John Young
June 3-7, 1965	Gemini IV,	Ed White, Jim McDivitt
Aug 21-29, 1965	Gemini V	Gordon Cooper, Pete Conrad
Dec. 4-18, 1965	Gemini VII	Frank Borman, Jim Lovell
Dec. 15-16, 1965	Gemini VI	Wally Schirra, Tom Stafford
March 16, 1966	Gemini VIII	Neil Armstrong, David Scott
June 3-6, 1966	Gemini IX	Tom Stafford, Gene Cernan
July 18-21, 1966	Gemini X	John Young, Mike Collins
Sept. 12-15, 1966	Gemini XI	Pete Conrad, Dick Gordon
Nov. 11-15, 1966	Gemini XII	Jim Lovell, Buzz Aldrin
Oct. 11-22, 1968	Apollo VII	Wally Schirra, Walter Cunningham, Donn Eisele
Dec. 21-27, 1968	Apollo VIII	Frank Borman, Jim Lovell, Bill Anders
March 3-13, 1969	Apollo IX	Red Schweickart, Jim McDivitt, David Scott
May 18-26, 1969	Apollo X	Tom Stafford, John Young, Gene Cernan
July 16-24, 1969	Apollo XI	Neil Armstrong, Mike Collins, Buzz Aldrin
Nov 14-24, 1969	Apollo XII	Pete Conrad, Alan Bean, Dick Gordon
April 11-17, 1970	Apollo XIII	Jim Lovell, John Swigert, Fred Haise
Jan. 31-Feb. 9, 1971	Apollo XIV	Alan Shepard, Stuart Roosa, Edgar Mitchell
July 26-Aug. 7, 1971	Apollo XV	Dave Scott, Jim Irwin, Alfred Worden
April 16-27, 1972	Apollo XVI	John Young, Charles Duke, Ken Mattingly
Dec. 7-19, 1972	Apollo XVII	Gene Cernan, Ronald Evans, Harrison Schmitt

Congratulations, Apollo 17:

The mission's accomplished, but it's only the beginning.

The Garrett Corporation salutes the crew of Apollo 17 and the successful conclusion of the United States' program for manned, deep space penetration and lunar exploration. The salute must include all of the astronauts and the countless thousands of individuals throughout Government and industry who have contributed to these space missions and who have helped to give our nation uncontested leadership in space research.

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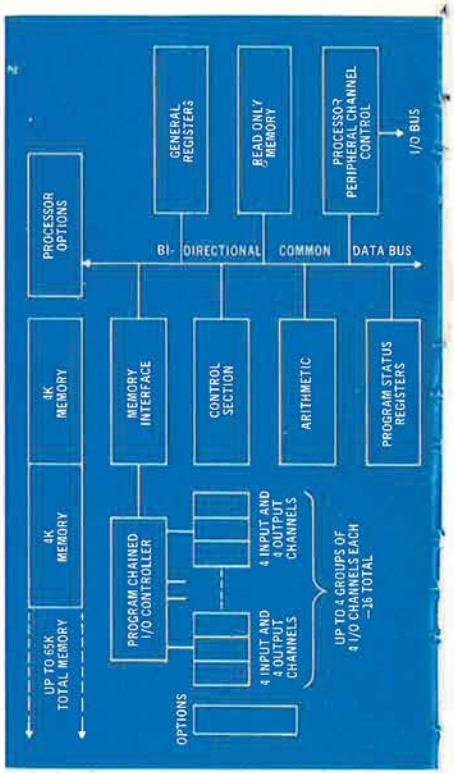

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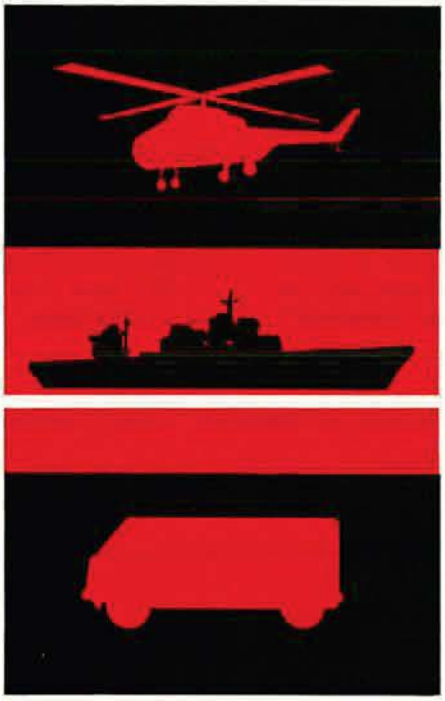

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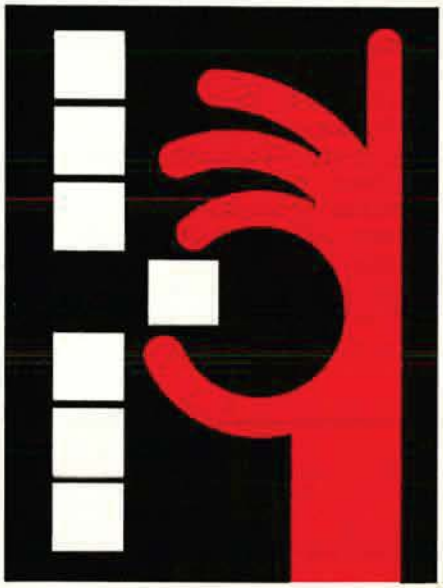

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SPERRY UNIVAC

Airpower in the News

By Claude Witze
SENIOR EDITOR, AIR FORCE MAGAZINE

The 93d Congress Is Next

WASHINGTON, D. C., DECEMBER 7

Congress is taking a close look at itself in this post-election, pre-inauguration interim, and it does not like everything it sees. A former Senator, Joseph S. Clark of Pennsylvania, has advised young members of Congress who want reform to get "disagreeable in a friendly way." Others warn that the House and Senate are close to becoming constitutional relics as more and more power gravitates to the White House and its big executive staff. There are demands that some of the rules be changed to get rid of the seniority system.

Sen. Barry Goldwater, of all people, has suggested compulsory retirement at age seventy. There are complaints that Congress has too much work to do with insufficient staffs. And, unlike other staffs working with the same material, they have no computers to apply modern technology to the recording, analysis, and retrieval of information. An example is the President's Office of Management and Budget (OMB), which has computers and a staff of 700. The Senate and House Appropriations Committees, which have to digest what the OMB cooks put on the table, have no computers and about eighty-five employees.

There are some young Turks who want to solve all these problems right away with a reform program. They are not likely to succeed, but if we look carefully at the election returns, it becomes pretty clear that there is an evolution under way and the impact of change will be widely felt. Not the least of the impact will be in the area of national security.

F. Edward Hébert, Chairman of the House Armed Services Committee, is not a man expected to plug for reform. He says you have to play the game with the cards as they have been dealt. And he thinks the game is getting tough; it should be easier to plan for our preparedness, but it is getting more difficult.

"We have just had an election in which the people have repudiated, without question, the idea that we

The Wayward Press

It was a World War I Army officer—Brig. Gen. Johnson Hagood—who was reputed to believe the Fourth Estate is made up of persons whose heads "are full of mush about the God-given rights of a free press." Here, in the 1970s, the official attitude—expressed by Defense Secretary Melvin R. Laird—is that it is healthy for the government and the press to exist as adversaries. The system was designed that way, Mr. Laird says; it is a deliberate feature of our political structure. But, he adds, there is no requirement that the government and the press be antagonists. This is not a fine distinction, and it is one that should be recognizable to men as different as General Hagood and, let us say, Columnist Jack Anderson or Tom Wicker of the New York *Times*.

Up at the Naval War College in Newport, R. I., are more than 400 military students, representing all of the armed forces, who know the press has at least one thing in common with our uniformed services. It is not a monolithic structure. Just as all generals and admirals do not accept the Hagood approach, not all newspapermen are Jack Andersons or Tom Wickers. The advocate journalists are a minority—a loud minority, but a minority.

In mid-November, the War College president, Vice Adm. Stansfield Turner, invited about thirty press and television representatives to Newport for a two-day conference on "The Military and the Media: Toward an Understanding." There was a confrontation, but, from this reporter's notes, little understanding. The blame for this rests primarily with the advocate journalists in the press contingent. They demonstrated that they are hypersensitive to criticism of their own performance and that they have no intention of abandoning the double standard in their approach to the daily bout with a typewriter. As Pat Buchanan of the White House staff has pointed out, recognition of this double standard in the national media today "is an article of faith to millions." The most recent Harris poll, indicating only eighteen percent of the American people have confidence in the press, seems to suggest that Mr. Buchanan is right.

Under the ground rules of the Newport conference, laid down by Admiral Turner to stimulate frank discussion, this report can include no attribution to individuals. Daniel Z. Henkin, Assistant Secretary of Defense for Public Affairs, keynoted the meeting with an on-the-record address. The other speakers and panel members, from the press and the military, were promised anonymity.

Here is a sample of viewpoints expressed during the sessions:

• A reporter from one of the nation's largest newspapers said frankly he follows a double standard and believes the military services must adhere to a higher level of professional integrity than must the press. He told the War College that military officers in the field should recognize that all reporters are "on the make"—which was interpreted to mean their professional ambitions frankly take precedence over their professional standards of performance. He pleaded that many newsmen, including himself, took a look at Vietnam and were turned against the war. From that point on, what he did as an advocate journalist reflected his dismay. At no point did

could make wholesale reductions in our military forces," Mr. Hébert says. "But this does not mean that the attacks on our military programs are going to slow down or that it will be any easier to get the funds we need to continue the modernization of our forces."

Mr. Hébert is impressed by the Nixon effort to replace confrontation with negotiation, but he has a veteran's skepticism about treaties. His attitude is that a treaty is not a policy and that weapon systems, such as ships and bombers and missiles, are instruments of policy. "We can have ships without a treaty," Mr. Hébert says, "but a treaty without the ships and other forces necessary to back it up is only a meaningless piece of paper."

The Chairman is disturbed by the fact that so many people, including some of the young bloods in Congress, think a treaty is an excuse for not spending money on improved weaponry. Another factor is the rising cost of defense personnel, which is taking fifty-seven percent of the Pentagon budget and still is headed upward. The critics can attack a new weapon system with more agility than they can a people program. Ships don't vote, Mr. Hébert says, and retired tanks don't write angry letters about their paltry income.

For these and other reasons—including the federal deficit—it is expected that attacks on the budget in the 93d Congress will center on defense programs. The makeup of that Congress will differ from the last one, and party labels have almost nothing to do with it. What is known as the Conservative Coalition—a voting alliance of Republicans and southern Democrats—will continue its decline. According to *Congressional Quarterly* statistics, the coalition hit its peak strength in 1971, when it won eighty-three percent of its contests on the floor, and that figure fell to sixty-nine percent last year. The ideological shift in the 93d Congress, small as it may be, is in the liberal direction. The new Senate has thirteen new faces; eight are Democrats and five are Republicans. Half of these Democrats are much more liberal than the Republicans they ousted, who were stalwarts: Gordon Allott of Colorado, J. Caleb Boggs of Delaware, Jack Miller of Iowa, and Margaret Chase Smith of Maine. In addition, South Dakota voters moved Rep. James Abourezk from the House to the Senate, replacing Karl E. Mundt, who retired. The new Senator is liberal. Mundt was conservative.

If voting is on party lines, the Democrats have increased their seats by two, giving them a 57–43 majority. Of the thirty-three Senate contests, the Democrats won sixteen and the Republicans won seventeen.

Over on the House side, there now are 244 Democrats and 191 Republicans. The GOP gained twelve seats, but this was hardly a victory to cheer about because the victories owed more to redistricting and retirement than they did to political punch at the polls.

At this writing, the convening of the new Congress is almost a month away, and the questions of leadership and committee appointments are matters of speculation only. There are eight vacancies on the House Armed Services Committee, but Mr. Hébert refuses to

he face his audience in Newport with an assumption other than the common one that military officers are advocates of war and do not share any of his repugnance for the adventure in Indochina.

• Another writer from a prestigious newspaper, not an advocate journalist but a respected digger after facts, told the college he resented military men who wanted him to be "on the team." He said it is not his job to be helpful, and he is not providing a "transmission belt" to get military messages across to the public. He believes one result of the Vietnam War will be more freedom of news reporting in any future war—possibly even an end to all censorship, which usually prevails to some degree. This speaker pleaded for more accessibility to wartime commanders in time of crisis and for less military gobbledygook. Both would improve the quality of news reporting, he maintained. This man, in addition to asking his audience to be more open and articulate, placed emphasis on the public's right to know more about the decisions to develop new weapon systems, and to know it sooner.

• A nationally recognized television reporter also focused on the war in Vietnam and pointed out that, for most of the working press, it is the first war they have covered. And, he hastily added, "we were lied to and the military will have to pay for this." He cited one specific instance. An Air Force general on the panel responded, denying that the press had been lied to and reviewing the history of the incident, of which he had intimate knowledge. The TV reporter replied: "I simply do not believe you."

• A liberated woman, on the staff of one of America's biggest newspapers, appeared at times to approach hysteria when there was a suggestion that press reporting, particularly on the war, lacked balance. At one point, this lady declaimed loudly that she did not take orders from anyone, and that included her publisher and managing editor. Other evidences of anarchy in some of today's news rooms were evident, but this was the only proclamation made on the subject.

• A few times, military officers cited instances of outrageous performance on the part of the press. A major general told of a reporter who frankly quoted himself as a "well-informed source." An Army colonel described a demonstration he had witnessed, clearly staged and directed by a mobile television crew. There were other examples. At no point did any representative of the press, printed or electronic, display chagrin or even concern about these incidents.

• There were a few, usually more mature, members of the press who admitted deficiencies, but accepted them as routine. A managing editor from a southern state listened as an advocate journalist declared he "did not enjoy writing" an exposé that embarrassed the Army. Snapped the managing editor: "That's a lotta crap—you *did* enjoy it." The managing editor of a national monthly was critical of the press, but laid out his case in high good humor. The press is superficial, he contended; it is staffed by a flock of magpies that hop from one sensation to another, getting a headline here and a headline there but rarely providing adequate coverage. Both men won indignant rebuttals from reporters who said they resented the criticism.

In attendance at the conference were the information chiefs of each of the armed forces. The things they had in common were (1) an open willingness to admit mistakes had been made in their handling of public information, (2) an apparent recognition that field commanders too often frustrate their own information officers by failure to cooperate and make sure the IO is "plugged in" and fully informed, and (3) an expressed determination to do the job better.

Still lacking, when the meeting was over, was any agreement by members of the press contingent that it lacks reasonable standards of professional excellence or that it is antagonistic, not merely adversary. Nor was there any acknowledgment of allegiance to or recognition of any obligation to what used to be the reporter's primary goal —objectivity.

discuss the possibilities, for good reason. There is a rumor that South Dakota's new Senator Abourezk seeks a spot on the Senate Armed Services Committee. When he was in the House, he served on Judiciary and Interior and Insular Affairs. The seat he seeks is the one vacated by Mrs. Smith. In the Senate, the Aeronautical and Space Sciences Committee has the most vacancies; there are four, including the chairmanship, formerly held by Clinton P. Anderson of New Mexico, who has retired.

Also in the Senate, but unrelated to the election, recent shifts have included the move of Sen. John L. McClellan to be chairman of the Appropriations Committee, where he replaced Allen J. Ellender, who passed away. Sen. Sam J. Ervin, Jr., now is chairman of the Government Operations Committee. Mr. McClellan surrendered that seat. The next man in line was Henry M. Jackson, who did not take it because he already is chairman of the Interior and Insular Affairs Committee. There is some possibility Mr. Jackson will be chairman of the Permanent Investigations Subcommittee of Government Operations, a post that would, from the pattern of the past, put him in charge of some investigations into defense problems. The Science and Astronautics Committee in the House also lost its chairman, George P. Miller of California, who was defeated in the primaries. There are two other seats on this committee also vacant.

All Capitol Hill conversation about the 93d Congress centers on the budget problem. Sen. Mike Mansfield, the majority leader, says Congress should set the ceiling on spending and the priorities. When President Nixon sought a $250 billion ceiling and offered to make the necessary cuts himself, Congress rejected the idea. Presumably there will be a struggle over this issue. The Nixon priorities include the Defense Department, and retiring Defense Secretary Melvin R. Laird has said the Fiscal 1974 budget, due in Congress before the end of January, will be up nearly $4 billion to more than $80 billion.

Now enters the new Secretary, Elliot L. Richardson (see p. 23). Lacking Mr. Laird's background in Congress and his accepted persuasive powers on Capitol Hill, Mr. Richardson is off on a bumpy road. What economies can be realized in the defense budget will have to come from a substantial program to shut down military bases and installations that are of marginal usefulness. Members of Congress have constituents who will cry with pain.

The Wall Street Journal suggested in an editorial how important this job is to Mr. Richardson:

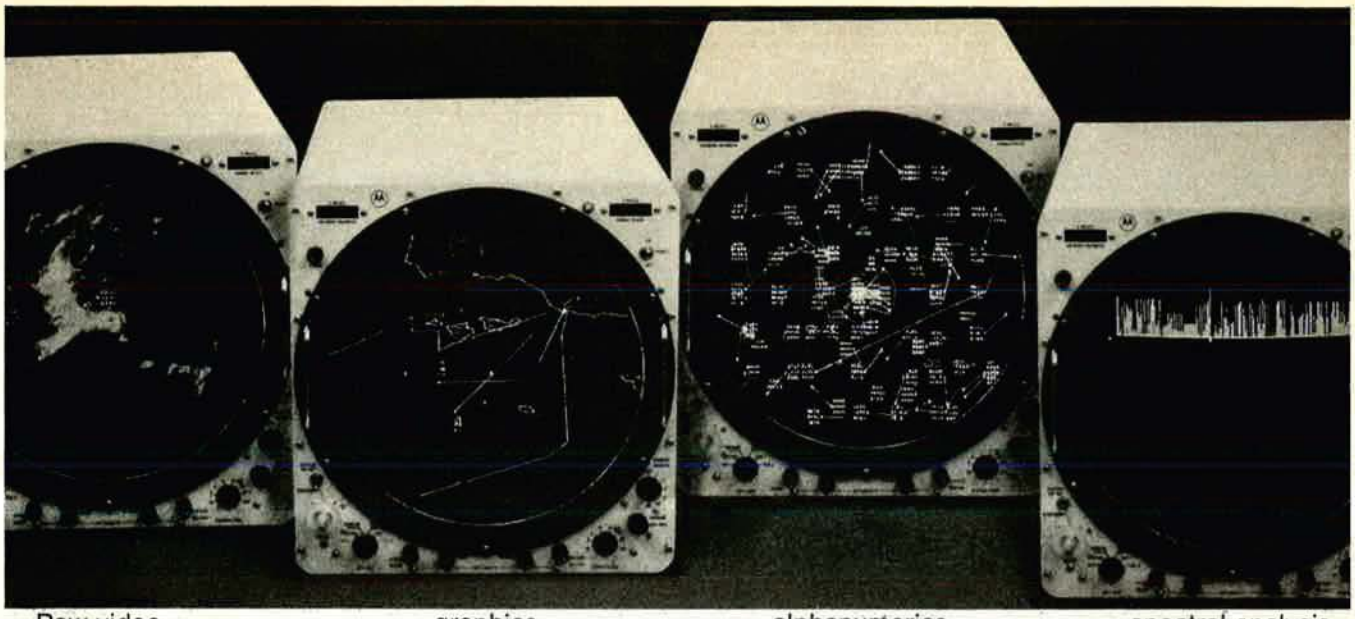
"The Joint Chiefs of Staff have never seen anything like Mr. Richardson. Pipe-smoking, soft-spoken, philosophical, overrated as an administrator, underrated as a politician, he has the task of holding down costs while keeping the service chiefs smiling, closing obsolete bases while keeping Congress smiling, and rebuilding the morale of the armed forces in the post-Vietnam period. If he can succeed to a reasonable degree, he will be seriously studied as GOP Presidential timber."

How he will behave as a champion of the military in the coming jousts with the House and Senate is getting maximum speculation in Washington. Representative Hébert says it is a tough assignment to fill the shoes of Mr. Laird and promises the new Secretary "an open forum and a fair and impartial consideration of his views on national defense" before the House Armed Services Committee.

Capitol Hill observers, now looking at Mr. Laird as a lame duck, give him credit for masterful handling of Congress. He never lost a battle over a major weapon system, with his biggest triumph in the 1969 battle over the Safeguard ABM program. It came to a showdown in the Senate, where the vote was 50–50, rejecting an amendment that would halt the schedule.

A final factor must be mentioned in any evaluation of prospects for the 93d Congress. It is unmeasurable, at the outset, but comes up in every discussion of the outlook, which always involves President Nixon's approach to Capitol Hill while he himself is a lame-duck President. There are an uncounted number of Republicans in the new Congress who are miffed because the White House, with generous campaign coffers at its command, did not do more to help embattled GOP legislators. Some of the seats lost in November, these men are convinced, could have been saved with a little more effort from the top command. It is possible their feelings will be voiced in their votes on the House and Senate floor. ■

Defense Secretary Melvin R. Laird shows off photographs of reporters currently assigned to cover the Pentagon. The display is part of the newly renovated Correspondents Corridor at Defense headquarters. Mr. Laird dedicated the corridor in honor of newsmen who have covered US military news around the world, with a special honor roll of those who have lost their lives on assignment since December 7, 1941. In the left foreground is Air Force Secretary Robert C. Seamans, Jr.



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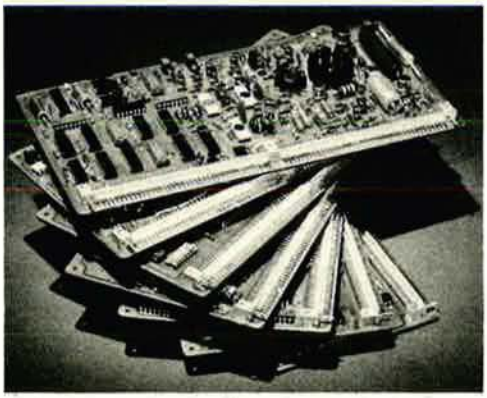

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Airman's Bookshelf

Walt Rostow Reports

The Diffusion of Power, by W. W. Rostow. Macmillan, New York, N. Y., 1972. 739 pages with index and appendices. $12.50.

Few men in recent history have served as long or as influentially in our government as Walt Whitman Rostow. This impressive book is useful because it is filled with his personal impressions, opinions, and recollections, and because Rostow was, to a degree, Lyndon B. Johnson's Kissinger.

Despite his presence at or near the center of decision-making in four successive administrations, the author minimizes his own influence in national security affairs. "The higher one goes in the American bureaucracy," says Rostow, "the more likely one is to understand the limits rather than the scale of his contribution." In his judgment, there is an enormous gap between the responsibility of the President and even the highest ranking officeholders around him. This is undoubtably true, but a careful reading of what the author says in this book convinces one that recent American policy, foreign and domestic, has been shaped by many architects, not the least of whom was Walt W. Rostow.

Rostow's title, which is also his central theme, is an elaboration of a speech he made at the Pugwash Conference in Moscow in December 1960. In the author's view, the central historical fact of our time is the diffusion of power away from Washington and Moscow, which had inherited it at the end of World War II. In Rostow's opinion, this disestablishment of a bipolar power structure—through rising nationalism, the proliferation of nuclear arms, and a host of other processes—is inevitable.

To him, the central question on the international scene thus becomes: Can the "world community of nations" organize this diffusion of power in ways that will lead to a relatively stable peace, or will they allow the diffusion process to lead to increased violence and chaos? In this vein, Rostow makes an eloquent plea for the United States to exercise its power in a mature and restrained way, rather than backing away from global responsibilities and commitments in the face of public confusion and frustration over such issues as Vietnam. Retreat, the author reminds us, has "always been recognized as the most difficult of maneuvers to execute."

For many readers, the chief attraction of this book will be Rostow's comments on America's involvement in Southeast Asia. Rostow views the situation in Vietnam as a race between two historical processes, each of which is fundamental to Hanoi's analysis of the war. On the one hand, there is the evolution of American public opinion about our investment in the war. On the other side is the erratic, time-consuming process of nation-building occurring in South Vietnam itself. The most interesting new thesis which Rostow injects into the literature of the Vietnam conflict is his assertion that, given time, Hanoi will be confronted with a viable government in the South, a government that will be based on popular support and Southern nationalism generated by Hanoi's own military operations.

The least satisfying facet of Rostow's essay on Vietnam, and of his entire book, is his contention that the Johnson Administration was aware of the general outlines of the enemy's plans for the massive 1968 Tet offensive as early as November-December 1967. After reading this claim, the 1968 Vietnam veteran may well find himself asking: Why weren't the field units in Vietnam informed of this intelligence? Why weren't steps taken to strengthen defensive positions and to upgrade our military posture? Why was there no apparent effort made by the Administration to prepare the American public for the shock of the Tet offensive?

Rostow's claim to foreknowledge of the enemy's intentions may be borne out at some future date when the pertinent documents are declassified, but for the present his unique assertion merits more elaboration than he chooses to offer in this book.

—Reviewed by Capt. Robert F. Colwell, Department of History, USAF Academy.

The Intelligence Bureaucracies

CIA—The Myth and the Madness, by Patrick J. McGarvey. Saturday Review Press, New York, N. Y., 1972. 240 pages. $6.95.

This may be the book that hundreds of former CIA employees will wish they had written. Patrick J. McGarvey, a veteran of fourteen years with the Agency, respects the craft of agent and analyst and regards CIA's mission as vital. But he knows and tells what goes wrong with intelligence operations, from the time information is gathered and matched with known facts to the presentation of a final report to the White House. In spite of its title, this book is about intelligence operations generally, not solely those of CIA.

CIA and nine other agencies—the Defense Intelligence Agency, the State Department, the National Security Agency, the Atomic Energy Commission, the Federal Bureau of Investigation, and the four military services—engage in intelligence activities costing the taxpayers about $5 billion a year. They constitute a "conglomerate industry with diverse functions and a worldwide responsibility," says McGarvey, and conduct their business amid a profusion of "committees, study groups, and overlapping lines of authority and responsibility" that leaves most employees reeling on the ropes.

Technological progress has only made matters worse. Computers, spy satellites, and other sophisticated tools stimulate indiscriminate collecting of data that may end up unused in files. Agencies expand

their activities outside lines of authority and expertise with resulting duplication of effort. Hard-fought compromises between agencies can damage the usefulness of final intelligence reports on which vital policy decisions are based. McGarvey finds military intelligence incapable of quick response in a crisis and civilian agencies clogged by bureaucratic layering. When things go wrong, it is difficult to pinpoint responsibility or to safeguard against future error.

The book allegedly documents instances of intelligence failures from an "insider's" point of view, which this reviewer cannot analyze without closer knowledge of McGarvey's work and the likelihood of his personal access to all the facts. However fair or unfair his assessment of specific operations may be, he believes that stubborn disagreements, misunderstandings, agency bias, or simply communications failure have led to error, inefficiency, excess spending, and even needless wartime casualties.

Congressional monitoring of CIA is only a polite fiction, McGarvey states, and the CIA Director lacks the equality of rank with other agency heads that would enable him to administer all intelligence efforts.

A congressional investigation and public debate are overdue, he believes, and suggests overhauling intelligence activities along functional lines, thus abolishing much duplication of effort. The secrecy-shrouded intelligence budget should be opened to public scrutiny, he contends, adding, "I submit that the Soviet analysts . . . have our intelligence budget figured out a lot closer than the most informed American citizen." Minor changes in the National Security Act, he suggests, would permit full and impartial investigation of intelligence by a public body every five years.

—Reviewed by Marjorie Ulsamer, Deputy Director, Publications Division, HUD, and a former CIA employee.

New Books in Brief

The Campaign for Guadalcanal, by Jack Coggins. A chronicle of that hard-fought campaign, which included seesawing encounters on land, vicious fighting in the air, and a series of the most deadly naval actions of modern times. *The Campaign for Guadalcanal* is an in-depth account of the crucial struggle that marked a turning point of World War II in the Pacific. Doubleday, New York, N. Y., 1972. 208 pages with bibliography and index. $9.95.

Exploring Tomorrow in Space, by Thomas W. Becker. The detailed programs proposed by NASA for the next three decades read like science fiction. The book describes NASA's plans for manned and unmanned trips to other planets; examines current knowledge about the moon and the planets, and explains what we want to find out; and reveals the mind-exploding concepts that scientists are developing for the twenty-first century. The book is generously illustrated with NASA photographs and drawings of planned and proposed spacecraft. Sterling Publishing Co., Inc., New York, N. Y., 1972. 160 pages with index. $6.95.

Fundamentals of Spacecraft Thermal Design, Volume 29, edited by John W. Lucas. This volume is one of a series covering the field of thermophysics for over a decade. Each volume represents the status of the field at the time of its publication. The book is divided into four sections, which include reports on the following topics, among others: Surface Radiation Properties; Thermal Analysis; Heat Pipes; Thermal Design. The MIT Press, Cambridge, Mass., 1972. 599 pages. $20.00.

The Ground School Workbook (third edition), by Betty Hicks. A paperback text designed to help student pilots pass FAA tests for advanced flight ratings. It contains FAA data, capsule courses with multiple-choice questions, answers, and explanations of those questions most often missed on typical FAA rating tests. The author is an experienced multirated pilot, ground school and flight instructor, and professional golfer. Iowa State University Press, Ames, Iowa, 1972. 247 pages with index. $7.95.

The Illustrated Book of World War II, edited by Peter Simkins. Most of the photographs in this superb collection—compiled by staff photographers of *Illustrated,* the British news magazine—were never published due to wartime censorship and printing shortages. Anyone interested in WW II on land, sea, or in the air, in its military, technical, social, even nostalgic aspects, should find this book interesting. St. Martin's Press, New York, N. Y., 1972. 128 pages. $8.50.

Iran, the Arabian Peninsula, and the Indian Ocean, by R. M. Burrell and Alvin J. Cottrell. A monograph examining in detail the changing strategic situation in the Persian Gulf and the Indian Ocean areas, paralleling the politico-strategic transformation from dominance by British seapower to the Soviet flotilla. National Strategy Information Center, Inc., 130 East 67th St., New York, N. Y. 10021, 1972. 46 pages with bibliography. $1.00 paperback.

Jimmy Doolittle: Daredevil Aviator and Scientist, by Carroll V. Glines. Although it was written for young adults, readers of any age will enjoy this biography of a man whose career paralleled the growth of aviation in the US. The book, written with Doolittle's cooperation, is part of the Air Force Academy Series. Macmillan, New York, N. Y., 1972. 183 pages with index. $5.95.

Starlifter, by Harold H. Martin. More than the story of a highly successful airplane. In telling about the designing, building, testing, and operational flying of the C-141, Harold Martin also has told much of the story of the Military Airlift Command. He writes about real people, flying real missions over MAC's global routes. The book is full of anecdotes—humerous, exciting, sometimes tragic. The Stephen Greene Press, Brattleboro, Vt., 1972. 190 pages. $6.95.

Weapons Technology and Arms Control, by W. F. Biddle. Mr. Biddle has written a book that examines, in terms clear to the nonscientist, the technical problems involved in effective arms control, in the light of current weapons technology. He considers the special technical requirements for facilitating inspection and outlines the role control can play in military strategy. Also included is a glossary of the specialized terms in the fields of strategy, arms control, and disarmament. Praeger, New York, N. Y., 1972. 355 pages with appendix and bibliography. $20.00.

Two recent releases in Ballantine's Illustrated History of the Violent Century Series are: *Operation Torch: Anglo-American Invasion of North Africa,* by Vincent Jones; and *Lancaster Bomber,* by D. B. Tubbs. Ballantine Books, New York, N. Y., 1972. Each volume 160 pages. $1.00.

—By Catherine Bratz

Aerospace World

News, Views & Comments

By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

WASHINGTON, D. C., DEC. 12

Whatever the outcome of the conflict in Southeast Asia, military historians are bound to record that the US's logistical effort has been unparalleled in the annals of warfare.

The supply pipelines carried heavy traffic throughout the conflict. With the North Vietnamese invasion in the spring, that flow became heavier. Now, of course, with the effort of the last several months to beef up the South Vietnamese with military hardware before the US pulls out completely, a veritable sea of materiel is flooding into South Vietnam.

"My people have been working sixteen to eighteen hours a day since this began, just to keep up with the steady stream of stuff coming into Tan Son Nhut," reports Lt. Col. Gerald W. Smith, traffic-control officer for the 8th Aerial Port Squadron stationed at Tan Son Nhut AB, South Vietnam.

Since the first of November, an average of 500 tons of cargo has been arriving each day, and the 125 airmen of the 8th have had to make a herculean effort to contend with it.

They have been unloading C-141s in an hour and fifty minutes on the average; these aircraft contain about 40,000 pounds of cargo. Unloading the C-5s, which carry up to 140,000 pounds of cargo, takes longer—about three hours.

"Up to twenty-five aircraft have been arriving daily," Colonel Smith notes. They are bringing in F-5 Freedom Fighters, A-37 Dragonflies, CH-47 Chinook helicopters, artillery pieces, armored personnel carriers, ammunition, spare parts, and much more.

All this equipment should enhance the prospects of a viable cease-fire agreement.

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A four-year ($1,000 per year) scholarship to the college or university of choice is the grand prize in a new contest for all Air Force JROTC units, being sponsored by the Aerospace Education Foundation, an AFA affiliate.

The purpose of the contest is to supplement and reinforce the AFJROTC academic curriculum, by encouraging the cadets, through analysis of the role of the B-1 strategic bomber in our deterrence strategy, to create an original presentation aimed at broadening public understanding of this role.

The B-1, now under development, represents an important milestone in the application of advanced aerospace technology and is a vital element of the Triad structure of strategic deterrence.

Contest rules have been supplied to all AFJROTC units by the Air University, which administers the high school program for the USAF. Air Force information officers have been asked to assist units in their communities by furnishing them with releasable information concerning the B-1. Also cooperating is North American Rockwell Corp., prime contractor for the B-1.

Each AFJROTC unit will receive a package of resource material developed by the Air Force, AFA, and North American. There are 235 AFJROTC units currently in operation.

Under the rules, presentations may utilize any medium or combination of media, *e.g.*, recorded narration, written material, art work, sculpture, poetry, plays, songs, films, slides, audio and video tapes, etc. While displays are acceptable as part of a presentation, it must be emphasized that this is neither a model nor an exhibit contest.

All materials in each presentation must be created and prepared by the AFJROTC cadets themselves. Entries must be postmarked no later than March 8, 1973. Judging will be conducted in Washington, D. C., under the auspices of the Aerospace Education Foundation, by a board of nationally recognized experts in pertinent fields. Judging is scheduled to be completed by April 30, 1973, with winners to be announced shortly thereafter.

—Wide World Photos

Mrs. Philip Hart, wife of the Michigan senator, released this picture and the one opposite following her trip this past autumn to North Vietnam. Both photos show US prisoners of war she talked to during her visit. Above, from left, are Navy Lt. j.g. David Everett of San Diego, Calif.; Navy Lt. Carroll Beeler, Frisco, Tex.; Navy Cmdr. Ted Triedel, also of San Diego; and AF Maj. James Padgett, Mattydale, N. Y.

The judges will also select some twenty to thirty entries as Honorable Mention winners. Units submitting these entries will receive framed color reproductions of original B-1 artwork. Eight Regional winners will also be selected, and these units will receive mounted B-1 models, appropriately inscribed.

From among the Honorable Mention and Regional winners, one national winner and two national runners-up will be awarded distinctive plaques for permanent display. The national winning unit also will receive the four-year scholarship, to go to a representative selected by the unit. Additionally, the winning unit and the two national runners-up will each select one cadet for an educational cross-country tour. The tentative itinerary includes visits to the North American Rockwell B-1 manufacturing facility in California, one or more appropriate Air Force bases, and Washington, D. C.

Additionally, the top three winning entries will be displayed at the Air Force Association's 1973 Aerospace Development Briefings and Displays next September, in Washington, D. C., the largest annual aerospace display in the nation. Contest results will be announced in this magazine.

☆

Surgeons at Wilford Hall USAF Medical Center, San Antonio, Tex., have successfully performed a rare heart operation—one of only two known successes of its type in the US—on an eleven-year-old daughter of a retired Air Force noncommissioned officer.

Wanda Kirkland, whose father is retired Air Force TSgt. Edward Kirkland, of Leeds, Ala., emerged in good shape and was released following operation for a heart defect called tricuspid atresia, in which no opening exists between the upper and lower chambers of the right side of the heart. Tricuspid atresia is usually a fatal condition.

Operative procedure devised by the surgeons at Wilford Hall involved using a graft of human aortic tissue—a homograft, in medical terms—and a valve to bypass the missing portion in the patient's heart.

"The procedure has a great potential in helping people whose lives are shortened by this heart defect," said Col. (Dr.) William Stanford, Chief of Thoracic Surgery and head of surgeons who performed the operation, which lasted seven hours. Previously, tricuspid atresia was considered an uncorrectable heart problem.

☆

In early December, a Sprint missile successfully intercepted a simulated ICBM nose cone over Kwajalein atoll in the Pacific.

The event confirmed that the system's Missile Site Radar (MSR) and its associated data processor were capable of launching and guiding the Sprint from a site some distance from the radar to a long-range, low-altitude intercept of an incoming target.

The MSR and associated data processor are similar to equipment planned for use at the Safeguard tactical site now under construction in North Dakota.

The first system test series in the Pacific began in the spring of 1970 and ended that fall. Twelve of the tests were successful, two partially so, and two failed. This latest test is the twentieth in the second series, begun in mid-1971. This particular series is using an advanced data-processing program that contains additional tactical software elements. Tests in this series are designed to evaluate the integrated system, utilizing "more complex intercept geometries that stress specific system functions," the Air Force said.

Of the twenty tests in the current series, only two have been unsuccessful.

☆

Currently under way is a program to modernize air traffic control of all USAF aircraft takeoffs, flights, and landings throughout the US and overseas.

Called the Traffic Control and Landing System (TRACALS), the project is under the direction of Air Force Systems Command's Electronic Systems Division, Hanscom Field, Mass. TRACALS includes the development and acquisition of solid-state, low-cost, reliable electronic components and systems to replace outdated tube-type equipment, some of which has been in use for twenty years or more.

Among the improvements "the TRACALS office has under consideration or acquisition are such efforts as a collision-avoidance system, an airport surveillance radar system, the push-button selection of maps to overlay radarscopes, an all-weather landing system, a microwave landing system to replace the current instrument landing system (ILS), low-cost TACAN receivers, and training simulators that will provide almost real conditions for use by student controllers in classrooms," Col. Lloyd H. Giesy, program director, said.

TRACALS is receiving coordination and assistance from FAA, the other services, and several USAF organizations. It is being spurred on partially by the realization that

—Wide World Photos

In this photograph, also released by Mrs. Philip Hart, are, from left, USAF Maj. James Padgett; Navy Lt. Tom Latendresse, Lemoore, Calif.; Air Force Capt. William G. Byrns, Warrenton, Mo.; Air Force Capt. Ray Bean, Littleton, Colo.; and Navy Lt. Albert Molinare, San Diego, Calif. For the details on Operation Egress Recap—the plan to care for the POWs once they are released—see p. 71.

over the next decade aviation activity is expected to increase from the current level of 130,000 aircraft to some 250,000, almost doubling traffic in an already crowded sky.

☆

The Air Force hopes to triple the number of women in USAF uniform by the end of Fiscal 1978.

And Brig. Gen. Jeanne M. Holm, Director of Women in the Air Force, points out that this does not mean that these newly recruited WAF will be confined to military jobs traditionally held by women. She aims to get the girls into such fields as radar repair, civil engineering, gunsmithing, and missile repair, among many others.

There now are about 12,000 enlisted women and 5,000 officers serving in the line and in medical occupations, for a total of about 2.2 percent of the USAF force. By 1978, the WAF total is to be expanded to 48,000.

Greater utilization of women in uniform has been accelerated in the last several years by a number of factors: the President's drive for an all-volunteer force; the increasing concern for equal opportunity for women; and the growing awareness among young women of the opportunities afforded by the military.

"In the past," General Holm said, "almost half of the enlisted fields were closed to women because they were combat-associated or beyond the physical capability of the average woman. As of January 1, women may apply for most of the noncombat fields. We require that they be capable of and willing to perform the full range of duties required and that they be able to serve where needed."

General Holm termed it ironic that while in the past year and a half the armed forces "have been experiencing greater difficulty in recruiting male volunteers, they have been turning away women interested in and qualified to serve."

While the Air Force plan to recruit women is the most expansive of all the services, the Navy, too, is moving toward greater employment of female capabilities. In late November, for example, it recommissioned the USS *Sanctuary*, a hospital ship that will have two women officers and sixty enlisted women among a total crew of 530 personnel.

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The Air Force Systems Command's Cambridge Research Laboratories (AFCRL) has met some notable success in two of its balloon development programs.

This autumn, AFCRL launched the world's largest balloon to an unofficial altitude record of 170,000 feet (just over thirty-two miles).

That altitude is too high for aircraft and too low for satellites. The flight of the 47,800,000-cubic-foot balloon proved that USAF has the capability to deploy fairly hefty scientific payloads in regions heretofore little investigated. This could prove important to environmentalists and other scientists interested in conditions at those altitudes.

The balloon was launched from Chico, Calif., and was recovered at Ely, Nev. It carried a 250-pound cargo. Helium providing lift expanded to 1,000 times its original volume. Fabricated from an extremely thin polyethylene film, the balloon's skin is about one-tenth the thickness of a sheet of writing paper.

In another program, a three-hour flight over White Sands Missile Test Range, N. M., was made by an AFCRL balloon coupled to a propulsion system. The powered balloon ascended with a 3,200-pound payload to 60,000 feet.

"Such a vehicle could serve the Air Force in many scientific and operational areas. The recent flight proved that it is possible to move a gas-filled balloon against the wind, the system being controlled by radio signals from the ground," an official said.

The Air Force said that it may now be possible to extend station-keeping or hovering capabilities into weeks or months. The balloons are tracked by radar and could be employed for electronic intelligence-gathering from within the boundaries of friendly territory.

☆

Another piece of scientific hardware—a 100-ton experimental ocean buoy—has been anchored in the Gulf of Alaska to acquire weather data in the stormy sub-Arctic waters. This winter, the on-site test will determine whether such a device can withstand the rigors of Arctic conditions.

Men of Detachment 1, 355th TFW, whose aircraft recently flew nonstop from Davis-Monthan AFB, Ariz., to Hawaii in less than seven hours, to support exercise "Commando Elite." The unit's eight A-7Ds are the first to complete an overwater deployment. Kneeling in front row are, from left, Maj. Glenn A. Jones, Executive Officer; Lt. Col. T. K. Case; Lt. Col. Boyd L. Van Horn, Commander of Detachment 1; and Maj. David R. Brown, Operations Officer for "Commando Elite."

Meteorological information transmitted from the buoy is expected to aid weather forecasting for Alaska and the entire west coast of North America.

A project of the Commerce Department's National Oceanic and Atmospheric Administration, the buoy is one of a series being stationed in the ocean to explore the feasibility of a national system of buoys that would furnish important oceanographic and metcorological data from remote ocean areas. Similar giant buoys are currently being tested in the Atlantic and in the Gulf of Mexico. Each can contain more than 100 atmospheric sensors.

☆

In December, two military men and two pioneer airplane builders were enshrined in the Aviation Hall of Fame in Dayton, Ohio, joining other greats of aviation history.

The four so honored are Lt. Gen. Claire Lee Chennault, of Flying Tiger fame; Gen. Curtis E. LeMay, former Air Force Chief of Staff and World War II bomber commander; Leroy R. Grumman, a leader in aircraft design and manufacture; and James H. "Dutch" Kindelberger, who helped build North American Aviation.

General Chennault died in 1958 at the age of sixty-seven. Curt LeMay, who commanded the Strategic Air Command through many of the cold-war years, retired in 1965.

Leroy Grumman, seventy-seven, a Cornell graduate and World War I naval aviator, helped form Grumman Aircraft in 1929. That company built many Navy aircraft, the Apollo lunar lander, and currently is manufacturing the Navy's F-14 Tomcat.

AVIATION HALL OF FAME DAYTON, OHIO 1972 ENSHRINEES

Claire Lee Chennault — Leroy Randle Grumman

James H. "Dutch" Kindelberger — Curtis Emerson LeMay

Dutch Kindelberger was Board Chairman of North American Aviation at the time of his death, in 1962, at the age of sixty-seven. He was an Army aviator during World War I.

The Aviation Hall of Fame is a nonprofit organization chartered by Act of Congress to perpetuate the memories of distinguished aviation figures. Acting as master of ceremonies at the recent enshrinement was actor James Stewart, a retired brigadier general in the Air Force Reserve.

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The Air Force has awarded contracts to the Boeing Co., Seattle, Wash., and McDonnell Douglas Corp., Long Beach, Calif., to begin design and development of an Advanced Medium Short Takeoff and Landing Transport (AMST). *(For some aspects of this program, included in an exclusive interview with William M. Magruder, the President's Special Consultant for Technology, see p. 38.)*

Under the AMST program, USAF is seeking the prototype of a low-cost, medium-size jet transport that will be available if future military requirements dictate its production. AMST is one of a series of hardware prototype procurements USAF has in the works *(see also November '71 issue, p. 25)*.

Artist's conception of the McDonnell Douglas version of an Advanced Medium STOL Transport (AMST). For details on the AMST program see this magazine's exclusive interview with Presidential technical adviser William M. McGruder beginning on p. 38, and, also, "Aerospace Review 1972/73," p. 24.

During Phase One of the project, the two companies will work up analyses of aircraft design, performance, and cost data for Air Force consideration. If USAF then initiates Phase Two, each firm would build and test two prototypes, powered by existing engines, for evaluation against projected mission requirements.

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NASA has invited the aerospace industry to submit proposals on the study of space tug systems. *(For*

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details of US long-range plans for space projects, see September '72 issue, p. 53.)

The space tug is to operate in conjunction with the Space Shuttle and, in effect, to act as its third stage. The tug's purpose will be to boost payloads from the Shuttle's low 100-mile-altitude orbits to the so-called high-energy orbits, usually involving altitudes of 22,300 miles. (Military payloads often require these high-energy orbits because they enable spacecraft to maintain constant positions over specific geographic areas of the earth.)

One way of obtaining this additional propulsion would be to use such existing rocket stages as the Centaur or Agena adapted for launch from the Shuttle cargo bay. The utilization of this system would be only temporary, however, since the ultimate objective is the development of a full capability tug, a central component of the US's eventual Space Transportation System.

Also under consideration is an interim tug for use on the initial Space Shuttle missions, now scheduled for the late 1970s. The interim tug could be one of two types: either a "cryogenic tug"—one using liquid hydrogen and liquid oxygen propellants—or one using storable propellants.

USAF is helping to fund the cryogenic tug studies and will assist in selecting the contractors and in determining the management of all the studies.

The space tug will be used to transfer cargo from orbit or in near-earth space and the launch of payloads from low earth orbit to intermediate and synchronous earth orbits. It would also be designed for launching unmanned planetary missions from the Shuttle.

For each mission the tug would be ground-based; that is, it would be fueled on the ground, launched from the Shuttle in low earth orbit, recaptured by the Shuttle, and returned to earth for repeat use.

USAF Chief of Staff Gen. John D. Ryan, right, during a visit to Australia for policy talks, chats with RAAF Chief of Air Staff Air Marshal C. F. Read.

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NEWS NOTES—In late November, a **B-52** was lost over North Vietnam, apparently to enemy ground fire. It was the **first combat loss** of a B-52 in the war. All six crew members bailed out safely and were rescued.

Gen. David A. Burchinal, who has served as **Deputy Commander in Chief, US European Command** since July 1966, will retire on March 1, 1973, President Nixon announced early in December. General Burchinal had previously served as Director of the Joint Staff, Washington, D. C. In the mid-1950s, he headed SAC's Eighth Air Force, and later served as Deputy DCS/Plans and Deputy DCS/Plans and Programs at Hq. USAF. His Air Force career spans thirty-three years.

Astronaut **Thomas P. Stafford,** forty-two, has been promoted to **brigadier general** in the Air Force. The veteran of three spaceflights is the youngest officer of flag rank in the armed forces. He will continue as Deputy Director of Flight Crew Operations at NASA's Manned Spacecraft Center.

Dr. Robert G. Loewy of the University of Rochester has succeeded **Professor Courtland D. Perkins** of Princeton as Chairman of the US Air Force Scientific Advisory Board.

Capt. Steve Ritchie, USAF's first ace of the Vietnam conflict, has been awarded the **1972 Colonel James Jabara Award** for Airmanship, which is presented annually to an Air Force Academy graduate.

USAF's third **F-15 Eagle** off the assembly line made its **maiden flight** in November, marking the 100th flight of Eagle aircraft since the flight-test program commenced in July.

USAF has ordered 3,000 additional TV-guided **Maverick** air-to-ground missiles under a $47.7 million contract to **Hughes Aircraft Co.**

US Navy has broken ground at Pensacola, Fla., for its new **Naval Aviation Museum,** which is to be completed by the end of 1973.

The Air Force has granted the **Boeing Co.** a $900,000 incentive award for its outstanding performance on the upcoming **Airborne Warning and Control System** (AWACS).

Lt. Gen. Marvin L. McNickle, USAF (Ret.), has been named **Special Assistant** to Dale D. Myers, Associate Administrator for **Manned Space Flight,** NASA Headquarters. At the time of his retirement from the Air Force in October, General McNickle commanded the **Thirteenth Air Force** in the Philippines. ■

The family of Sgt. Peggy G. Amsler (being sworn in) is unique in that her son, Kenneth Pagel, center left, and daughter-in-law Sandra, are all serving together in the 128th Air Refueling Group, an ANG unit based in Milwaukee, Wis. Sandra's husband, Gregory Pagel, right, is a jet engine mechanic at Carswell AFB, Tex., where she hopes to join him on regular Air Force duty.

There will be a new look in the Pentagon when Melvin Laird steps down as Secretary of Defense. Taking his place will be . . .

Elliot Richardson: New SECDEF

Wide World Photos

By Claude Witze
SENIOR EDITOR, AIR FORCE MAGAZINE

WHEN Elliot Lee Richardson soon takes over as Secretary of Defense, there are going to be some changes made.

The clue has to come from the man who picked him for the job, President Richard M. Nixon, who has been revising his entire cabinet with an eye, he says, to making government smaller and cheaper.

As for the Defense Department, Mr. Nixon says the possible cuts can be only minimal in terms of hardware and military personnel. There is sound speculation that a good number of obsolete installations and bases of marginal utility will be eliminated (*see "Airpower in the News," on p. 12*). On top of this, the President says, "in terms of the masses of civilian employees who are getting in the way of each other over in the Pentagon and around the country, they are going to have to take a thinning down."

The available figures show what Mr. Nixon is talking about and where Mr. Richardson is expected to find the fat.

At the end of the Eisenhower Administration, the Office of the Secretary of Defense, the Joint Chiefs of Staff, and the separate defense agencies accounted for 1,960 civilian employees. By the time Robert S. McNamara, a Kennedy appointee, had been in charge for six years, the total was up to 79,134. The reason was centralization of control and the concomitant tendency to move in more desks. Under Defense Secretary Melvin R. Laird, the figure was pulled down to 62,851 in 1971. There is no figure available for 1972.

So far, the Administration has said little about a program for decentralization of control, which is required to achieve the goal of more economy in the use of manpower and more common sense in routine decision-making.

Mr. Richardson comes to the Pentagon from the Department of Health, Education and Welfare, where he is reputed to have put in twelve-hour days trying to reform the bureaucracy. His degree of success is not easy to measure, but he is credited with starting a structural overhaul. The budget he handled at HEW was about a billion dollars bigger than the one he will have in the Defense Department.

On the subject of national security, there may be evidence of Mr. Richardson's approach in his brief career as Undersecretary of State, a job he held at the start of the first Nixon Administration. He is credited with being as much of a hard-liner on international affairs as Mr. Laird. Here is a quote from one of his speeches in 1970:

"Any potential enemy must be forced in advance to face up to the costs of risking an all-out assault on American retaliatory power. If we are not in a position to establish such a modern defense, the validity of our promises to our allies would quickly come into question."

The new Secretary is fifty-two years old and an Army veteran. He was wounded and decorated in Normandy. His background is pure Boston Brahmin, with all that implies about wealth, Harvard Law School, and an apprenticeship in the office of Supreme Court Justice Felix Frankfurter. He has been lieutenant governor and attorney general of Massachusetts.

At this writing, it is too early to report on other shifts in the Pentagon. Dr. Robert C. Seamans, Jr., is expected to be replaced in his slot as Secretary of the Air Force.

The other major change will be the appointment of two Deputy Secretaries of Defense instead of one. It is an improvement suggested in the report of the Blue Ribbon Defense Panel, compiled for the White House in 1970 under the chairmanship of Gilbert W. Fitzhugh. That study recommended that there be a Deputy Secretary of Defense for Management of Resources and a Deputy Secretary of Defense for Operations. The goal is improved efficiency and relief in the back-breaking top jobs. ■

AND FROM THE HOUSE ARMED SERVICES . . .

Rep. F. Edward Hébert, chairman of the House Armed Services Committee, was asked about his reaction to the choice of Elliot L. Richardson as Secretary of Defense. Mr. Hébert said:

"I have not had the privilege of knowing Secretary Richardson personally. I only know him through his activities in the Department of State and as Secretary of HEW. I, therefore, am not qualified to predict what kind of Secretary of Defense he will make since I have not been exposed to him in the field of defense.

"I do know, however, that he faces a tough assignment in accepting the challenge to fill the shoes of one of the greatest Secretaries of Defense, Melvin R. Laird, who came to DoD well grounded and knowledgeable through years of experience in Congress. . . .

". . . I assure Secretary Richardson an open forum and a fair and impartial consideration of his views on national defense. . . . I am certain he will find himself among reasonable and understanding men on the Armed Services Committee."

AIR FORCE
JANUARY 1973 MAGAZINE

A mockup of Northrop's P-530 Cobra tactical fighter.

John W. R. Taylor—since 1959 the Editor of **Jane's All the World's Aircraft**—*is a Fellow of the Royal Historical Society, a Fellow of the Society of Licensed Aircraft Engineers and Technologists, and an Associate Fellow of the Royal Aeronautical Society. Mr. Taylor brought a wealth of experience to his editorship of* **Jane's.** *He had seven years of design and technical writing at Hawker Aircraft Ltd., followed by eight years with the Fairey Aviation Group. He has published some 160 books on aviation and produces the "Jane's Supplements" that appear every other month as an exclusive, special, eight-page section in AIR FORCE Magazine.*

In this article, the Editor of *Jane's All the Worlds Aircraft*—the acknowledged authority on aircraft data and equipment—assesses products and prospects within the aerospace community, here and abroad. He relates his impressions from a recent tour of nineteen aerospace facilities in this country, discusses developments in current and proposed SSTs, and examines the European and Soviet aerospace scene. Once again this year, AIR FORCE Magazine is proud to present . . .

JANE'S AEROSPACE REVIEW 1972/73

By John W. R. Taylor
EDITOR, JANE'S ALL THE WORLD'S AIRCRAFT

THE WRITER'S recent tour of nineteen aerospace facilities in the US, coming hard on the heels of similar visits in Europe, revealed the effects of arms-limitation agreements, optimism about liquidation of the cold war, reordered national priorities, and a growing public distaste for technology.

One after the other, assembly halls that back in the 1960s were filled with aircraft and busy workers now appeared empty or housed only the dragging tail end of a production run. Here was the visual evidence of what *Jane's* has recorded only as diminishing employment figures at Boeing, Lockheed, Douglas, and the other giants of our industry in recent years.

Whole divisions and companies, like Lockheed-Georgia, hang on with a trickle of production of twenty-year-old designs such as the C-130, as newer projects like the C-5A end all too quickly, and commercial developments are stillborn. Mockups, engineering drawings, even prototypes offer new hope for the future, if only someone will find the money for them.

Two US military mockups admirably illustrate the "if." One is the mighty North American Rockwell B-1A bomber, which cannot fail to impress or excite. Sit in its roomy cockpit, behind windows that have nothing in common with the letter-box slits of some supersonic aircraft. Handle its fighter-type stick. Admire the neat layout of its panels. "Feel" how compact and manageable it is, its 707-size made difficult to imagine when you look back and fail to see the tips of the fully-swept swingwings. Step outside and feel grateful for the little foreplanes that will smooth the crew's ride as they race across country at treetop height. Then look into the three huge bomb bays. No. 1 contains a rotary dispenser for a mix of eight SRAM and SCAD missiles. No. 2 houses a clutch of three nuclear weapons. No. 3 is packed with iron bombs.

Here is a weapon powerful enough to "take out" a small country in a single sortie, and which is not restricted in any way by the initial SALT agreement. Indeed, we know that the Soviet Union already has at least a dozen prototype and preproduction examples of a comparable Tupolev bomber, known to NATO as "Backfire."

All being well, the B-1A should fly in prototype form in 1974. Nobody doubts that it should be a better airplane than "Backfire," which takes only limited advantage of the benefits of variable geometry; but a hundred Mach 2 swingwing strategic bombers in service are more formidable than the best wooden mockup or trio of prototypes.

Northrop presents a similar picture. In an enclosure at its Hawthorne, Calif., works is a mockup of the P-530 Cobra tactical fighter, built with $24 million of the company's own money. Seldom can so much care, imagination, and human engineering have gone into any airplane for which no contract has yet been signed. Four thousand wind-tunnel hours and dozens of missions "flown" in an advanced simulator suggest that the Cobra will have air-combat agility thirty to forty percent better than any current fighter.

It seems so much the kind of aircraft needed by the Dutch, as a Starfighter replacement, that more millions are likely to be spent in bringing the mockup to the latest design standards. In this case, justification for Northrop's effort and expenditure appears to depend on a decision to be taken thousands of miles away, in the Netherlands. That nation's own industry would share in any production program that ensued, possibly in partnership with the industries of other countries. Meanwhile, Sweden offers the Viggen as an already-proven alternative, France refuses to accept defeat for the Super Mirage F-1, and even the interceptor version of Europe's multinational, multirole MRCA remains a formidable "outsider."

Never has the interdependence of national aerospace industries been more apparent; and never have one or two potential contracts been of more vital importance.

Prototypes, Production, and Survival

IT CAN be claimed that Northrop is receiving indirect US support for the Cobra through the order for two YF-17 lightweight fighter prototypes. Their general outlines are similar to that of the P-530, and the YF-17s should certainly prove the correctness of Northrop's advanced aerodynamic ideas when flight tests begin in 1974. Nonetheless, it must be borne in mind that the YF-17 and its General Dynamics competitor, the YF-16, are being produced solely to evaluate in prototype form USAF's current ideas for a lightweight air-superiority fighter. There is no certainty of a production contract for either type, and it must be significant that Northrop believes the Cobra should be a larger and more potent aircraft than the little YF-17.

This focuses attention on the whole new (or reborn) USAF policy of "prototyping" its latest concepts.

For several years, air forces throughout the world, faced with limited budgets, have decided that money can no longer be spared for competitive flyoff evaluation of the two best designs produced to meet a particular specification. While the designs were still on paper, a decision had to be taken to proceed with what appeared to be the better one—for technical, political, or economic reasons. Inevitably, the policy produced a mixed bag of good and disastrous service aircraft.

Now the US has reverted to former policies. Northrop and General Dynamics are to build the YF-17 and YF-16, respectively. Northrop has already flown two prototypes of its A-9A close-support aircraft, scheduled for competitive flyoff against Fairchild's A-10A. Sikorsky and Boeing-Vertol each have prototype contracts for the Army's UTTAS (Utility Tactical Transport Aircraft System) helicopter project. Boeing and McDonnell Douglas will each build and flight-test two turbine-powered, advanced, medium short takeoff and landing transports (AMSTs) for the USAF. Bell and Hughes are each modifying three of their current light observation helicopters to flight-test competitively the Army's Armed Aerial Scout concept.

Such prototyping is admirable if it can be afforded, but there is one painfully apparent shortcoming in the way it is being practiced.

None of the aircraft listed above is intended as America's number one future strategic attack aircraft or air defense fighter. All are promising projects; but when it comes to the types on which this nation's survival depends, there appears to be no money for competitive prototypes. In the case of the B-1 and F-15, other, largely managerial, means of assessing potential operational effectiveness, development progress, and cost control are being used. But even the funds for wholly essential aircraft like the B-1A have to be battled through against ill-informed and hostile political opinion.

Critics have suggested that the writer regards aircraft like the YF-16/17, and A-9A/A-10A, as rather low-priority, second-best designs. This misconstrues what is meant. Such aircraft are relatively inexpensive and unsophisticated types for use in limited warfare, or are envisaged as a means of building up a sizable combat force without having to spend money at the rate required to purchase large numbers of types like the F-15A Eagle or B-1A. In fact, neither America nor Russia—nor any other first-class

Mockup of Boeing's bid for US Army Utility Tactical Transport Aircraft System (UTTAS).

Sikorsky's entry in UTTAS competition, shown here in mockup, is said to be "low-risk" aircraft.

During 1972, sales of Boeing's 727 passed the thousand mark, unprecedented for jetliners.

air power—can afford to concentrate too much on likely limited warfare at the expense of the "big one" that is averted at present only by a delicate balance of destructive capability and mutual will to survive.

Reverting for a moment to the two A-X designs, the Northrop A-9A may look like a 1972 version of a straightwing jet fighter of the 1950s, but the illusion is only skin-deep. A quite different picture emerges when one begins to talk to its designers about the "bathtub" of armor in which the pilot sits, the redundant flight-control system, the cleverly survivable fuel tanks, the aircraft's maneuverability, and that mighty armament of one GAU-8/A 30-mm multibarrel cannon and 16,000 pounds (7,257 kg) of assorted unpleasantness on ten underwing pylons. The same kind of ingenuity and efficiency mark the other designs accepted for prototype evaluation, but future stability and survival depend on *production* orders for the complete spectrum of types.

Adversity and Optimism

EVEN IN the commercial field, the success of a program nowadays can depend on one or two key orders. *Total* production counts ultimately, spread over many years, but US manufacturers owe their unrivaled success to a policy of obtaining a large number of relatively modest initial orders rather than a handful of big ones. This is well demonstrated by the continuing drama of the TriStar program. British European Airways' initial contract for six aircraft, with the eventual prospect of thirty, came as no surprise in view of Britain's national investment in that aircraft's Rolls-Royce RB.211 turbofans. The cliff-hanger for Lockheed was its wooing of All Nippon Airways.

It is easy to see why, when one looks at the current development pattern of Japanese airline operations. During the past four years, ANA has recorded a passenger-kilometer growth rate of thirty-five to forty-five percent. It carried more than seven and a half million passengers a year by 1970, when it became the sixth-ranking domestic airline in the world, after America's "big five," bigger on internal routes than Japan Air Lines and Toa Domestic combined. So, the initial order for six TriStars placed by All Nippon in late October could rival the BEA potential in due course.

Little wonder that Lockheed is beginning to see a turning point away from its troubles of the past few years. Its SR-71 continues to be the fastest, and one of the most successful, military aircraft of the present era. Its reconnaissance satellites are now "respectable" vehicles with which to implement the "Open Skies" clauses of the SALT agreement. Its carrier-based S-3A Viking promises to be a

world-beater in the vital antisubmarine role. The C-130 Hercules continues selling, modestly but helpfully. Stories of modifications to the U-2, and of other interesting goings-on, permeate the walls of Kelly Johnson's "Skunk Works" at Burbank, Calif. And, of course, Johnson's YF-12A continues to hold a string of world records, including the absolute speed record, nearly eight years after they were set.

Already Lockheed sees the TriStar as a family of airplanes. To the current L-1011-1 it plans to add next the -2 airplane, with four 45,000-pound (20,412 kg) static thrust RB.211s and sufficient extra fuel to convert the TriStar into an extended transatlantic jet with a 4,000-nm (4,600 miles; 7,400 km) range. The UK government has announced that it will back these engines. With the extra fuel of the L-1011-2 exchanged for fifty more seats in plugs fore and aft of the wing, the L-1011-3 could then offer all-coach transcontinental service for 450 people. After that, perhaps, might come a shorter-fuselage, short-haul, twin-turbofan "BiStar"—but this would be a largely new design.

A visitor is surprised by such optimism and long-term planning at a company so newly retrieved from extinction, in an industry plagued with problems. Yet the same spirit can be found in a dozen other airplane centers. Northrop regrets that only one F-5B and one F-5E Tiger II are currently leaving its assembly shop each month, against the old total of twenty-seven T-38s and F-5As; but the Tiger II is proving so popular that production will increase gradually to fifteen a month.

Boeing's vast facilities look even more empty. Yet five 727s, two 737s, and half a 707 were being built each month in the fall of 1972, and the 727 rate will increase to eight aircraft a month during the current year. Both halves of the 707 will also go together monthly! As for the 747, an eventual market is foreseen for more than 600 for this aircraft. Boeing has recently received a £44 million ($105.6 million) order from Japan Air Lines for four 747s. As in the case of the ANA TriStar order, this could be but the visible tip of an iceberg. The version of the "Jumbo" ordered by JAL is the new short-haul 747SR, designed to carry up to 537 passengers, and the probable generator of a new rash of orders for this great aircraft. Bearing in mind Juan Trippe's calm 1966 assertion that he expected each of Pan American's "Jumbos" to carry four times as many passengers across the Atlantic annually as could the *Queen Mary,* it is easy to see why Europe's aircraft industry has reason to fear the reawakening giant on the other side of the Atlantic.

While Lockheed looks to permutation of the TriStar, Douglas refines its ideas for a four-

For the end of the century, Douglas is thinking about a 6,000-mph, 500-passenger DC-2000.

A preproduction version of the Soviet Tu-144 supersonic transport at Tashkent airport.

The first Hawker Siddeley Trident for the People's Republic of China, delivered in November 1972.

turbofan, 150/200-passenger short-haul STOL transport for the 1980s. It would like also to build for that decade an SST that would differ little from the Anglo-French Concorde in shape, construction, and performance, but would carry twice as many passengers. Boeing still hankers for something much bigger, faster, more advanced and prestigious; but even the Seattle dreams lag behind Douglas' DC-2000 for the end of the century. Many people might regard a 6,000-mph, 7,500-mile-range, 500-seat transport, powered by four liquid-hydrogen ramjets, in the same way as their ancestors a hundred years ago looked on the efforts of would-be aviators. Personally, the writer never scoffs at any idea with a "DC" tag!

Concorde and Tu-144

MEANWHILE, the Concorde and Tu-144 remain the only firm steps toward supersonic flight for the man and woman in the street. Three Concordes are flying, of which No. 001 had completed 620 airborne hours in 300 flights by November 22, 1972. Add on the totals logged by 002 and the preproduction 01, and the figures become 1,354 hours and fifty minutes (of which 348 hours and twenty-four minutes were above Mach 1) and 645 flights respectively. The program continues to go smoothly, with firm orders now placed by BOAC, Air France, and the national airlines of Iran and China. The only real cloud on the horizon remains the likely limitations on overland supersonic flying demanded by the anti-pollutionists.

Concorde's planned into-service date is now 1975, and the makers have guaranteed that the aircraft will carry a minimum 20,000-pound (9,100 kg), Paris–New York payload against winter head winds. By 1977, the guaranteed minimum payload will be up to 25,000 pounds (11,350 kg), and there is every reason to expect such estimates to be bettered.

The two governments concerned in the project have invested nearly £1 billion ($2.4 billion) on research and development and have also authorized the purchase of materials for twenty-two production aircraft. They will never show a financial profit on the deal, but its worth in terms of experience, national "one-upmanship," and a lot of work for a lot of people is worth every penny.

The London *Soviet Weekly* was somewhat annoyed by a suggestion in the 1972–73 *Jane's* that the Tu-144 will not now enter service before the Concorde, because it is lagging considerably in terms of hours flown to date. In its issue of October 7, 1972, the newspaper asked: "Does Mr. Taylor really know what he's talking about? The answer is simple. As we have already reported in *Soviet Weekly,* the Soviet Tu-144 will be flying in the regular services of Aeroflot before the end of 1973. Concorde, according to Mr. Taylor, has a target date for entering service of only '1974–75.' So anyone familiar with the calendar will be able to work out for himself who is really sweeping ahead."

Point taken. The *Jane's* date and data were based on reported statements by the Tu-144's very able test pilot in Paris last June. So, watch "Jane's Supplement" in this magazine later this year and let's see who was right. Meanwhile, as *Soviet Weekly* concluded, "Does it really matter who happens to get there first?" Of course it doesn't. What matters is to end up with two fine, safe airliners to inaugurate the era of supersonic flight for airline passengers.

European Aerospace Developments

THERE was tremendous activity in the airliner field in Europe during the closing months of 1972. In France, the prototype of the multinational A-300B 250/300-seat European Airbus flew for the first time on October 28. The second prototype of the smaller (140-passenger), but still wide-bodied, Dassault Mercure had flown on September 7, in which month Germany's second prototype VFW-Fokker 614, with forty-four seats and peculiar overwing turbofans, made a brief appearance at the Farnborough Air Show.

How much business does Europe hope to attract with such aircraft? At the time of writing, firm orders totaled a rather pathetic thirteen (with eighteen options) for the A-300B, ten from a single airline for the Mercure, and none (twenty-six options) for the VFW-Fokker 614.

Such facts and figures reflect no discredit on Europe's ability in the design and manufacture of aircraft. China, for example, is so enamored of British workmanship and performance that it has ordered twenty Tridents for its state airline and would like to have twenty VC10s if BAC is willing to reopen the production line. Asked by a TV interviewer why his country felt this way, the Chinese Ambassador in London replied: "We have, as you know, bought aircraft from Russia and America; but British airplanes are best."

If only his views were shared by the British politicians whose lack of a consistent, sound policy has bedeviled the aerospace industry for a decade and a half!

Even when Britain has a world-beater, like the Harrier V/STOL fighter, the main interest seems to come from overseas. At home, those who count crashes have transferred their morbid attention from *Luftwaffe* Starfighters to RAF Harriers. On paper, the figures (twenty-six accidents, eleven write-offs, four pilots killed

in five years) may look depressing; but Hawker Siddeley has pointed out quite correctly that the Harrier has a better safety record to date than its predecessor, the Hunter, a conventional jet fighter. One can only hope that the incomparable Harrier will also better in time the sales success of the twenty-one-year-old Hunter, of which the Swiss have just ordered another thirty refurbished craft.

The Harrier is almost certain to go on the Royal Navy's new "through-deck" cruisers, where its payload will be further enhanced by the availability of a short runway and a good over-the-deck wind. It is still the only operational fixed-wing V/STOL combat aircraft in service, despite efforts to rival it with designs like the Soviet Yak-36 (NATO "Freehand") and the German VFW-Fokker VAK 191B. The US Navy has initiated development of North American Rockwell's new NR-356 canard V/STOL aircraft, for potential operation from Sea Control ships. But, like Concorde, the Harrier is flying and in production now.

VFW-Fokker can feel rightly upset that the VAK 191B is being virtually overlooked in Europe where contracts for new combat aircraft are being considered. They have tried so hard to produce a winner. It seems to work, but nobody wants it. More and more this is becoming the pattern so far as the design and manufacture of combat aircraft outside the US, USSR, UK, France, and Sweden are concerned.

The Egyptians tried to bring to fruition Willy Messerschmitt's Mach 2 deltawing HA-300 after Hispano of Spain gave up the struggle. They failed. So far, too, Hindustan Aeronautics in India have achieved little real success with their HF-24 Marut, designed for Mach 2 by another German World War II fighter team leader, Kurt Tank. Earlier, Tank had flown a jet fighter in the Argentine, without convincing the authorities that it was worthy of manufacture in quantity.

Only one surprise has come recently from "small-nation" persistence with a combat airplane. During the Indo-Pakistan War, according to the Indian Air Force, its Gnat lightweight fighter—a type rejected as ineffective in the UK where it was designed—proved that it could outfight Pakistan's MiG-19, F-104, Mirage, and F-86 at 8,000 feet (2,440 m). "What on earth," one might ask, "were the Pakistani supersonic jets doing at that height?" The answer is that fighters are useful only when they fight. If an enemy stays at 8,000 feet, the only way to engage him is to descend to his altitude. When the Pakistanis did this, say the Indians, they were clobbered.

Artist's concept of the Orbiter, to be developed for NASA by North American Rockwell.

The Hawker Siddeley Harrier, still the only fixed-wing V/STOL combat aircraft in service.

Graceful lines of the F-15 belie its size, about twice the weight and span of a MiG-21.

The Soviet Scene

THEREIN lies an interesting philosophy. It could explain how the USAF hopes to match the MiG-25 "Foxbat" with an F-15A Eagle that cannot approach the MiG's Mach 3-plus at 70,000 feet (21,330 m). It could also make more sense of those YF-16 and YF-17 lightweight fighters. At any rate, the Indians are sufficiently impressed to plan development of the Gnat through the Mark 2, with improved ground attack capability, to a possible Mark 3 with a supercritical wing, turbofan engine, and other changes.

The same Indo-Pakistan conflict also revealed shortcomings in the Soviet Su-7 (NATO "Fitter-A") fighter-bombers, supplied in large numbers to India and many other nations. It appears that the Su-7 has an endurance of only eight minutes when the afterburner of its massive Lyulka AL-7F turbojet is cut in. Little wonder that Moscow has resorted to even a small degree of variable-geometry to try to improve things on "Fitter-B." Pakistan also reports that the two-stage ejection seat on the Su-7 hits the pilot so hard under his posterior that one or two vertebrae are usually compressed.

Such facts do not by any means reflect the current state of the art in Soviet design bureaus. There is good reason to believe that the Su-7's planned successor, the swingwing MiG-23 known to NATO as "Flogger," has overcome its early problems and is now being deployed operationally. It will be a worthy companion to Mikoyan's MiG-25 "Foxbat," which has completed a number of uncontestable reconnaissance sorties in Israeli airspace and remains the world's fastest combat aircraft in service.

Even the older Soviet types deserve close study, particularly when they grow new bumps and antennae. As will be noted in more detail in the next (*February '73 issue*) "Jane's Supplement" to this journal, the version of the Tupolev Tu-95 code-named "Bear-D" is now known to have a vitally important role in addition to maritime reconnaissance. If a Soviet ship, submarine, or aircraft launches an antishipping missile beyond the line-of-sight range to the target, "Bear-D" carries equipment to take over control of the missile and guide it to its objective.

With Boeing now developing the E-3A version of the 707 to perform airborne warning and control system (AWACS) duties for the US forces, and the similarly configured Tupolev "Moss" already operational with Soviet forces, there is little doubt that such aircraft, without which both defense and attack are blunted, and "Bear-D," must be regarded as the primary initial targets in any confrontation.

So much more could and should be written as 1973 replaces 1972 on the letterheads. To survey the products of our industry fully requires nearly 800 large pages, say a million and a half words, in the latest *Jane's*. To these could be added scores of pages explaining the philosophy behind programs and projects.

Toward a New Perspective

COMMENTING in a popular magazine on the description of a new lightplane, an owner-pilot recently noted that no progress in performance and economics appeared to have been made since he bought his ancient Bonanza back in the late 1940s. What has happened to the plastic two- and four-seaters that were going to be pressed out like parts of a model kit; and why has nobody yet evolved a cheap, lightweight, baby turboprop to stick in their noses?

Is there not a lesson to be learned from the mounting success of Britain's utilitarian Skyvan and Islander/Trislander light transports, which cut out the frills and bring in the profits for their operators? We tend to think in terms of such vast sums of money for everything nowadays that a simple comparison with the past can be startling.

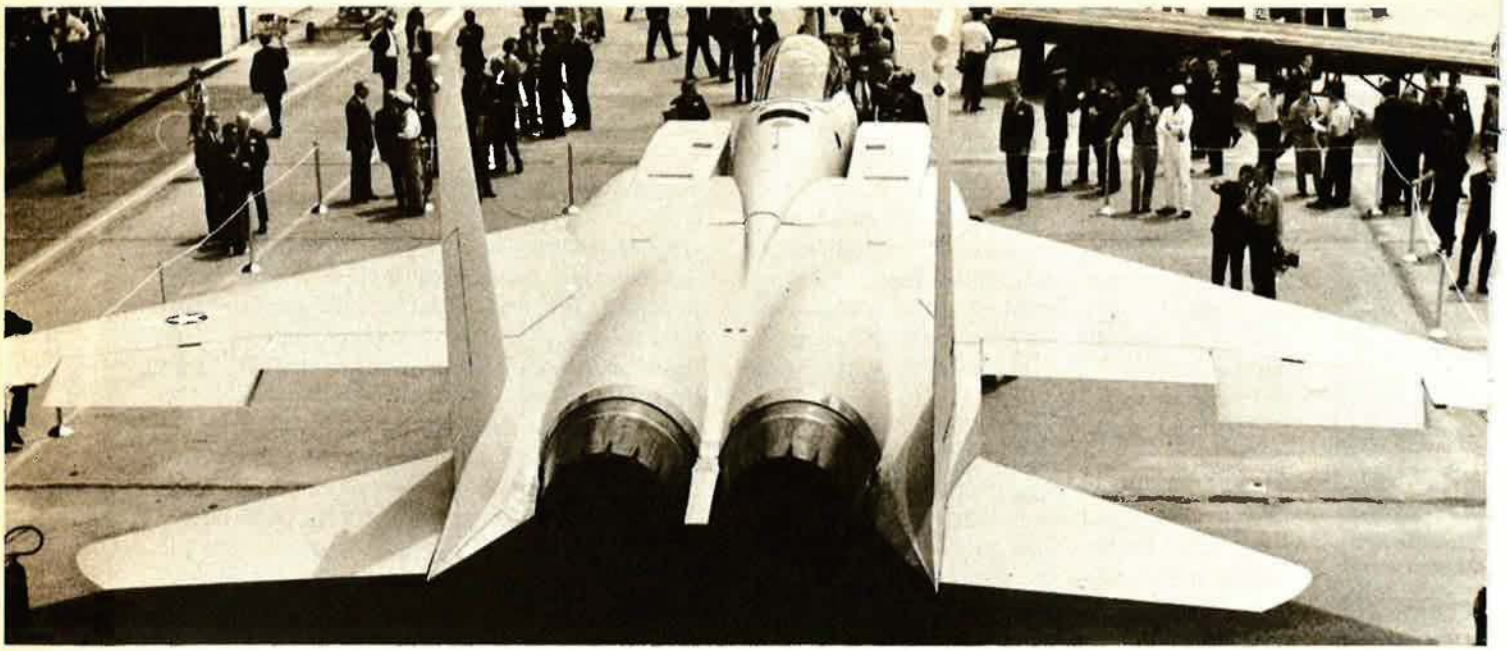
For instance, RAF Fighter Command had just 620 serviceable Hurricanes and Spitfires on August 11, 1940, at the start of the Battle of Britain. The "Spitfire Fund" people, who encouraged Britons to contribute toward the cost of RAF aircraft, fixed the price of a Spitfire or Hurricane at £5,000. At this rate, the complete Fighter Command fighter force that defeated the *Luftwaffe* represented an expenditure of only £3,100,000. Even if we accept the £5,000 nominal cost of each aircraft as low, one is startled by a comparison of its cost and the £115,000,000 that BOAC expects to spend on its first five Concordes, spares, a simulator, and a hangar.

But compare a Spitfire with an F-15. Even more, compare the greatest aviation achievements of 1940 or 1960 with those of our aerospace industry of the 1970s.

At St. Louis, the writer was privileged to step inside a Gemini space capsule. The lid was slammed shut, producing the sensation of being a canned man. What new respect for men like Gagarin, Shepard, Glenn, and their successors was born in that moment, dreaming of lonely orbits.

A few days later, in the Los Angeles area, came an opportunity to board the full-scale mockup of tomorrow's Space Shuttle Orbital Vehicle. Gone was the claustrophobic Gemini cabin. In its place was a giant spacecraft that can hardly be imagined in orbit by one who remembers the difficulty of orbiting the tiny Vanguard satellite a mere fifteen years ago. When one's aspirations extend to the stars, it is hardly surprising that expenditure, too, becomes astronomical. ■

The highly maneuverable F-15 will have an attack radar with downward-looking capability.



What kind of equipment, in what quantities, will USAF tactical air forces need to support the Nixon Doctrine in the years ahead? Air Force Secretary Seamans outlines the requirement, as presently foreseen, in terms of aircraft, ordnance, command and control, and numbers, in this discussion of . . .

Tac Air: A Look at the Late '70s

By the Hon. Robert C. Seamans, Jr. SECRETARY OF THE AIR FORCE

US TACTICAL defenses in the 1970s will be designed for cooperation with our allies. The Nixon Doctrine, which shapes our strategy, states that we will rely on our allies to furnish most of the manpower for their own defense, while we provide economic and military assistance. If this policy is to be successful in deterring war, the US Air Force will have to be ready to contribute appropriate levels of military technology.

At the present time, our tactical capabilities are organized principally around the F-4, the A-7, and the F-111. The first model of the F-4, designed as a Navy all-weather interceptor, flew as early as 1958. Later models have been considerably improved and are now the main element in our air-to-air combat and ground attack forces. The latest version, the F-4E, has program costs of about $3 million per aircraft overall, though approaching $4 million for this year's purchases due to inflation. Program cost per aircraft for the F-4E includes expenditures for R&D and initial spares as well as for basic procurement. (Throughout this article, the entire program cost of systems will be cited, rather than just basic procurement or unit flyaway cost.)

The A-7 is a subsonic ground attack aircraft that began entering the inventory in March 1971. It is equipped with a highly accurate navigation and weapons delivery system and, with some 10,000 pounds of bombs, has a combat radius of about 450 miles. By reducing the range to 350 miles, it could orbit in the target area for about thirty minutes. This performance is considerably better than the F-4 in the attack role, but, of course, the A-7 does not have the supersonic speed and air-to-air combat capability of the F-4. A-7 program costs are about $3.5 million per aircraft.

The F-111 is our most sophisticated tactical aircraft and is easily the world's most effective aircraft for the long-range tactical attack mission. It can carry more than 12,000 pounds of weapons on a combat mission out to about 650 miles. It is a supersonic aircraft, but would

normally approach its target at high subsonic speeds, at low level, using its terrain-following radar to hug the surface of the earth. It has a very accurate weapons delivery system, even at night and in bad weather. The program cost of the F-111 was nearly $15 million per aircraft.

Our F-4, A-7, and F-111 regular forces, excluding training and support aircraft, consist of about 1,600 aircraft. We also have some 700 fighter aircraft assigned to Air Guard and Reserve units, primarily older fighter-bombers like the F-100 and F-105. Our combined active and Reserve strength is expected to remain at about 2,300 fighter and attack aircraft over the next several years, compared with a Soviet force of more than 3,000 such aircraft.

Although we presently have a well-rounded combat capability, we must prepare to meet future needs. Our first concern is to maintain an effective capability for air superiority. The F-4, already exceeded in performance by some Soviet aircraft, cannot be expected to provide this capability indefinitely. And, without the ability to deal with enemy fighters, we could not provide adequate support for our ground troops, and our combat forces and their lines of communication would be vulnerable to enemy air attack—a condition that has not existed since the early days of World War II.

The Soviets have placed great emphasis on tactical air defense and air superiority. They have provided their own forces and their allies with modern air-superiority fighters such as the MIG-21. This aircraft can operate at a speed of Mach 2 and at an altitude of 60,000 feet. Newer Soviet fighters show steady improvement in air combat capabilities. The variable wing MIG-23, Flogger, has radar and missile systems comparable to those of the F-4. And like the F-4E and later models of the MIG-21, the Flogger also has a gun for close-in combat. Most recently, the Soviets have deployed the MIG-25 Foxbat, which is probably the best interceptor in production in the world today. This Mach 3 aircraft performs both interceptor and reconnaissance missions, can operate at 80,000 feet, and has a highly capable avionics and missile system.

[Until recently, Foxbat has been referred to as the MIG-23. The new DoD designations appearing here do not imply any change in either the Flogger or the Foxbat. The Soviets do not assign a numerical designation to an aircraft until it is ready to go into production. Designating the Flogger as MIG-23 and Foxbat as MIG-25 merely indicates that it now has been established that Flogger went into production prior to Foxbat.—THE EDITORS.]

The F-15 Air Superiority Fighter

In order to provide effective air-to-air combat capability in the late 1970s and 1980s, the Air Force is developing the F-15 Eagle as our first-line air-superiority fighter. This is our first aircraft designed specifically for air-to-air combat in more than twenty years.

Our primary objective in designing the F-15 was to provide outstanding maneuverability. Combat experience has shown that while air-to-air combat between supersonic fighters might be initiated by a long-range missile launch at high altitude, the subsequent phases of the engagement normally take place at subsonic speeds and at medium to low altitude. This is primarily because of the energy loss associated with sharp turns at high altitudes. Further, the turning radius is so large at high altitude and supersonic speed that multiple-pass, close-in combat is impractical. Thus, excellent maneuverability at medium and low altitudes is essential for an air-to-air fighter that can remain in the combat area and continue to deal with any enemy air opposition.

To attain this capability, the F-15 has a low ratio of aircraft weight to wing area, and its ratio of engine thrust to aircraft weight will be at least fifty percent greater than the F-4E's. This provides for fast acceleration and climb, as well as short turning radius. It also has excellent cockpit visibility and longer endurance in the combat area.

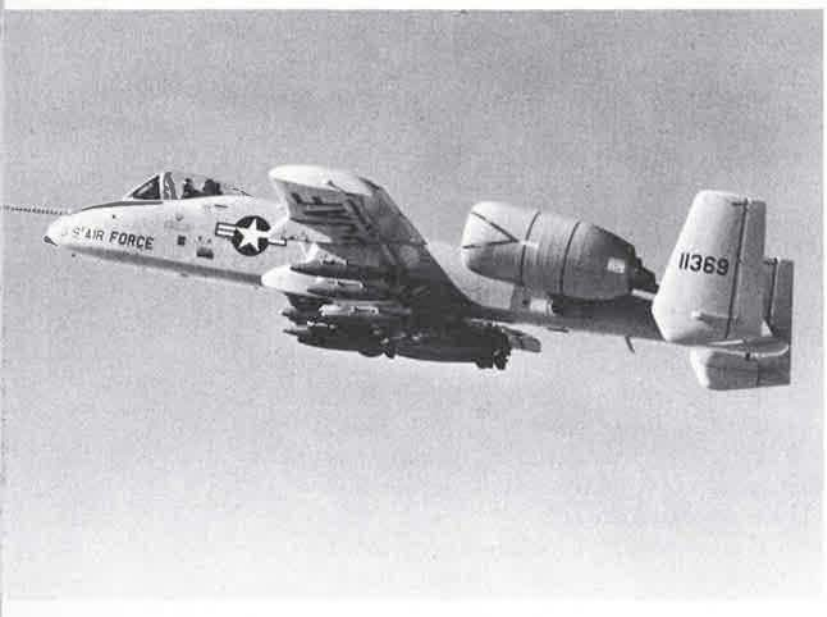
The F-15 avionics will include a long-range attack radar with a downward-looking capability to detect and track a target against an earth background. It will enable the pilot to initiate a standoff engagement or to maneuver for a favorable position for close-in combat. The prototype radar has met performance goals in all areas and is expected to provide a major improvement over existing air-to-air fire-control systems.

To provide close-in combat capability, the F-15 will initially use the M-61 20-mm Gatling gun; however, a new rapid-fire 25-mm cannon is being developed for future use. This new weapon is expected to produce a muzzle velocity significantly higher than the M-61. The new cannon will use caseless ammunition, which will weigh much less than current rounds, allowing more ammunition to be carried.

Also, for close-in combat, the F-15 will use the improved Sidewinder short-range, infrared-guided missile. This improved missile will be effective from a broader attack zone, particularly in close-in combat. The pilot will be able to fire it at wider angles relative to the enemy aircraft than any missile currently in the inventory.

For all-weather combat and standoff engagements, a medium-range air-to-air missile, the AIM-7F, an improved Sparrow, will be used by the F-15. This missile homes on the radar signal reflected from the target aircraft and has an effective range of several miles.

The F-15 should be able to deal with fighter aircraft that are likely to appear during the next fifteen years. We are very pleased with development progress to date. The F-15's first flight in July 1972 was ahead of schedule, and the first two aircraft are currently undergoing contractor as well as Air Force flight evaluations. In addition, a third F-15 is being flight-tested in St. Louis by the contractor. We expect to make a production decision in February and plan to receive the first operational aircraft in November 1974. The program cost is expected to be $10.4 million per aircraft.



The A-10A, Fairchild's entry in the A-X prototype competition, takes off with eighteen 500-pound practice bombs under its wings.

Northrop's A-X prototype—the A-9A—like its Fairchild competitor will carry up to eight tons of ordnance and a new 30-mm cannon.

The A-X Close-Support Aircraft

In addition to the F-15 for air-to-air combat, we also need a new aircraft for better close air support of ground troops. We are developing the A-X for this purpose.

The A-X represents our first effort to build an aircraft specifically for close air support. Historically, most types of aircraft that have been used in the close-air-support role were designed primarily to meet requirements of other tactical missions.

The older A-1E propeller-driven aircraft proved a great asset in Vietnam, but it does not have the higher speeds needed for rapid response to ground-force requests for support, nor does it have enough load-carrying capability or sufficient survivability to operate in highly defended areas. The few remaining A-1Es have been turned over to the Vietnamese Air Force.

Our more modern aircraft were often designed for long range at high speeds and high altitudes, and lacked optimum capabilities for operating at low altitudes and low speeds. Also, most of our newer aircraft were not built to operate from short runways at forward locations and do not have the ability for long loiter with heavy loads. Moreover, most lack the degree of survivability that is desired for the close-air-support mission.

In South Vietnam we have used the A-37 with success, but the short loiter time of this aircraft with normal ordnance loads has limited its effectiveness. The F-100 has provided a useful capability, but it, too, is limited in endurance when carrying large loads of ordnance. Further, it was not designed to operate from short, austere airfields.

The A-7D and the F-4 can perform effectively in the close-air-support role, but neither

aircraft possesses all of the characteristics required for the full and efficient performance of the close-air-support mission. Additionally, the costs of the F-4 and A-7 are considerably greater than that anticipated for the A-X.

The A-X will be a simple, rugged aircraft, built with current technology. It is designed for short takeoff and landing and will have excellent maneuverability over a wide range of subsonic speeds. The combination of high-lift wing and a high-power fanjet propulsion system will allow the A-X to carry heavy loads at combat speeds from 150 knots to more than 400 knots. It will also be able to execute tight, high G maneuvers without loss of altitude or airspeed. With this performance it can be flown under low ceilings even when operating in rough terrain.

The empty weight of the A-X is expected to be about 20,000 pounds. It will carry up to eight tons of ordnance. A typical load, however, would be 10,000 pounds of fuel, 1,350 rounds of ammunition, and 9,500 pounds of externally carried ordnance. With this load, the A-X will be able to take off in about 3,800 feet, fly 250 miles to a target area, loiter for two hours before delivering ordnance, and return to home base. By reducing the load, it will be capable of taking off from unimproved airstrips with a ground roll of about 1,000 feet.

The A-X will be equipped with an internally mounted 30-mm automatic cannon that can fire at rates in excess of 4,000 rounds per minute. Two companies, General Electric and Philco-Ford, are under contract to develop prototype versions of this new cannon. A shoot-off competition in December 1972 will have determined the production contractor, and first delivery should come in 1975. Development of the 30-mm cannon is not a pacing item in the A-X program, and thus the M-61 Gatling gun is being used for the competitive evaluation of the prototype aircraft, currently under way.

Many A-X design features will provide for high survivability. The cockpit will have about 1,600 pounds of armor plating to protect against armor-piercing incendiary weapons and high-explosive rounds. Fuel tanks will be designed to reduce contact with ignition sources and will contain foam to prevent or suppress fires. The A-X control systems will be redundant with a manual backup system, and armor will protect critical flight and engine controls as well as vulnerable engine components. To verify that survivability features are meeting design goals, we have fired large-caliber ammunition into the cockpit armor and fuel tanks.

The avionics system presently planned for the A-X will be simple and will make maximum use of electronic equipment currently in operation. To meet further requirements that might arise later, the A-X is being designed to provide for the space, weight, power, and cooling capacity to accommodate improved avionics systems.

The A-X development program is progressing well. Northrop Corp. and Fairchild Industries were awarded fixed-price contracts in 1970 to build two prototypes each. These aircraft flew for the first time in May 1972, and all four were turned over to the Air Force in October for competitive evaluations. These tests include system performance, weapons delivery, and operational suitability. Air Force pilots will have flown the prototypes about 250 hours before completion of the tests in December 1972. The results of the fly-off competition and evaluation of the contractors' proposals will form the basis to award a contract for full-scale development in February 1973. Our goal is to achieve an initial operational capability by the mid-1970s.

Improved Armament Capabilities

The F-15 and A-X will provide the necessary new combat effectiveness to augment our present F-4, A-7, F-111 force. And, as these new aircraft become operational, some of the F-4s will be moved to the Guard and Reserve to replace older tactical aircraft. However, we must also develop armament systems that will help us further benefit from the full potential of our tactical aircraft. Considerable progress has been made in this direction during the past few years.

In Southeast Asia one of our most pressing operational needs has been an effective capability to destroy hard or small targets with an acceptable number of sorties. We have developed laser and electro-optical guidance and control kits that are installed in the field on existing unguided bombs. Results with these modified weapons have been excellent. For instance, during the 1965–68 air campaign over North Vietnam, we flew more than 450 attacks against the Thanh Hoa bridge with little success and the loss of a dozen aircraft. Then, in just a short time during the spring of 1972, we were able to drop a span of the same bridge with just a few laser-guided bombs—and without the loss of a single aircraft.

As another example, we destroyed the Lang Chi hydroelectric plant last June with guided bombs delivered by Air Force F-4s. This attack took out a large portion of North Vietnam's total electrical power without damaging the dam just ten feet away.

Preliminary analyses of the electro-optically guided Maverick missile now being tested point

Dr. Robert C. Seamans, Jr., has served as Secretary of the Air Force since February 1969. A Harvard graduate with a doctorate in science, Dr. Seamans has been a member of the MIT faculty, a senior executive with RCA, and Deputy Administrator of NASA. He has been active in the fields of missiles and aeronautics since 1941.

toward even greater weapons effectiveness. During 1972, we simulated Maverick operations in adverse weather conditions in Europe with actual flights by F-4 aircraft. In these evaluations, 122 passes were flown against simulated targets in a variety of terrains and under conditions of low ceiling and poor visibility. In similar tests, fifty-four sorties were flown by TAC crews in a realistic ground combat environment with simulated strong antiaircraft defenses at Fort Riley, Kan. The results of these tests and the live firing program indicate that Maverick will give us a highly accurate weapon that can be launched with minimum exposure of our aircraft to air defenses around the target site.

We are confident that weapons technology can offer even further improvements in our tactical operations. For instance, we are working on a new family of guided weapons and a navigation system that could provide greater standoff capability. Our present tactics often require that we locate targets twice—once during reconnaissance and again by the strike aircraft. We now believe that points precisely located with advanced navigation techniques can

AWACS, expected to be operational in 1977, will provide command and control for tactical and air defense forces.

be attacked by strike aircraft, based on navigation data, without having to overfly or relocate the target. This will not only give us a night all-weather capability with guided bombs, but will also permit us to attack a target from an increased standoff distance.

One of the most attractive new developments is the use of an extremely accurate navigation system similar in principle to LORAN. Using this technique, reconnaissance aircraft can determine the location of targets within a coordinate system, and, using the same grid, strike aircraft can deliver guided weapons precisely without reacquiring the target.

Tactical Command and Control

We should also be able to greatly improve our tactical command and control capabilities with the Airborne Warning and Control System (AWACS), under development to improve our strategic defense forces. The AWACS will consist of improved surveillance radar and advanced data-processing and communications equipment installed in a modified Boeing 707. This new system will provide effective command and control during deployment of our tactical forces to overseas locations. Moreover, the AWACS will be able to function as a Direct Air Support Center during combat operations, until the ground-based Tactical Air Support System is established.

After ground radar systems become operational, AWACS will be capable of extending effective command and control of tactical forces significantly beyond the range of ground-based systems. To meet this requirement in Southeast Asia, we have used twenty-three C-130, EC-121, and KC-135 aircraft. Analyses show that this entire force could have been replaced by five AWACS aircraft, at a considerable savings in cost and with a significant increase in effectiveness.

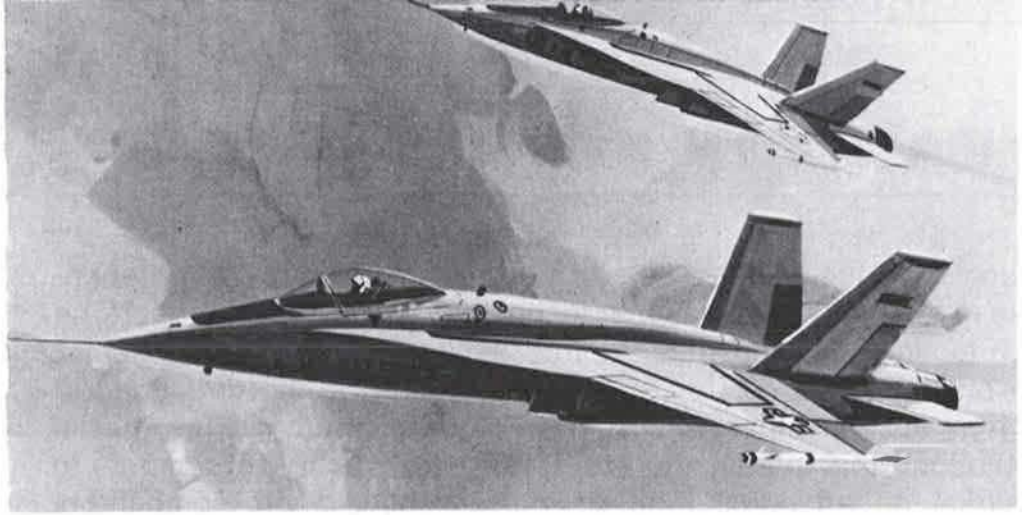
In its strategic defense role, the AWACS is more survivable than ground-based control facilities and will be able to fly out to stations several hundred miles away and detect, track, and direct interceptors against enemy bombers. Most important, AWACS, with its downward-looking radar, will provide for the first time the means to track aircraft and control operations at low altitudes where many aircraft will operate. This is essential both in defensive and offensive air operations.

The AWACS development program is on schedule and within original cost estimates. The radar was the high-risk item in developing this system. After evaluation of some 250 hours of competitive radar flight-testing, between Hughes and Westinghouse, the latter company was selected last October to complete full-scale development of the radar. During the next two years, the radar will be integrated with other avionics subsystems and then will undergo extensive demonstration tests before a production decision is made in November 1974. We expect to have an operational AWACS in 1977.

The Long-Range Future

To help us maintain adequate tactical strength in the years ahead, we have under way important advanced prototype research and development projects. These programs are designed to provide better information on costs, advanced technologies, and operational suitability before beginning a new weapon development program.

For instance, the Lightweight Fighter prototype program is an advanced development ef-



Artists' conceptions of the Northrop YF-17 (above) and General Dynamics YF-16 (right) Lightweight Fighter prototypes scheduled to fly in early 1974. Neither will be preproduction aircraft.

fort designed to investigate the feasibility of developing a small, lightweight, low-cost fighter. It will evaluate advanced technology and design concepts to determine what the aircraft can do, and to establish its possible operational utility. These prototypes will not be preproduction versions. Considerable additional engineering would be required to develop an operationally configured aircraft from the experimental models.

There are currently two Lightweight Fighter prototype designs under construction by Northrop and General Dynamics. Each company will build two prototypes. First flight is planned for early 1974, when we will begin tests and evaluations on these aircraft. In performance, we are looking for a fighter that can sustain high rates of turn and increased supersonic maneuvering capabilities while retaining the ability to accelerate rapidly. We are confident that the Lightweight Fighter prototype program will provide information that will be invaluable in helping to determine future Air Force tactical requirements.

Our present programs will give us carefully balanced tactical air capabilities in the late 1970s. The F-15 will provide the air-to-air combat effectiveness to protect all our forces. The A-X will be a relatively inexpensive aircraft, and yet the best system in any air force for close-support operations. The F-111 will continue to provide the best long-range tactical attack capability, while the A-7 gives us a fine medium-range force. The F-4 will continue to be a mainstay for both air-to-air combat and ground attack missions. Finally, AWACS will provide the capability for improved warning and more effective command and control of our forces.

We expect to maintain our total force of some 2,300 tactical fighter and attack aircraft, including 700 in the Reserve Forces. As the F-15 and A-X are introduced into our active forces, F-4s will be transferred to the Air Guard and Reserve, replacing older types of aircraft. As mentioned earlier, this compares to a present Soviet tactical air force of more than 3,000 fighters. But we expect the quality of our aircraft to give us acceptable overall strength. We feel that a versatile, modern force of modest size is the appropriate choice in an era of austere defense spending, when personnel costs make up the major part of our military budgets. ■

RUDE AWAKENINGS

Back in World War II, my P-38 outfit in Africa was rudely awakened one night by the chilling sounds of an air-raid warning. Following the proper SOP, all hands dashed for the nearest foxhole. One of our faster-reacting pilots huddled in a foxhole, making as small a target as possible, when an object hurtled out of the dark and landed with a crunch in the middle of his back. The "object," a young sergeant, immediately jumped up, excusing himself for such a breach of courtesy. The lieutenant, with what little breath he had left, said, "Get back in here and forget it, son. I'm sweating out much bigger things than you."

—CONTRIBUTED BY COL. ROBERT A. VRILAKAS, USAF

(AIR FORCE *Magazine will pay $10 for each anecdote accepted for publication.*)

Interview With William M. Magruder

President Nixon's second term is likely to be characterized by comprehensive programs to strengthen the national technology effort and to support the so-called high-technology industries. In this exclusive interview, a senior White House official spells out for AIR FORCE Magazine the directions of this support, from easing military export restrictions to the need for special financial institutions that permit the US aerospace industry to compete in the world market on an equal footing with its subsidized competitors abroad . . .

White House adviser on technology William M. Magruder, shown here with a B-1 mockup, predicts that the Administration will place special emphasis on military R&D programs that have a direct, beneficial impact on the commercial market.

THE WHITE HOUSE IS SETTING A NEW TECHNOLOGICAL COURSE

by Edgar Ulsamer
SENIOR EDITOR,
AIR FORCE MAGAZINE

It is obvious that the Administration's commitment to "sufficiency" in national security and its support of aerospace and other high-technology industries and programs contributed significantly to the Nixon landslide of November 7. At this writing, the White House is starting the long and difficult process of translating the generalities of the election campaign into specifics that are at once compatible with the Administration's $250 billion budget ceiling and the mood of the Congress.

The President's Special Consultant for Technology, William M. Magruder, a key White House official in the drive to rejuvenate and strengthen the federal government's technology policies, told Air Force Magazine that the second Nixon Administration plans on "modest but sustainable levels of the federally funded technology effort. The emphasis will be on extensive improvements in management and institutional arrangements, and not on a few big and spectacular programs."

The present national investment in research and technology of about $50 billion annually —consisting of $18.6 billion in federal funds for nondefense R&D, $20.9 billion in defense research and development, and the remainder private industry's R&D investment—is not considered inadequate by the White House. (As a percentage of GNP, the US research and development investment is below that of other leading industrial nations, if defense is excluded; including defense, the US ranks on a par with Germany and Japan.) But setting "priorities in terms of cost benefits and the administration of R&D funds and programs will require considerable streamlining and refining," in Mr. Magruder's view. The current "shakeup," involving in the main departments with only limited experience in the management of R&D, he added, is designed to assure greater efficiency in the future.

Complementing these departmental adjustments, Mr. Magruder predicts, will be moves to "strengthen OMB." OMB, the Office of Management and Budget, was created in 1970 to provide the White House with an affiliated

organization capable of making assessments and of examining trade offs in both institutional arrangements and the allocation of resources.

"OMB needs to build up its staff and expertise in the areas of systems analysis, cost benefit analysis, and program definition analysis, along the lines the military and the Defense Department have developed and used so effectively in keeping this country secure. What's really needed is the ability for in-depth analyses of the agencies that allocate the $18.6 billion in domestic R&D funds and the more than $20 billion in defense R&D, so that the OMB can furnish the range and depth of information needed to make the best possible decisions. This move is definitely going to be an essential part of the Administration's new organizational game plan," Mr. Magruder points out.

Three key factors are central to the Nixon Administration's view of the nation's technology needs: The ineluctable change in status of the United States from a "have- to a have-not nation" in terms of natural resources; the declining role of defense in sustaining the national R&D effort; and the limited financial resources of US industry compared to "national purpose industries" of other nations.

The Natural Resource Crisis

By 1985, the United States will have to import natural resources, including such energy sources as liquefied natural gas, to the tune of $45 billion annually, according to Mr. Magruder. "As a result, research and development efforts in support of the national energy policy rank at the top of our technology requirements. Our economy is predicated on an adequate supply of energy. There is no general lack of adequate resources, but we suffer from a deficiency in economically viable and environmentally clean means of meeting our energy needs. Modest near-term requirements involve fast breeder reactors [reactors that produce more nuclear fuel than they consume]. The long-term goal is fusion energy [the sun's and the hydrogen bomb's way of creating energy], and in between these two we will have to rely on coal gasification, the importation of liquid natural gas, and perhaps solar energy. It will take all these means to satisfy our energy needs because we are now, in terms of natural resources, a have-not nation."

The deficit in natural resources, in the Administration's view, must be offset by exports. "Outside of agriculture, the best way to compensate for the $45 billion shortfall appears to be through the strengthening of our high-technology industries, principally aerospace and the computer and electronics industries. In the case of commercial aircraft, for instance, the industry forecasts for the next twelve years a market of about $148 billion, including about $77 billion in exports.

"Last year, aerospace exports, involving military as well as civilian products, provided the United States with $4.3 billion in favorable trade balance. The industry itself provides direct employment for almost one million people and is larger than the automobile and steel industries combined. What is needed badly is for government, industry, and the financial institutions to get together and make sure that we continue to secure our share of the market."

The present dilemma of the US aerospace industry, the White House believes, stems from the fact that the industry must compete "in a world where free trade doesn't always mean fair trade. In much of the rest of the world, industries are being developed whenever it is in the national interest to penetrate a certain market. Other nations and their governments include in their analyses of potential benefits not just the classic consideration of return on investment [the yield of interest], but also such factors as jobs, tax revenues, and improvements in the national balance of trade. Both Europe and Japan are subsidizing the manufacturing, operations, and R&D of their aerospace industries to an unprecedented extent, and this represents a greater challenge to the US aerospace industry than we have ever faced before. A government that knows this and does nothing about it certainly would not serve its citizens very well," Mr. Magruder believes.

Although the Administration has not yet reached any binding decision, Mr. Magruder points out that "it is obvious that a way will have to be found to provide our industry with the financial resources needed to compete on an equal basis with the subsidized national purpose industries of other countries. This might apply to the electronics/computer industry, aerospace, and a number of other industries that, in the sense of this new definition of national benefits, are deemed to be of critical importance to our society. More and more government economists accept this view and recognize that the cost of many high-technology programs is well beyond the reach of the private sector, especially in light of the present anti-trust laws."

As a result, the government will have to make a hard-nosed, comprehensively researched decision on when and how to aid a threatened industry, or "when to let it go the route of the motion-picture industry, the shipping industry, or the low technology-intensive areas of the avionics and electronics industry," all of which were overwhelmed by competition

from subsidized national purpose industries of other countries.

"If the decision is made to provide such support, it might well be through the mechanism of a 'Guaranteed Loan Agency' that would operate with a relatively modest return on investment, yet provide a large return to our society in terms of employment, tax revenue, trade balance, and a healthy industry and economy. Such a structure should be so arranged that it safeguards our free enterprise system to the maximum extent possible, yet provides our industry with the financial resources to launch such programs as an advanced STOL aircraft, a wide-bodied airbus, and similar development ventures that industry can't get financial backing for in the private money market."

This matter, Mr. Magruder stresses, is being viewed as "very urgent and treated extremely seriously." As a first step, the Department of Commerce has been directed to examine the nation's key industries with an eye on creating a "warning system that lets us know when US industries get into trouble because of competition from national purpose industries abroad."

Environmental concerns and antipollution measures, which often increase industry's production costs, represent a relatively new factor affecting the United States export potential. It is being closely watched by the government. Mr. Magruder predicts that greater emphasis will have to be placed on international accords, similar to recent monetary and tariff agreements, to provide US industry with a reasonably fair chance in the world marketplace.

"The Environmental Protection Agency and other segments of the US government, incidentally, are doing an excellent job of exposing this problem to other countries. It must be recognized, however, that the underdeveloped countries that have the ultimate pollution problem of malnutrition, disease, and a low standard of living will be less inclined to concern themselves with these problems, which are of primary concern only to the affluent nations," according to Mr. Magruder.

Less Military Seed Money

One factor that is intensifying the Administration's concern is the recognition that "the United States obtained its preeminence [in nonmilitary aerospace industry] through an invisible subsidy from the Department of Defense," whose aircraft development programs in the past offered a steady and easy technology spinoff into the commercial sector. "We now have to face the fact that this subsidy is gone and that something must take its place," according to Mr. Magruder.

A recent joint DoD, NASA, and Department of Transportation study, undertaken at the behest of the White House and known as RADCAP (for research and development contributions to aviation progress), identifies fifty-one of the most significant technology advances in US aviation since 1925 and shows that thirty-five of them were funded and initiated by the military and most of the rest by NACA or NASA. "These vital contributions to the past growth of US aviation helped establish the industry as a world-recognized leader in aeronautical technology," RADCAP stressed.

But recently the changing nature of the military threat has caused a sharp reduction in the "relevance and importance" of military development and production programs to civil aviation progress, with the possible exception of short-haul transportation, according to the RADCAP assessment. As a result, and in the absence of programs to strengthen the industry by other means, RADCAP found that "these factors make the future uncertain, and perhaps gloomy, for this high-technology industry of aeronautics."

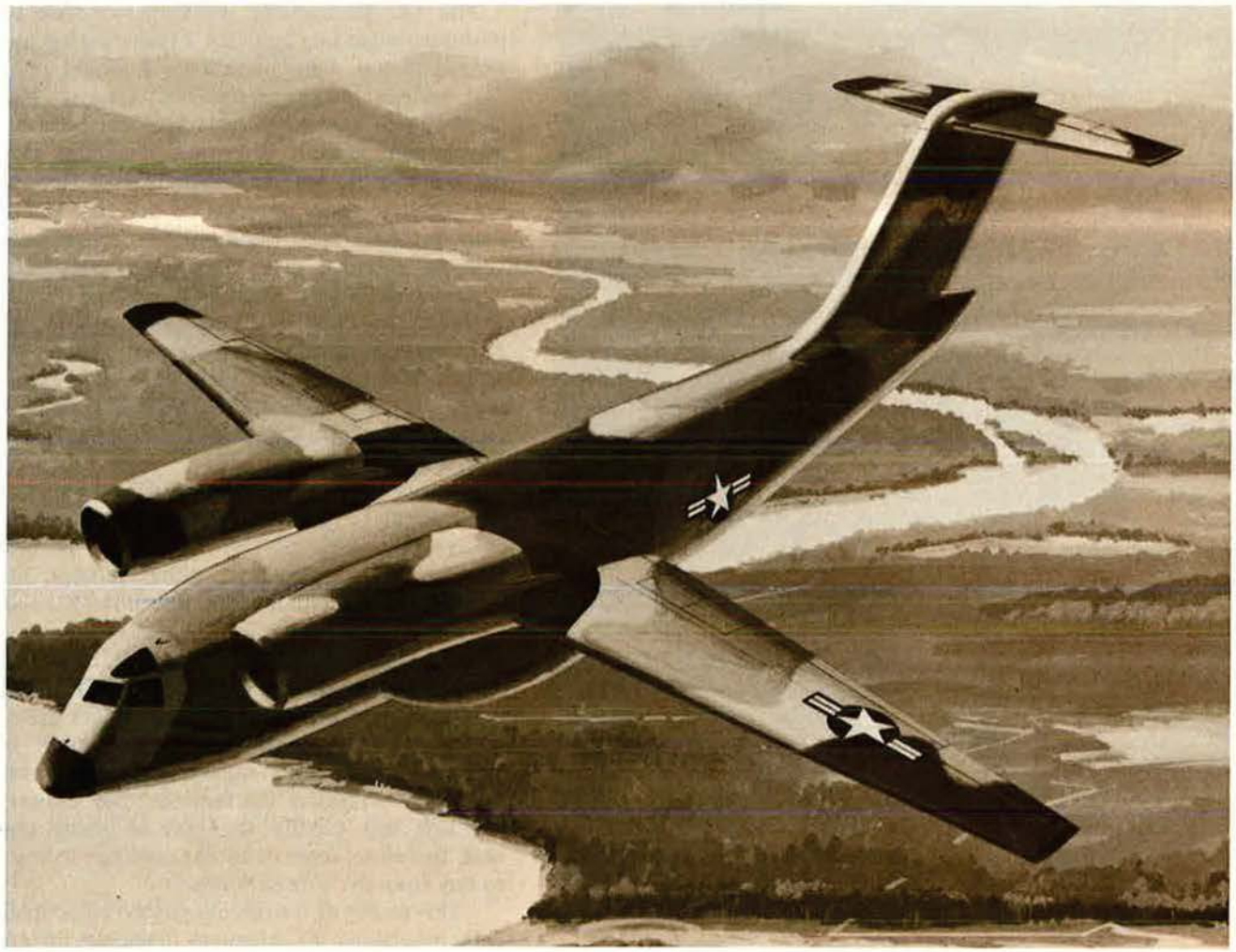
The government responded to this challenge even before RADCAP's initiation, through its "Technological Opportunities Program" (*see April '72 issue, "Double Mileage From the Military R&D Dollar"*). President Nixon, Mr. Magruder points out, "is very much in favor of the dual purpose programs that were initiated last year, not only on the strength of good and sufficient reasons so far as the defense requirement is concerned but also because they have direct impact on the commercial market."

The principal Air Force program involved is the Advanced Medium Short Takeoff and Landing Transport (AMST) aircraft, currently in a preliminary design phase involving the Boeing Co. and McDonnell Douglas Corp. If AMST, a military transport roughly equal in size to the C-130 and with good STOL capabilities, were to be developed by the Air Force, the export potential for a commercial version would "number in the hundreds and reach into all areas of the world affected by dense air traffic," Mr. Magruder believes. He forecasts an even greater market—between 6,000 and 8,000 units—for the Air Force's proposed AMST engine, an advanced technology turbofan design in the 20,000-pound class.

While Congress, in 1972, withheld funding of the AMST engine program, Mr. Magruder points out that "this was done without prejudice. In addition, the Air Force has sufficient carry-forward funding—about $6 million—and the option to reallocate internal funds to start the AMST engine program. Also, a new study of the engine issue is now going on. It is likely

to be completed in time to permit entering a funding request for the engine as a line item in the new budget in January 1973."

(In November 1972, the Air Force requested Boeing and McDonnell Douglas to undertake a thirty-day study of possible design-vs.-performance trade offs of AMST. These findings

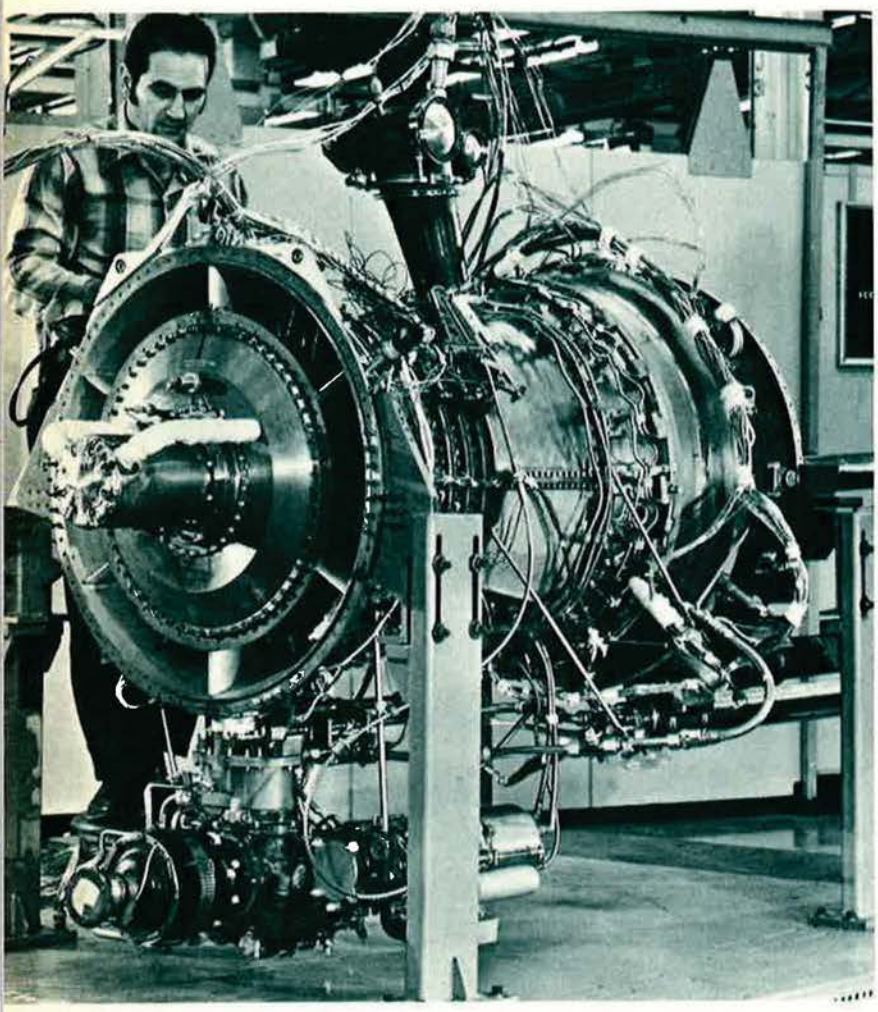


The principal Air Force program with direct application to commercial aviation requirements is the Advanced Medium Short Takeoff and Landing Transport (AMST), currently in a preliminary design phase.

will be used in deciding whether the program is to be entered into prototype development involving both contractors, only one of them, or should be discontinued. A critical factor in the decision hinges on the ability to produce the aircraft at a unit cost of no more than $5 million. If that cost ceiling cannot be met, the Air Force presumably will continue to perform tactical airlift with the C-130.)

The importance of the worldwide market for advanced turbofans in the 20,000-pound class was underscored last year when the General Electric Co., builder of the engine of the B-1 strategic bomber, sought to enter into a joint development program with France. GE proposed to modify, in concert with SNECMA of France, the B-1's engine for commercial use.

"This was a very ingenious arrangement, conceived by GE and SNECMA, which involved taking—as is—the B-1 engine's compressor and burner, and the turbine that drives the compressor, shipping this core engine to France, and letting the two companies put on a new fan and turbine to drive the fan. This would have given them a 20,000-pound engine for which there is a projected commercial market in the next few years of between 6,000



The core engine of GE's F101, the B-1's powerplant, shows great potential for "commercialization," but cannot yet be made available to foreign countries.

and 8,000 units, not to mention the military sales potential.

"GE's reasoning was that half a loaf is better than none; that is, development of such an engine in concert with France, especially in terms of financing, was better than no development at all, in view of the absence of any domestic venture capital. The Department of Defense [through its Munitions Board] ruled against the plan, however, on grounds that such an action would compromise national security by putting very advanced technology into the hands of a foreign ally three or four years before the B-1 goes into service. This technology has cost the US taxpayer about $378 million to date, incidentally," according to the White House official.

The Military Export Potential

The US government is likely to revise its positions regarding military export during the second Nixon Administration. "I would hope that we can incorporate military exports into our national campaign to reduce the balance-of-payments deficit. We must recognize that we are entering an era where the export, or the withholding of exports, of military equipment by the United States will no longer provide an effective means to apply diplomatic leverage. In the past twenty-five years, the usual situation was that if a country couldn't get sophisticated military equipment from the United States, it couldn't get it at all. Now, of course, such equipment is available from a number of countries, such as France, Germany, England, and others.

"As free trade and free enterprise considerations begin to govern this type of export, I believe that some of the restrictions that we have placed on ourselves, either through the Congress or by actions of the Executive Branch, will have to be removed. It makes no sense to keep US military exports out of a given area on grounds that they would destabilize the balance of power there if that refusal drives the country in question into the market of somebody else. This makes even less sense when one considers the fact that our military products are usually the best available and that, therefore, most countries continue to want to buy from the United States.

"This easing of restrictions should be coupled with provisions for adequate financing. In addition, such a change in attitude must also be accompanied by the assurance of training, a reliable spare-parts supply, and provisions for technical as well as operational manuals, all available from this country. This kind of approach represents a better way to influence countries that buy weapons than the yes-or-no export decision that characterized our policy in the past," Mr. Magruder believes.

Mr. Magruder, who served as the head of the US SST Program until the Senate canceled that development effort in 1971, says he would "like to see the country move toward reactivation of a US supersonic transport program. I don't mean the airplane that we canceled because we have passed its time frame; what we need to pursue now is an aircraft with longer range, lower noise, improved sonic boom characteristics, and dual cycle engines. These are engines that operate as conventional fan-

jets in the subsonic regime and as pure jets when the aircraft flies supersonically.

"The approach currently being favored centers on a purely experimental aircraft program whose sole function is to demonstrate the technical and economic feasibilities. This should be handled by the government, as an extension of our X-series of experimental aircraft programs. In the past, these programs made jet flight possible, and proved the feasibility of such things as supersonic flight, variable-sweep-wing designs, and wingless vehicles. The government agency most qualified to head up such a program is NASA, but the effort should involve all elements of the government with competence in this field." On the basis of preliminary estimates, the cost of such a program, done "efficiently and effectively," would be about $1 billion, in Mr. Magruder's view.

New Federal Approach to Aerospace?

As the White House formulates its policies for the next four years, considerable thought is being given to the fact that "aviation lacks a home in the federal government. We have, of course, government contributions to the operation of our national air transport system through the Department of Transportation and the Civil Aeronautics Board. Military aviation is under the control of the Department of Defense. There are also the National Space and Aeronautics Council, NASA, and the OMB. All of these agencies have some responsibilities in the field of aeronautics. But so far as the national government's focus on the state of the art in aeronautics and its effect on the balance of trade are concerned, the present system is fragmented and incomplete.

"It is difficult to find the point inside of the governmental structure where the necessary actions in, say, aeronautical R&D or other areas that influence healthy aerospace growth, emanate. This problem will have to be examined carefully and proper action taken in order to understand the size of the industry we will need to sustain leadership in both military and commercial aviation. Obviously, in this area there is a need for new institutional arrangements. One of the key points here is that we must recognize that our resources are limited and, therefore, examine with care how we establish our military programs so that we enhance the total military/civilian aviation base," Mr. Magruder points out.

Public Attitudes Toward Science and Technology

In its approach to science and technology and their management, the Administration, according to Mr. Magruder, recognizes that "science and technology are not an objective unto themselves, but only one set of tools that must be applied in concert with our financial tools, our institutional tools, and our educational tools to attain our social goals. The trouble with a technical society is that it looks like an end in itself but in reality it isn't. If we can set our domestic goals on the federal, state, and local levels and the schedules for attaining them intelligently, declare them intelligibly, and report on our progress candidly, then it will be possible to get the country to move again, and to pull together.

"The 1960s were the period of the overpromise, of instant Camelot, and of the notion that all problems could be solved if only the government pumped enough money into them. This philosophy was being applied to science and technology as well as to other things. The '60s also happened to be an era when science and technology, along with all other institutions of our society, were being subjected to an exhaustive soul searching whereby everything that wasn't perfect was summarily indicted. Well, science and technology are not perfect in that sense. Technology contributes richly to our high standard of living, and, by and large, it has done an incredible job for our society. But it is also responsible for some degradation in our society, in social as well as environmental areas.

"These factors caused a certain disenchantment with science and technology on the part of the public. While it was a passing phenomenon, it took a heavy toll. Many young people did not seek out scientific and engineering careers, but instead sought out the social and soft sciences. The ill effects won't show up for another ten years," Mr. Magruder predicts.

The Administration does not claim to possess any magic formula for correcting these attitudes. "In the last analysis," Mr. Magruder believes, "it is a communications problem. It means making clear that science and technology must be applied like medicine. They won't cure all of our problems; but if we apply them at the right time, at the right place, and in the right amount, and if we catch any ill side effects early enough so that they are not yet irreversible, then science will have beneficial effects."

Mr. Magruder makes clear that during the next four years the Nixon Administration will use science and technology in exactly that way, "in support of a strong national security base and all other national objectives, from strengthening our energy resources to urban mass transit and low-cost housing." ■

In a recent address to the Military Committee of the North Atlantic Assembly, Sen. Henry M. Jackson discussed three important lessons of the first Strategic Arms Limitation Talks (SALT I), which were completed in May 1972. A major part of that address appears on these pages. Senator Jackson believes that these lessons must be applied by the US delegation in its ongoing discussions with Soviet representatives if we are to achieve . . .

By Sen. Henry M. Jackson

Credibl
in a SALT I

THERE are, in my view, three fundamental lessons of SALT I that arise out of the American experience in Helsinki and Vienna. The issues they involve should be high on the agenda of NATO consultation.

The Need for a Strategic Doctrine

The United States, in consultation with its alliance partners, must develop a coherent strategic doctrine based on a set of objectives understood in the West and communicated effectively to the East. We do not now have one. Even without continuing arms-control discussions, we would need—in the United States and within NATO—to reformulate fundamental nuclear strategic objectives to take realistic account of the extraordinary growth of Soviet strategic forces that first set the stage for and then were confirmed by the Moscow accords of last May.

But precisely because we are continuing the strategic arms negotiations, the need for a careful formulation of doctrine and objectives remains important. Without it, we have no careful, reliable means of measuring the wisdom of the various proposals that are under consideration, we have no guidelines by which to take account of the attitudes of our friends and allies, and we have no basis for responding to the various positions taken by the Soviet Union.

When I say that the United States today lacks a coherent strategic doctrine, I do not mean that America lacks ideas about the nature and purposes of its strategic forces, but rather that we have several such notions, some of which are in conflict with others. For example, we seem, on the one hand, to hold to the

A Sprint ABM launch at Kwajalein.

Around Moscow are sixty-four launchers for these Galosh ABMs.

Deterrence Environment

view that America's European allies should rely on the US strategic deterrent to protect them from Soviet threats and intimidation. On the other hand, our arms-control policies—and the explicit pronouncements of many American specialists and diplomats—appear to be based on an extreme concept of minimum deterrence that would limit the role of the US strategic force to the striking of Russian cities in response to a direct attack against the continental United States. Clearly such a doctrine is inconsistent with the objectives of extending the American nuclear guarantee to our NATO partners and marks a departure from long-standing alliance policy. . . .

Many American spokesmen, and some Europeans, have tried to derive not only an American, but also a Soviet strategic doctrine, by interpreting what they presume to be the "logic" of the SALT I accords. According to this view, both countries, in subscribing to the ABM treaty, have, in effect, "agreed" to remain vulnerable to a retaliatory attack, thereby assuring that even quite small deterrent forces will be adequate to deter.

The logic of this interpretation escapes me. First, it fails to take account of the massive Soviet air defense system. For another, it ignores the basic principle of strategic deterrence: the certain survivability of one's retaliatory force. The fact that we will not have to contend with sophisticated ABM systems is not in itself a guarantee that enough of our nuclear force could survive attack to assure retaliation.

Finally, it seems to me far more plausible to explain Soviet interest in the ABM treaty as an effort to stop the United States from continuing with its much more advanced ABM deployment at a moment when comparable technology was unavailable to the Soviet Union. The last thing I would read into the ABM treaty is the otherwise unsupported notion that the Soviets have accepted the doctrine of minimum deterrence as it is understood by some of our own arms-control specialists.

I want to take a moment to reflect on the minimum deterrence doctrine because I am concerned that, in the vacuum created by our failure to identify and pursue a coherent strategic doctrine, it will come to dominate our thought about strategy just as it has already come to dominate much of our thought about arms control. According to this doctrine, all that is necessary for a policy of stable deterrence is to maintain a capability to destroy some finite percentage of the adversary's cities and industry in response to a direct nuclear attack. . . .

Some American scientists have gone so far as to argue that a handful of weapons targeted on a handful of Soviet cities constitutes strategic sufficiency. To those of this persuasion, the SALT accords, despite their having conferred a fifty percent advantage in numbers of ICBMs and SLBMs on the Soviets, have in no way diminished the deterrent capability of the United States.

Needless to say, minimum deterrence for the United States could easily be understood to mean no deterrence at all for our allies: For if all that the US strategic force can (or should) do is execute a salvo of mass destruction following a Soviet attack on the United States, its political and military weight with respect to discouraging Soviet intimidation of NATO will be slight indeed. But that is not all. What is perhaps most disturbing about the minimum deterrence doctrine under the present and evolving strategic balance is that it is not credible. The Soviet Union might possess so many strategic weapons as to contemplate a counterforce first strike that would employ but a fraction of its total strategic force. This could well leave the bulk of its strategic force free to threaten the destruction of American cities

Sen. Henry M. Jackson (D-Wash.) has served in the Congress since 1940, the first twelve years in the House and since 1952 in the Senate. He is a member of the Armed Services Committee and chairs its Subcommittees on Strategic Arms Limitation Talks and Nuclear Test Ban Treaty Safeguards. He is also a member of the Government Operations Committee, the Joint Committee on Atomic Energy, and Chairman of the Interior and Insular Affairs Committee.

should the United States actually launch a retaliatory strike in response to the initial Soviet attack. Since it is difficult to take seriously the prospect of American retaliation under such conditions, the credibility of the US deterrent cannot help but become increasingly uncertain.

Now, minimum deterrence is the orthodoxy of the arms-control community that planned and negotiated the American side of the Moscow accords. . . . There is, in principle, no reason why minimum deterrence should persist as the central doctrine underlying SALT II. . . .

On the whole, I rather incline to the view that the first task of SALT II must be to design a posture that takes account of the large Soviet strategic reserve force and imposes limits that would reduce that reserve. One such limit might involve a reduction in total throw weight, which would, in turn, limit counterforce capabilities. Another possibility might be to allow the US to deploy additional silo-defending ABMs to offset Soviet throw-weight advantages. We need to find a means of coping with strategic scenarios in which there is even a slight possibility that we might be deterred from retaliating.

Stop Negotiating with Ourselves

In SALT I, we spent far too much time negotiating with ourselves. That is, we tended to assess various arms-control proposals not in terms of some overall strategic objective but, rather, in terms of what we believed would be acceptable to the Soviet Union. . . . To discard in advance propositions that are meritorious but believed to be unacceptable to the other side is to abandon the effort to persuade the adversary of the wisdom of one's position—to say nothing of abandoning the effort to influence. I am hopeful that enough people involved in the SALT deliberations have become aware of the foolishness of filtering our own positions before presenting them and that this will be remedied in SALT II.

We Need to Stand Firm

Partly because of our failure to define our objectives clearly, and partly because of the unseemly haste that overcame our efforts to conclude the Moscow accords in an orderly fashion, the United States failed to stand firm in support of its negotiating position on a number of key issues. For example, we dropped our insistence on the right to substitute sea-based for land-based intercontinental missiles, and we failed to obtain a low ceiling on the overall number of Soviet launchers. Both objectives had been part of earlier US proposals. Indeed, there is astonishingly little resemblance between our early proposals and the final agreements. . . . The history of the American position is one of unimpeded deterioration.

One issue on which we did stand firm . . . is our view of the mission of US forces in Europe. We have maintained that these forces, dedicated to the defense of our allies, cannot be calculated in the US-Soviet strategic balance. We have recognized that the Soviet insistence that they be so included is a political tactic designed to split the alliance. . . .

When I say that we need to stand firm in support of our negotiating positions in SALT II, I do not mean that we ought to be rigid and unyielding on every detail. There must, of necessity, be compromise and accommodation on both sides. What I do mean to urge is that we define our objectives and design arms-control policies that implement them and present proposals based on them as forcefully as possible. On those matters that are not essential for our security there can be adjustment and accommodation. On essentials we must stand firm. The Soviets will respect us for it, and the resulting agreements will be better and safer for it. ■

STUNNED

In the early summer of 1940, the Flying Cadets of Class 40-H reported in at Randolph Field in civilian clothes. They were lined up, stripped of all jewelry, rings, etc., and entered the cadet administration building, one at a time, to meet their tactical officers.

One of the latter was a lieutenant, a West Point graduate who was a member of the boxing team while a cadet there.

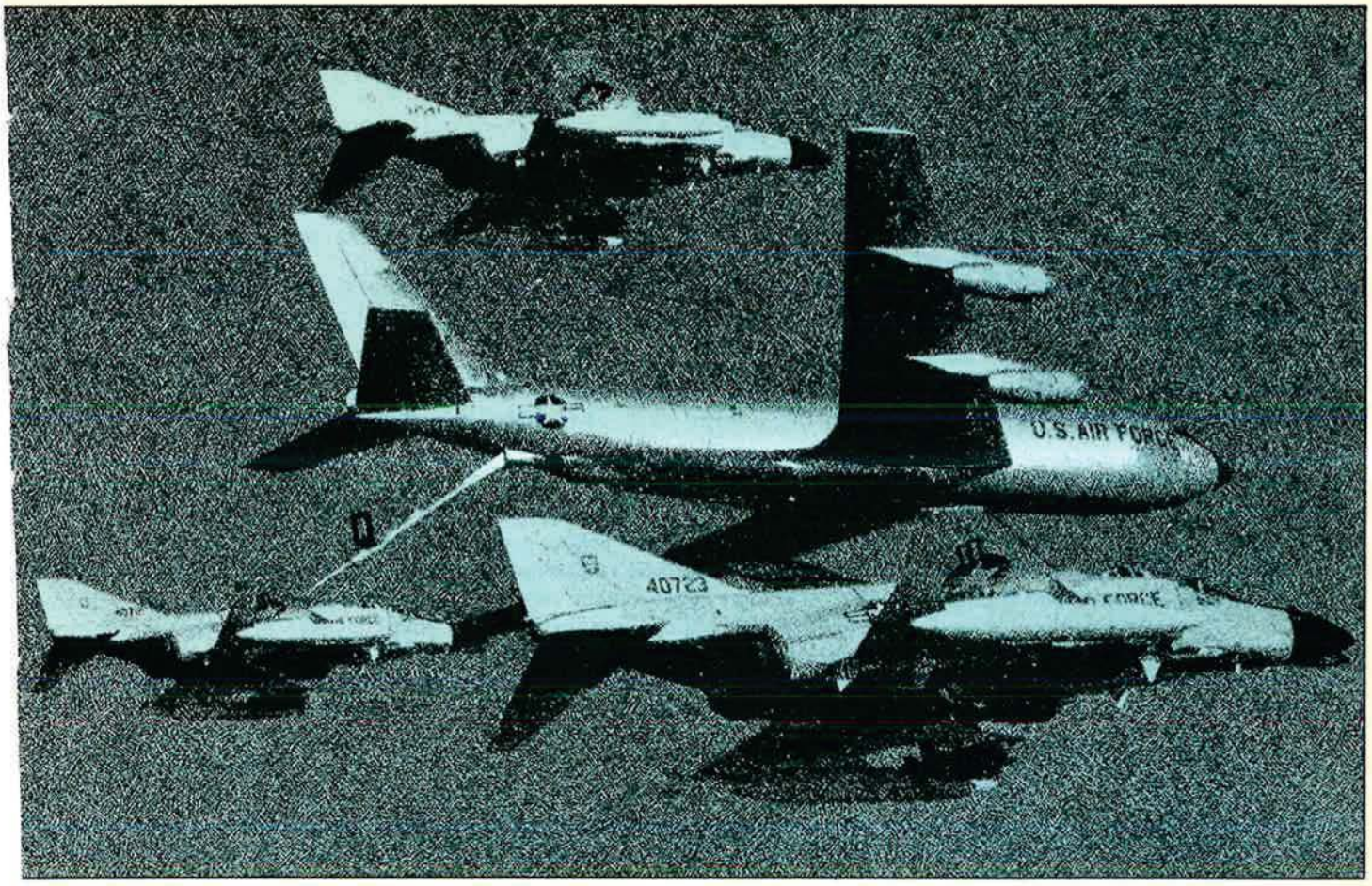
When one member of Class 40-H, a graduate of the University of Pennsylvania, stepped up to the lieutenant the latter said, "You look familiar—haven't we met somewhere before?"

The cadet answered, "Yes, Sir—when I knocked you out in the first round at the University of Pennsylvania two years ago!"

—CONTRIBUTED BY LT. COL. B. W. COWDERY, USAF (RET.)

(AIR FORCE *Magazine will pay $10 for each anecdote accepted for publication.*)

A KC-135, beautiful sight to a fighter jock who's below bingo.



Every hour of the day, SAC's tanker crews are at work, supporting a dozen commands in addition to SAC's own bomber force. The tankers have made possible the air action in SEA which saved South Vietnam from defeat. And hundreds of aircrew members who would not be around today, if it weren't for tanker saves, will join CINCSAC in saying . . .

Thanks to the Tankers

By Gen. John C. Meyer, USAF

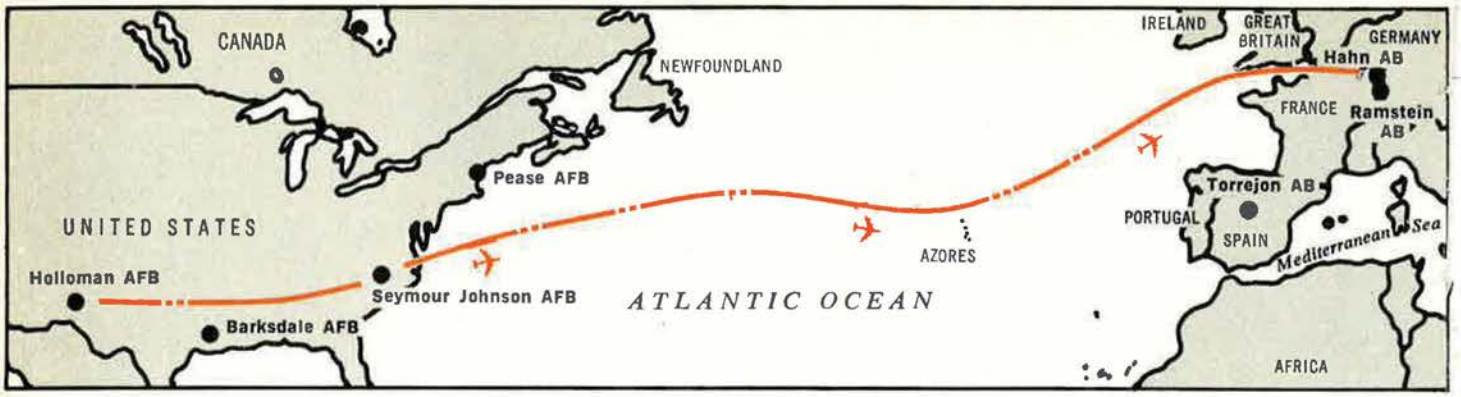
COMMANDER IN CHIEF, STRATEGIC AIR COMMAND

IT ALL started in 1921. That was when a can of gasoline was passed between two airplanes as something of a stunt—an air-show demonstration.

Air refueling has come a long way in the past fifty years. Today, Strategic Air Command tankers are doing an essential job for the nation's security. It has been largely an unsung job, an almost "taken-for-granted" job. It shouldn't be. There's a lot of hard work, dedication, and professional skill involved in making the SAC tanker operations appear routine, not only routine for SAC, but routine for all the other commands the tankers support.

The fact is that the tankers do a lot of business for a lot of people, and it's a growing number of people. When the SAC single manager KC-135 program started in 1961, it supported only SAC and the Tactical Air Command. Today, it supports thirteen commands on a more or less regular basis, and provides specialized support to others. For instance, SAC refueled the Navy Blue Angels over the Pacific about a year ago, although the Navy is not a regular customer. During 1972, almost forty percent of the 45,000 tanker sorties were flown to refuel non-SAC aircraft.

SAC tanker support is provided in three broad areas: training, deployment, and employment. In the



SAC tankers from Barksdale, Pease, and Torrejon refueled ninety-six F-4s in this Crested Cap deployment exercise.

training area, initial air refueling and follow-on training are provided to all major air commands that have air-refuelable aircraft. Those commands whose wartime role requires air refueling receive tanker support for their operational readiness inspections. Then, too, air refueling of test aircraft enables them to remain airborne longer so that more test objectives can be achieved on each flight.

A good example of major training exercises is the TAC Coronet Organ series. These exercises occur twice a year and are used to develop and demonstrate new tactics to penetrate and neutralize new and improved air defense systems.

TAC flew Coronet Organ V on the Nellis AFB, Nev., range. During the exercise, 198 aircraft received 490 air refuelings from a tanker task force of twenty-four KC-135s, operating out of March AFB, Calif.

Tanker support is provided to the SAC/North American Air Defense Command Snowtime exercises. These occur six times a year to test SAC penetration tactics and NORAD defensive capabilities.

Prior to his appointment as Commander in Chief, Strategic Air Command, on May 1, 1972, Gen. John C. Meyer was Vice Chief of Staff, USAF. One of the leading American aces, General Meyer is credited with thirty-nine and a half enemy aircraft destroyed during World War II and Korea. He has held command assignments in ADC, TAC, and SAC, and has been Director for Operations of the Joint Staff.

Intercontinental Deployments

Deploying aircraft are also big consumers of SAC tanker services. The Crested Cap deployments, directed by the Joint Chiefs of Staff, exercise the dual-based tactical fighter wing at Holloman AFB, N. M. The wing deploys to European bases with tanker support.

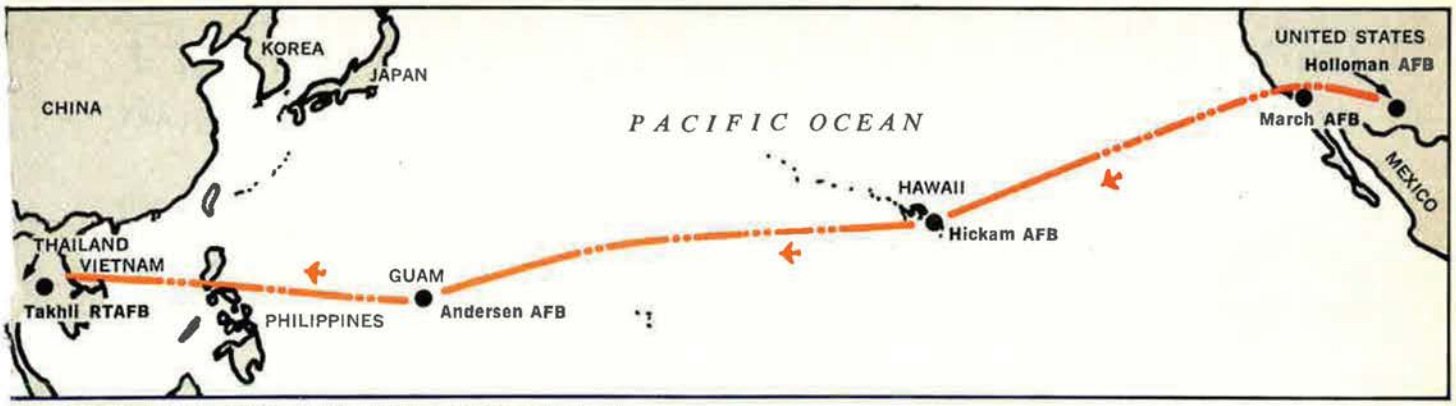
A recent Crested Cap deployment, shown on the accompanying map, involved ninety-six F-4s. The dashed line segments indicate the six refueling areas. Each of the four F-4 squadrons completed its deployment in three days, including an en-route layover at Seymour Johnson AFB, N. C. Six tankers from Barksdale AFB, La., handled the Holloman to Seymour Johnson leg. Sixteen tankers from Pease AFB, N. H., and sixteen more from Torrejon Air Base, Spain, provided the Atlantic refuelings.

More recently, the SAC Bullet Shot and TAC Constant Guard deployments responded to the President's decision to build up airpower in Southeast Asia. This involved well over one hundred B-52s and a number of fighter squadrons moving from US bases to Pacific operating locations.

All the B-52s refueled west of the California coast. Those B-52s departing eastern US bases received their first refueling over the midwest. The tankers all operated from their home stations.

Constant Guard fighter deployments were more involved. Constant Guard III moved seventy-two F-4s from Holloman AFB to Takhli, Thailand. It took three days with en-route stops at Hickam AFB, Hawaii, and Andersen AFB, Guam. Each F-4 received twelve refuelings, as shown by the dashed line segments on the Constant Guard deployment map, totaling almost 100,000 pounds of fuel for each fighter. SAC provided sixty tankers for this operation.

SAC tanker crews also support aircraft delivery operations, which include aircraft replacements as well as aircraft going for modification



During the SEA buildup of last spring, tankers fed B-52s as well as the Constant Guard deployment of F-4s to Takhli.

and for Inspection and Repair As Necessary (IRAN) programs. They also include Military Assistance and Foreign Military Sales deliveries, such as the seventy-five F-100s being delivered to Turkey. The total number of tactical aircraft deliveries in the past fiscal year was 1,086 aircraft, including the Constant Guard units that moved in April and May.

The Tankers in SEA

In addition to these activities, SAC is providing tanker support for combat operations in Southeast Asia. Right now there is a record number of KC-135s in-theater. SAC is using four bases in SEA to provide double the tanker capability to Seventh Air Force that was available in 1968, when the Air Force was conducting earlier combat operations in the North. In July, SAC tankers supporting Seventh Air Force offloaded more than 100,000,000 pounds of fuel.

So far, SAC tanker crews have flown more than 160,000 sorties in Southeast Asia, and have offloaded more than seven and a half billion pounds of fuel. Put another way, it would take 47,000 KC-135s with a peacetime heavy-weight load to hold that much fuel.

Some of SAC's KC-135s are configured as radio-relay aircraft. They maintain a radio link in the Gulf of Tonkin twenty-four hours a day, and are used by the Tactical Air Control Centers in Vietnam to pass hostile aircraft alerts, border zone warnings, mission control data, and other vital information to aircraft operating over North Vietnam, Laos, and the Gulf of Tonkin. Those tankers have an emergency refueling capability and have been used for that purpose, too.

Tankers Round the Globe

Apart from the Southwest Pacific operations, SAC maintains tanker task forces at Torrejon Air Base, Spain; Eielson AFB, Alaska; and Goose Bay, Labrador. These task forces are needed to support B-52 airborne alert plans.

The tanker task forces in Spain and Alaska support other day-to-day operations. The fifteen KC-135s at Torrejon work with SAC RC-135s and operate from both Torrejon and RAF Mildenhall (in England) to do this. They also support USAFE training exercises and intratheater rotations. As an example, there is a periodic rotation of F-4s between Torrejon and Incirlik, Turkey. SAC can and does use its recently negotiated rights to operate from Athenai, Greece, to support that operation. SAC also uses the tanker task force based in Spain to support TAC aircraft deliveries between the US and Europe.

The seven tankers at Eielson AFB support important SAC RC-135 reconnaissance activities, in addition to their airborne alert commitments. They work with the Alaskan Air Command on training and exercises, and with the Tactical Air Command on aircraft deliveries to and from Alaska.

Very briefly, that is what SAC is doing with its some 600 KC-135s. I don't think anyone would argue against the great job that they have been, and are, doing. It's a vital job, a lot more important than it is glamorous.

We know that the need for tankers will continue as far as we can see into the future and that the KC-135s are not going to last forever. We have projected their life expectancy at about 13,000 hours; the average tanker has close to 5,500 hours on it now. But there is nothing sacred about that 13,000-hour life. We have tests in progress now to measure more exactly what the life span actually can be. We are also looking into what we can do to prolong the KC-135's life.

At the same time, we are studying the question of a suitable replacement. There are several possibilities that could use already-developed airframes, such as the Boeing 747.

On any given day our SAC tankers are maintaining their ground alert in support of the Single Integrated Operations Plan (SIOP). In addition to that, more than half of the tanker force is airborne, participating in many diverse requirements for training, deployment, and the employment of combat aircraft. It's a job that SAC and its tanker people have done very well for the past decade, and one that deserves a lot of credit. For, thanks to the KC-135 tankers, what began as an air-show stunt more than fifty years ago has now become an operational necessity that makes a major contribution to the nation's security. ■

JANE'S ALL THE WORLD'S AIRCRAFT 1972–73

Edited by John W.R. Taylor F.R.HistS., A.F.R.AeS., F.S.L.A.E.T.

"The recognized international authority on aerospace developments . . ."

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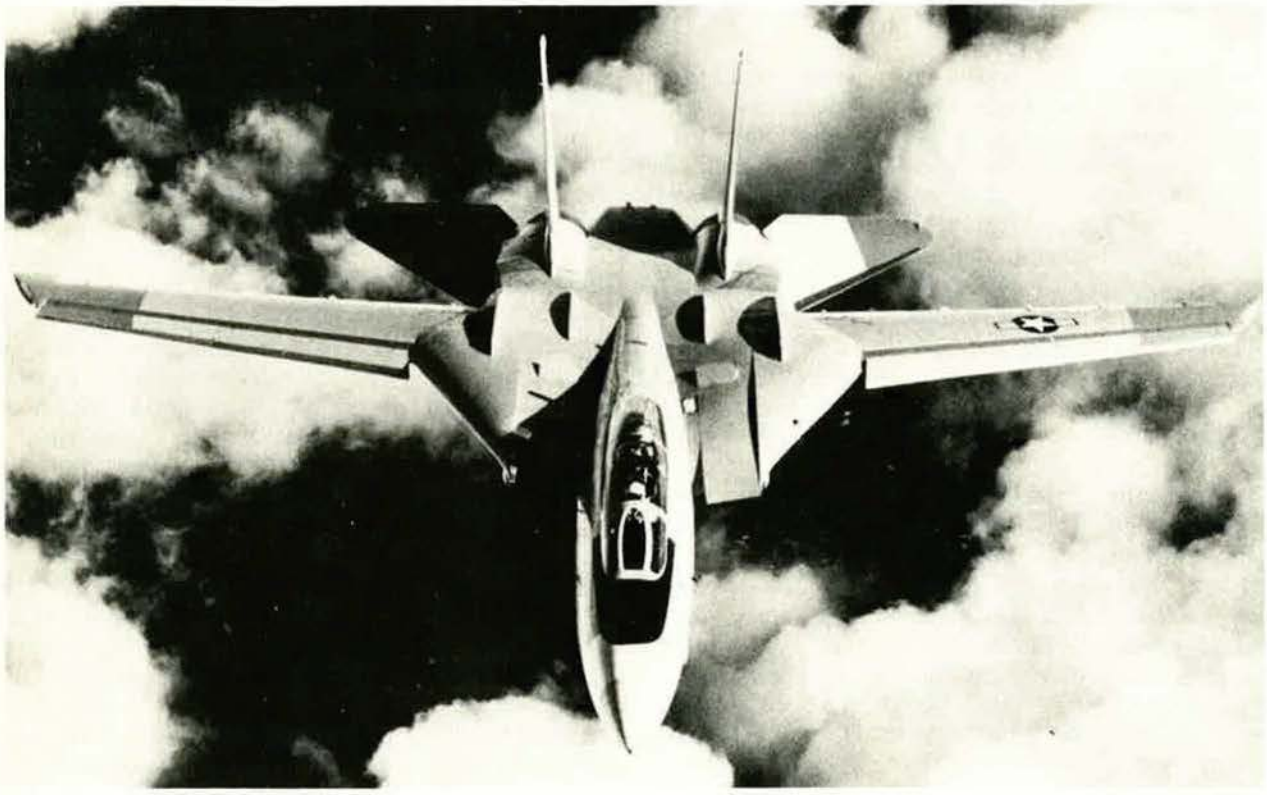

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Gunslingers from all over the country and points north assembled recently to slap leather in the Air Force's biennially sponsored fighter weapons meet held at Tyndall AFB, Fla. But when the firing died down, it seems that two strangers from north of the border (Canadian, that is) had proved themselves the top guns at . . .

William Tell '72

By James R. Patterson

TYNDALL AFB, FLA.

FORTY-EIGHT of the deadliest guns in the West (hemisphere, that is) shot it out recently here at the biennial William Tell weapons meet. When the smoke had cleared, dang if it didn't turn out a couple of sharpshooters from Bagotville, Quebec, had won the Top Gun award, given for the first time this year for the best marksmanship by an individual aircrew.

The Boys from Bagotville, Capt. Lowell Butters, pilot, and Capt. Douglas Danko, weapons systems operator, from Canada's 425th All Weather Fighter Squadron and flying an F-101, scored a bull's-eye on a Firebee drone to win the Aerospace Defense Command trophy.

Capt. Lowell Butters, center, and his WSO, Capt. Douglas Danko, right, get the traditional hosing down upon return from a mission during William Tell '72. The Canadians, the meet's individual top scorers, are from the 425th All Weather Fighter Squadron.

"Happy Hooligans" of the 119th FG, North Dakota ANG, winners of the F-101 aerial competition at William Tell '72. Standing, from left: 1st Lt. David L. Hiner, Lt. Col. William E. Phelan, 1st Lt. Roger W. Olsen, Capt. Thomas H. Polkinghorn, 1st Lt. Terrence L. Thilmony, and 1st Lt. Steve A. Brosoweke, all navigators. The pilots, kneeling, from left: Capts. D. L. MacDonald, J. R. Foyen, Maj. W. D. Hegg, Gary E. Kaiser, and Robert E. Carlson.

ANG and ADC aircrews from south of the border (Canadian) won, however, in the three principal team categories. In the F-101 class, the North Dakota ANG's 119th (Happy Hooligans) Fighter Group, led by Maj. Wallace D. Hegg, repeated its victory of two years ago. Champs of the F-102 division were the Wisconsin ANG 115th Fighter Group coached by Lt. Col. Phillip E. Brickson. The team trophy in the F-106 class, a shoot-out among six ADC fighter units, went to the 460th Fighter-Interceptor Squadron from Grand Forks AFB, N. D., led by Lt. Col. Kenneth W. Ohlinger.

The fighter-interceptor competition this year also celebrated the Air

The F-106 Delta Dart competition was won by the men of the 460th FIS, Grand Forks AFB, N. D. From left, Capt. Terry Luke, Capt. Keith Talladay, Capt. C. J. Nelson, Capt. Robert J. Jenkins, Capt. Richard L. Lambert, Lt. Col. Kenneth W. Ohlinger, and Capt. Patrick Schauffele.

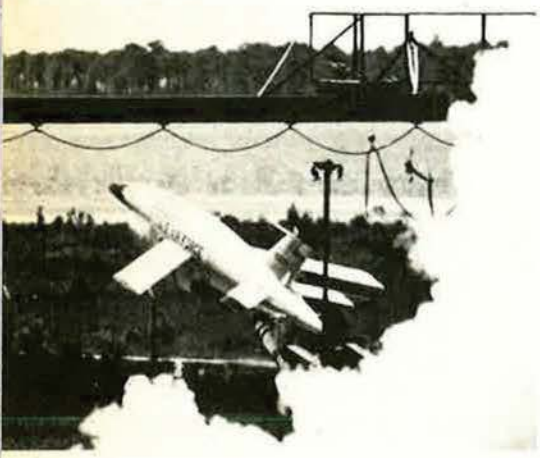
Force's Twenty-fifth Anniversary with an Open House program featuring such aerial attractions as the Thunderbirds and a rollout ceremony for the supersonic Firebee II (BQM-34F) target drone. Attending were Rep. Robert L. F. Sikes (D-Fla.) and an audience of several hundred local and visiting business and civic leaders.

Besides the awards to the individual and team flight crews, Weapons Director/Controller awards went to:

- **F-101 Class**—Capts. J. P. Kieley and R. A. Smith, 101st Fighter Group, Maine ANG;
- **F-102 Class**—Capts. Phillip A. Szymkowicz and Robert L. Peterson, 57th FIS, Keflavik, Iceland;
- **F-106 Class**—Capts. Craig S. Matthias and Stephen P. Janson, 318th FIS, McChord AFB, Wash.

The winning Weapons Loading teams were:

- **F-101 Class**—TSgt. Phillip



The Teledyne Ryan Firebee drone was the symbolic "apple" at William Tell '72. Since pilots almost never score direct hits on the drones, they can be used over again, allowing economical but realistic training.

2d ATAF Takes Top Slc

The winning Second Allied Tactical Air Force team with the team captain, RAF Wing Commander Derek Bryant, in front row with arms folded.

The Fourth Allied Tactical Air Force team with its team captain, Lt. Col. Al Young of the Canadian Forces.

Allied Forces Central Europe (AFCENT) conducted its tenth Air Tactical Weapons Meet this past fall at the Belgian Air Force base at Florennes.

Competition during the two-week meet was based on a contest between AFCENT's two Allied Tactical Air Forces (ATAFs). When the smoke cleared, 2d ATAF had defeated 4th ATAF by 203 points to claim the Broadhurst Trophy, symbolic of meet champion. Fourth ATAF had won the last meet held in 1970 at Spangdahlen AB, Germany.

Flyers from Belgium, Germany, the Netherlands, and the United Kingdom made up the 2d ATAF team, while USAF and German crews formed the 4th ATAF entry. A guest team from the French Tactical Air Force was entered in the attack phase. Canadian F-104 Starfighter crews acted as airborne judges.

Winners of the F-102 competition, of the 115th FG, Wisconsin ANG, are, from left, Lt. Col. Phillip E. Brickson, Maj. Allen R. Laquey, Capt. Marvin J. Foster, Jr., Capt. Dale L. Ebben, and Maj. Richard W. Manthey.

AFCENT Air Meet

Representing the USAF's 81st TFW, front row from left to right, Capt. D. K. Smith, Maj. J. R. Alley, Capt. Bob Coburn, and Capt. Duke Moreland. Back row, from left to right, Capt. Fred Aldrian, Capt. Don Verhees, Maj. Derrell Adams, and Maj. William Allen. The meet was AFCENT's tenth.

The meet was held to test not only accuracy in bombing, rocketry, and strafing, but also flight planning and execution—the dual part of the meet, explained USAF Col. Morton C. Mumma, III, chief judge. An international team of judges from various NATO countries worked as armament, range, and targeting officials during the meet.

Eight F-4 Phantom crews from USAFE's 36th and 81st Tactical Fighter Wings represented USAF as part of the 4th ATAF team.

Second ATAF's victory came about through a whopping 327-point edge—1,669 to 1,342—in the dual portion of the meet. Fourth ATAF, represented by three USAF crews, easily captured the attack trophy with 522 points, followed by the French with 403 points, and 2d ATAF with 398 points.

It was in the attack phase of the meet that USAF crews displayed talents honed in the Vietnam War. Phantom crews routinely placed the small marking bombs used in the meet inside the fifty-by-150-foot target box, and on many occasions scored direct hits on the target for low-level bombing.

USAF crews, on the other hand, had their problems in the dual role. One F-4 crew on a night mission never found the range. The next morning the wings of their Phantom were carefully adorned with a yellow stripe with three black balls, the symbol in Germany for the blind.

—By TSgt. Dick Larsen

Poe, Sgt. Norman Paulson, SSgt. Larry Bartness, and SSgt. James Hanni, 119th FG, North Dakota ANG;

- **F-102 Class**—SSgt. Roger Williams, SSgt. James Andrews, A1C Lowell Hasse, and A1C Marshall Schenck, 57th FIS, Keflavik;
- **F-106 Class**—TSgt. Charles Lewis, SSgt. John Kelly, A1C Teddy Walker, and A1C Michael Fedders, 318th FIS, McChord AFB.

Chief judge for William Tell '72 was Maj. Gen. Joseph L. Dickman, former ADC Director of Operations and now Deputy Director for Operations and Administration for the Defense Nuclear Agency, Washington, D. C. He headed a team of fifty assistant judges to handle the intricate scoring.

An awards banquet sponsored by the American Fighter Aces Association and the Panama City Military Affairs Committee at the Panama City Civic Auditorium, and attended by more than 600 persons, formally closed the ten-day competition. Joe Higgins, the Dodge Safety Sheriff, was master of ceremonies. Trophies were awarded by Lt. Gen. Thomas K. McGehee, ADC Commander. Speakers included David (Tex) Lee Hill of Flying Tigers fame, president of the AFAA; M. B. Miller, Mayor of Panama City; and Gen. Seth J. McKee, Commander in Chief, North American Air Defense Command (NORAD). Also present were Maj. Gen. I. G. Brown, Director of the Air National Guard; Brig. Gen William H. Vincent, Chief of Staff of the Air Defence Command of the Canadian Defence Force; and Brig. Gen. Lawrence J. Fleming, Commander of the Air Defense Weapons Center at Tyndall, host to the meet. ■

James R. "Jimmy" Patterson, a frequent contributor to this magazine, has been a free-lance writer living near the Air Force Academy in Colorado since his retirement from the United Aircraft Corp. in 1971. A former public relations executive, Mr. Patterson is also a retired Air Force Reserve colonel who during his career served as a flight instructor and information officer. His last previous article for AIR FORCE Magazine —about the Academy's soaring program—appeared in the November '72 issue.

Air Guard F-4s refueling. Three ANG groups have RF-4s.

As Air Guard and Air Force Reserve units train to meet active-duty standards in a variety of sophisticated mission areas and to perfect their role as an immediately responsive ready force, they are fulfilling their "new" role as part of . . .

The Reserve Forces and the Total Force Concept

By Maj. Robert W. Hunter, USAF CONTRIBUTING EDITOR, AIR FORCE MAGAZINE

The author, a native of Massachusetts and a graduate of Holy Cross College and the University of Denver, is serving with AIR FORCE Magazine as part of the Air Force's Education With Industry (EWI) program.

TO THOSE who have watched the ebb and flow of Reserve Forces credibility, one thing is becoming clear—the Air National Guard and Air Force Reserve now differ drastically from any previous concept of "Reserves."

The Reserve Forces are part of the Total Force. And while that is not an earth-shattering statement, or even a new one, the new philosophy that makes it a reality is, in fact, revolutionary.

Origins

Defense Secretary Melvin R. Laird's August 1970 policy statement, which laid the groundwork, was unequivocal. He said that "Guard and Reserve units and individuals of the Selected Reserves will be prepared to be the initial and primary source for augmentation of the active forces. . . ." That simply means, as Gen. John D. Ryan, USAF Chief of Staff, recently pointed out, that Reservists are to be mobilized sooner in future emergencies and will play a larger role than in the past.

Reserve Chief, Maj. Gen. Homer I. Lewis, candidly addresses a point in his interview on Total Force.

Brig. Gen. John J. Pesch, Air Guard Deputy, said the Guard's place in national defense is identified better than ever.

The new emphasis goes beyond mere lip service. DoD will now mobilize Reserve Forces before even thinking of turning to the draft to fill manpower needs. To that end, Total Force planning has been orchestrated with our national strategy of Realistic Deterrence. It is part of the Nixon Doctrine of a peacetime force structure, and the programs for the Air Guard and Air Force Reserve that evolve from Total Force planning are now being included in the Five-Year Defense Program. As Secretary Laird explained it, "In defense planning, the Strategy of Realistic Deterrence emphasizes our need to plan for optimum use of *all* military and related resources available to meet the requirements of free world security . . ." (emphasis added).

Some say a Total Force idea has always been with us, as part of our heritage from Lexington and Concord. Others, more pragmatic, say it goes back to the 1964 implementation of the integrated staff concept, which said full consideration would be given the Guard and Reserve.

However, the genesis of the Air Force version of the Total Force Concept is probably the result of deficiencies noted in the partial mobilizations of 1961 and 1962. The Air Force sought to correct what it observed, and it published Air Force Regulation 45-60 in February 1963 to deal with the problems. That regulation was probably the first official statement of a Total Force approach to military planning.

A 1966–67 RAND study also was generated by the then Deputy Assistant Secretary of the Air Force (Reserve Affairs), Dr. Theodore C. Marrs, and approved by then Chief of Staff Gen. John P. McConnell. The RAND effort examined the roles and missions of the Air Force in the mid '70s, focusing on the idea of the most cost-effective mix to meet the threat. It reportedly concluded that by using a Total Force Concept, we could have the same size force for about fifty percent less money, or a larger force for the same money. The idea was appealing in view of tight budgets, rising costs, and a hostile American attitude toward a large draft-supported active force.

Perhaps even more important in generating DoD-wide interest was the performance of Air National Guard and Air Force Reserve units mobilized in 1968. Those units, with their high degree of readiness and their ability to be deployed and employed upon mobilization, showed that nonactive duty forces can make a timely contribution to the nation in an emergency. At any rate, open discussion of the idea came in 1969.

Maj. Gen. Homer I. Lewis, Chief of the Air Force Reserve, and Brig. Gen. John J. Pesch, Deputy Director, Air National Guard, were interviewed recently by AIR FORCE Magazine about the Guard, Reserves, and Total Force Concept.

Both agreed that the Air Force is prepared to adopt the concept. USAF has always led the way by using its Reserve components to meet the threat and satisfy the strategy. General Pesch pointed to 1960 when the responsibility for developing and justifying about $19 million in procurement appropriations requests was lifted from Air Guard shoulders and assumed by the active force.

"Some of us were very apprehensive about that," General Pesch said. "We felt that because of the order of Air Force priorities, we would be the tail of the dog and would be relegated to a very, very low priority. That hasn't happened. Today, we enjoy more buying power than ever before."

According to General Lewis, economic pressures led the Reserves inexorably into the Total Force. "The need to program as much defense as possible for a given

amount of dollars means that we *must* address the total force in arriving within that bogey," he said.

New Look in Mission Responsibility

As further evidence of an irrevocable change, General Pesch cited the new look in assigning mission responsibility. In the past, he said, the Air Guard found itself in a particular mission area not so much to satisfy a requirement, but because equipment was excess to active Air Force needs in a mission area. This was during a time when the responsibilities of

Worldwide rescue missions involve Reserves. The 305th Aerospace Rescue and Recovery Squadron (USAFRes) helped test this new wet suit.

ANG and USAFRes maintenance is tops. Here, a C-130 gets attention from 913th TAG (USAFRes) crew during an airlift exercise.

the Air Force could be satisfied by the large active force. But now that the active force is shrinking, the Air Staff is looking at what additional missions can be performed or shared by the sizable Reserve Forces.

"The Air Force today releases equipment in mission areas that are best suited to the Guard capability," General Pesch said. Aerospace defense is a prime example.

Asked how much more of the ADC mission the Guard could handle, General Pesch said, "We have found out through experience that we function best and make the best contribution in those missions we share with the active force, and even in those weapon systems within a mission that we share."

Since Reserve Forces are now being brought in on policy decisions earlier than before—and now have a place on the Program Preview Committee and the Force Structure Committee, for example—the question arises as to whether Total Force Concept means the eventual elimination of a separate Reserve structure, or the combining of Guard and Reserve.

General Pesch told AIR FORCE Magazine that tradition, congressional reactions to the Grey Commission Study in 1947, and the mid-1960 merger hearings occasioned by former Defense Secretary Robert S. McNamara's attempt to combine the Guard and Reserve are all factors in the existence of both Guard and Reserve components. However, none of these "settled the issue." The issue was settled by Public Law 90-168, which, by specifying and requiring the existence of a Selected Reserve in each of the six DoD Reserve Components and the Coast Guard Reserve, put an end to administrative attempts to combine management or operation.

He also views state affiliation as a plus. "States recognize the importance of the Air Guard's federal mission and assist by contributing funds. For example, by paying twenty-five percent of the Air Guard's utility bill and maintenance of facilities, they act as a quasi review board of our force requirements. We have to assure them it's a necessary item, not a luxury," General Pesch said.

Management Structure

Regarding possible changes in the Air Force Reserve management structure, General Lewis told AIR FORCE Magazine, "I firmly believe that we could not be better organized than the way we are operating right now on the Air Staff." The alternative to the present structure is a fully integrated staff, he pointed out. As to that, General Lewis said, "My philosophy is that when everybody's doing it, nobody's doing it; when everybody's responsible, nobody's responsible. Today we have AFRE [Office of Air Force Reserve], and we're doing it, and we're responsible. And we're doing this in full coordination with the rest of the Air Staff. You can't improve upon that—no way! We've been down that road twenty years trying to integrate. It does not work."

General Lewis believes that Public Law 90-168 was a milestone in preparing the Air Force Reserve for its present role. That law created the Office of Air Force Reserve as part of the Air Force Chief of Staff's special staff. The law also called for a Chief of Air Force Reserve to be appointed by the President from among those Reserve generals not on extended active duty.

Congress' mandate was clear in the law. In proceedings before the Senate Armed Services Committee in 1968, Sen. John Stennis (D-Miss.) said that when the committee created the law, it decided not to spell everything out; the services had the authority to do the things Congress wanted done. He said, "We've insisted that all Reserve units receive new emphasis—not just on paper, but in actuality." On the floor of the Senate, Senator Stennis warned that if the words of the bill proved inadequate concerning the intent of Congress, he would then seek mandatory language. That has not been necessary.

Times have changed since the days of the old Continental Air Command, General Lewis explained. Then, active-duty personnel were managing, programming, and commanding a large Reserve organization. Public

A half-million citizen-airmen are represented by the USAFRes Bagpipe Corps from Robins AFB, Ga.

Law 90-168 cured that. "Now we make it or break it ourselves. If we can't do it, let's find out. If we can do it, let's make it better. It's a beautiful concept," the General concluded.

Roles, Missions, and Recruiting

Further evidence that Reserve Forces are a credible part of today's structure is the fact that they are included in most planning scenarios. General Lewis indicated that the Reserve could perform well in additional mission areas. Also, when a well-trained young man leaves active duty and joins the Reserves, USAF continues to amortize the substantial capital investment that it has made in his training.

As far as competition between Guard and Reserve for roles and missions is concerned, each is basically agreed as to the right approach. General Pesch commented: "We're both in existence to satisfy an Air Force requirement. I believe that when a requirement arises, the Air Force must objectively look at both the Guard and Reserve to determine who can better satisfy the requirement."

General Lewis believes that competition is healthy.

Defense Secretary Laird with members of the Reserve's 446th Tac Airlift Wing during visit to Ellington AFB, Tex.

"When a new mission area opens up, both the Guard and Reserve have to put their price tag on that mission area. That system results in a better product."

To involve Americans in national defense as citizen-airmen requires an active recruiting effort, both officers agreed. They confirmed that recruiting Reserve Forces is a complex problem influenced by many variables.

For the Air Force Reserve's part, recruiting has historically been the local commander's prerogative. However, now that DoD is committed to Reserve mobilization instead of the draft in future national emergencies, more than the traditional local recruiting efforts will be needed. One idea being studied by the Air Force Reserve is centralized recruiting. General Lewis views this as more of a service to assist local commanders than as a nationally organized and operated activity that would assume total recruiting responsibility. In his view, local commanders understand the motivations of the people in their areas better than some disinterested higher-level recruiting service. "The onus is on the unit commander. His primary mission is to man and train his unit," he said.

The recruiting outlook is clouded by the fact that the Air Force Reserve is undermanned. It is not meeting its congressional manning floor. Given the assumed climate of youth's attitude toward military service, General Lewis explained that, without legislative assistance, asking a young man to sign for six years, promise not to leave town, and serve with a unit is a pretty tough contract. "We're not giving him anything for it," the General said, "other than offering him a useful skill and a way to satisfy his sense of patriotism."

General Lewis believes that enlistment and reenlistment bonus legislation is a must for the Reserves. Other needed inducements include tuition assistance (a benefit USAF favors, but which faces tough congressional sledding) and adjustment of the retirement age for Reservists.

Presently, a Reservist with twenty "good" years (years in which he earned the required training points) cannot receive retirement pay until age sixty. Both the Air Guard and Reserve want that lowered to fifty years of age.

The Air Force Association has adopted a resolution calling for earlier Reserve retirement on an actuarially sound reduced annuity, which would not increase the overall cost of the retirement program. It also actively supported enactment of Public Law 92-425, Survivor Benefit Plan *(see* AIR FORCE *Magazine, December '72, p. 121).* That plan extends benefits to members of Reserve components. In addition, AFA has also adopted a resolution calling for enlistment and reenlistment bonuses, full-time serviceman's group life insurance, and equitable medical and dental benefits for Reserve Forces. That same resolution also calls for study of the feasibility of providing educational assistance in community colleges and vocational schools for members of the National Guard and Reserve as well as an increase in the authorization of creditable training points toward retirement beyond the current limit of sixty per year, when such points are earned through required additional training periods.

Missions also affect recruiting. Historically, the more sophisticated missions and weapon systems have attracted enlistments. The Air Force Reserve now has a much broader spectrum of missions. In flying units during the 1960s, for example, the Air Force Reserve conducted some rescue missions, but everything else was C-119 tactical airlift. Currently, the Reserve has F-105, A-37, EC-121, C-130, C-141, C-5, and C-9 programs, among others. The outlook is bright that this diversification in missions and weapon systems will attract enlistments as never before.

General Pesch agreed with the Air Force Reserve outlook on recruiting. The Guard believes it needs the same kinds of incentives. For the Guard, recruiting is a state responsibility, although it, too, relies in part on efforts from the national level. The Guard has had a jump on the Reserve in recruiting, because of its historically visible identity with the local community, but General Pesch is not complacent. He told this magazine that, while the Air Guard has usually met or exceeded its congressional manning floors, right now it is attaining only about eighty-two percent of its non-prior-service goal and has not yet achieved the number-one goal of the Chief of the Guard Bureau—expanded recruiting of blacks.

The General is concerned because the Air Guard is meeting its floors primarily through prior-service enlistments. He believes that this prior-service pool will be drastically reduced when an all-volunteer force exists and fewer men leave active service. General Pesch acknowledges the help provided by Palace Chase—an early active-force release program designed to provide the Guard and Reserve with critical skills where they are needed *(see "The Bulletin Board,"* AIR FORCE *Magazine, October '72 issue).* He said that the massive conversions the Guard and Reserve have undergone could not have been achieved in such a short time without help from the active force through a program like Palace Chase.

Portable kidney machine is unique cargo for USAFRes 433d TAW C-130 flight from Kelly AFB, Tex., to Dallas.

Master Sergeant Haughawaut, ATC instructor, teaches cockpit instrumentation to Reserve Forces F-105 crew chiefs, as future missions change.

Helping the Guard and Reserve pave the way for their future recruiting programs when the draft ends next year is a newly formed committee chaired by James M. Roche, former Chairman of the Board of General Motors Corp. It is the National Committee for Employer Support of the National Guard and Reserve Forces *(see report of the AFA Convention Reserve Forces Seminar, November '72 issue, p. 82).* This Committee is working to improve public understanding of the Guard and Reserve role in our national security system, and to enlist the cooperation of those who employ present or prospective members of the National Guard and Reserve components.

Other Issues

Beside the recruiting problem, there are a number of in-house personnel problems on their way to solution. The Air Guard looks toward legislation that will provide 100 percent Civil Service retirement credit to its civilian technicians for their service prior to 1969. In 1969, Air Guard technicians came under federal Civil Service, but many had accumulated state affiliated service long before that. At present, they are credited for retirement with only fifty-five percent of that time. The Air Force Association is on record as supporting such a legislative goal by urging amendment of Title 5, US Code to allow full credit for service performed prior to the National Guard Technicians Act (P.L. 90-486).

The first major action step toward managing its personnel resources has been taken by the Air Force Reserve in a look at its officer structure through a project called Palace Diamond *(see "The Bulletin Board,"* AIR FORCE *Magazine, October '72 issue).* The project addresses a controlled, viable force, with career management for all Air Force Reserve officers. "We've always had people in units and individual programs, and they didn't interface with each other. We've had officers who have had to take care of themselves, find their own assignments. All of these things are just not digestible any more," General Lewis remarked.

General Pesch told AIR FORCE Magazine that the Air Guard has not been involved at all at any level in Palace Diamond.

Since mobilization is the future key, the question arises as to whether recall procedures are well enough defined. What problems exist come at the major command level, General Lewis reported. "Procedures often become unstandardized there," he said. He believes that, should mobilization come, those called up must also be deployed. "Don't let them sit there and get unhappy. When you read about mobilization problems, you usually can trace the cause to troops mobilized and left on base with nothing to do," he cautioned.

Unit integrity has been an emotional mobilization issue that has surfaced again and again over the years. General Lewis explained that it really does not work in practice. "Ever since the *Pueblo* call-up, we have stopped preaching unit integrity in the context of training with a bunch of guys and going off to war with those same guys. When our people mobilize, they mobilize as a unit, but are told that when they get that green card they are like anybody else in the active force, and subject to the same personnel actions," General Lewis said.

The Future

As to the future, General Pesch reiterated that the Air Guard plans, works, and is "obsessed" with providing the active force with all the capability it possesses. If that means pointing out limitations, "it behooves us to point them out," he said.

As roles and missions are debated in a total-force context in the future, General Pesch warned that no one should become "taller by making the other smaller."

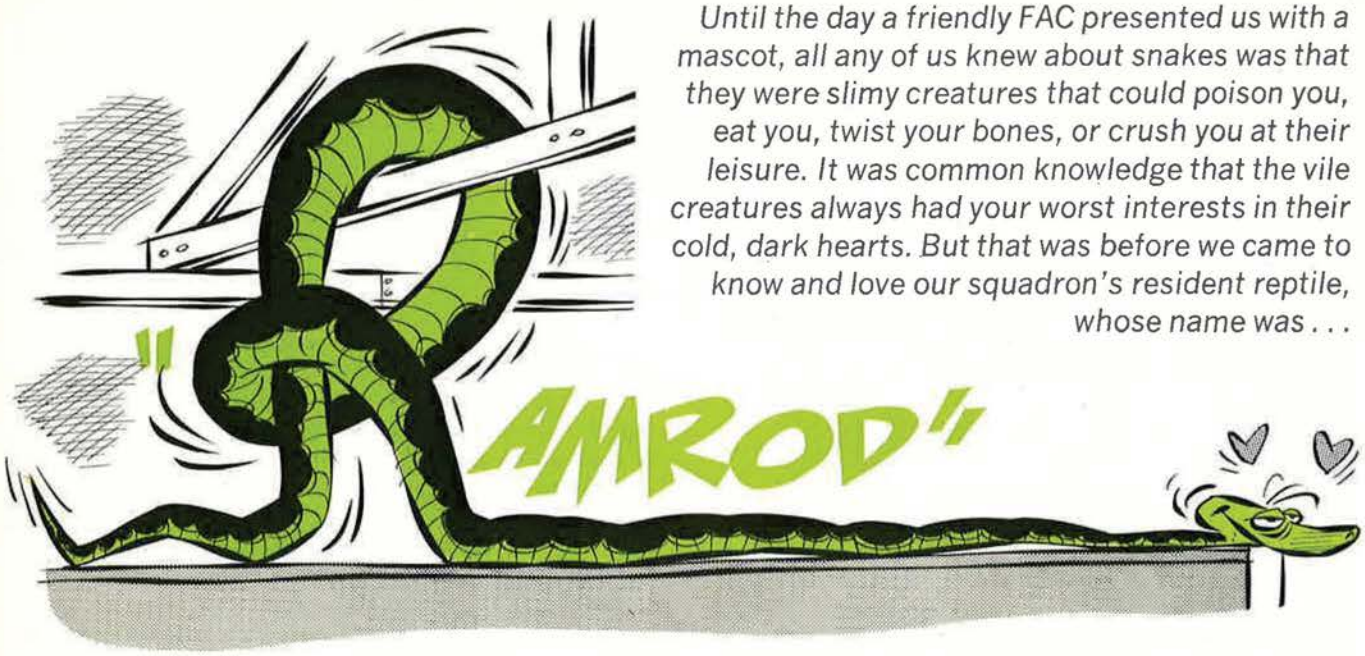
He pointed out that Secretary Laird, in a recent memorandum to the President and the Chairman of the House and Senate Armed Services Committees, expressed concern over the military image. General Pesch believes that if recruiting is to be successful, *regardless of incentives*, the airman must be looked up to by his civilian counterpart.

General Lewis emphasized that, since Fiscal Year 1971, the Air Force Reserve has been literally rebuilt. Every unit, except the four C-141 Associate units, has converted to more modern aircraft, and a lot of units have been activated and deactivated. The Air Force Reserve flying program originally was scheduled to be down to eighteen squadrons in 1972. It now has fifty and is going to fifty-three by July 1, 1973. He commended the Air Force for "biting the bullet" in accepting degraded combat ratings and undertaking the Reserve conversion en masse.

General Lewis stated that the Air Force Reserve has lost a lot of experienced, mature people during the conversions. One reason has been retainability. It takes two years' retainability to transition to the C-130, for example, and many Reservists did not have it. He has tried to address that problem by augmenting nonflying units, but admitted that many people remain unhappy.

Looking to the Air Force Reserve's future, the General said, "We don't want to bite off more than we can chew. I look for none of this compulsive increase that some people want. I want steady progress with the missions and funds the Air Force gives us. And, *above all*, we want to be responsible for and manage our own force. This is a must to ensure the proper order of priorities so that the Reserve Forces continue to be a viable force."

A concept tied to national priorities and strategies; a concept with DoD, Department of the Air Force, and congressional "teeth"; a concept with credible missions and equipment assigned; a concept with policy, not merely structure, involved at every level—this is the Total Force approach. And this is the part the "new" Guard and Reserve are playing in it. ■



Until the day a friendly FAC presented us with a mascot, all any of us knew about snakes was that they were slimy creatures that could poison you, eat you, twist your bones, or crush you at their leisure. It was common knowledge that the vile creatures always had your worst interests in their cold, dark hearts. But that was before we came to know and love our squadron's resident reptile, whose name was . . .

CARTOONS BY "JAKE" SCHUFFERT

By Lt. Col. Mark E. Berent, USAF

"HEY, GUYS," said Beaver 72 as he placed a very large cardboard box on our Ops counter, "I brought you a present."

Now Beaver 72 was a FAC from IV Corps who flew a fine airplane, had great eyes, and had brought us presents before.

We were F-100 pilots of the 531st Tactical Fighter Squadron, stationed at Bien Hoa Air Base in South Vietnam. Our call sign was "Ramrod." The year was 1966, and, although we had been in-country for only a few months, we all had well over a hundred missions. Many of our sorties had been in IV Corps' Delta country, and naturally we had gotten to know the Beaver FACs by their individual call signs. Frequently they would fly up to Bien Hoa where their parent organization, the 504th Tactical Air Support Group, was located, to get their O-1 Bird Dog planes worked over. Then we would get to know them personally; they would fly with us in one of our two-seater "F" models, and we would fly with them in the back seat of their O-1s.

Those FACs were a hardy lot who were given an airplane, a maintenance man who doubled in weapons, a small strip, and a very large portion of South Vietnam to patrol daily. Sometimes after a particularly successful battle, they would fly up to Bien Hoa to present us with gifts from various ARVN units or maybe from the Province Chief himself. Our squadron walls bore such items as VC flags (real), an AK-47 or two, battle unit insignia, and other flotsam/jetsam trophies fighter pilots are so wont to collect. In those days, we were living in tents, the squadron was our home, and we were proud to decorate it with such things. So we were pleased when Beaver 72 showed up with what obviously had to be a very large and important addition to the collection.

Beaver 72 assumed an air of benign altruism as we all crowded around the Ops counter. Someone opened the box and peered in. He didn't peer long.

"GOOD GOD ALMIGHTY!" he bellowed as he went straight up and back about four feet.

Stunned, the rest of us froze in place. I recall thinking, "Good grief, you don't suppose he brought in some *heads,* do you?"

Then a very green, very large snake head rose majestically from the box and calmly surveyed the stupefied onlookers.

That was how we received Ramrod, our beloved, unfanged rock python who grew from his five-foot length the day Beaver 72 brought him in, to nearly twelve feet when we lost him through, we were sure, some very foul play.

All any of us then knew about snakes was that they were slimy creatures that could poison you, eat you, twist your bones, crush you at their leisure, or, in other words, generally give you the willies for days. Snakes were among God's vilest creations and always had your worst interests in their dark, cold hearts.

Fortunately, we had some farm lads in the squadron who knew a lot more about nature life than we city types. Of course, even they hadn't really encountered anything much larger than a bull snake, which may

account for the fact that the first cage built for Ramrod would have held King Kong in his wildest frenzy. But we were learning.

We learned, for example, that Ramrod would eat only every two weeks. He would eat, sleep for several days, awaken, deposit a large, white, odorless plaster-of-Paris-like lump, and then shed his skin. After that, he would take a swim, then prowl for days before he was hungry again.

It took a while before we got to know Ramrod's cycle, so at first we tried to feed him live rats trapped in our tent area. We thought he ought to eat every day or every couple of days at least, like a normal human being, so we put the rats in his cage and expected him to gobble them up. After their initial terror, wherein they jumped eighteen inches straight up once released, the rats raced around having a great time. As they scrambled over Ramrod's body and nibbled at his agitated tail, our fierce snake would recoil and look quite pained about the whole indignity. Then one morning there weren't any rats in the cage. There were, instead, an identical number of bulges in the sleeping snake's belly. So we got to know Ramrod's dietary habits.

Vern Nordman, for some now-forgotten reason, became our Snake Control Officer. He and a few of his cronies would ensure that Ramrod's needs were well cared for. Vern built him a swimming pool out of several large barrels he halved and welded together. Vern also showed us how to carry Ramrod. One simply slung him around the neck like an old flapper-era fur boa. As Ramrod became longer, one would merely take two turns around one's neck and torso with his body. It was the only practical way.

Peripatetic Python

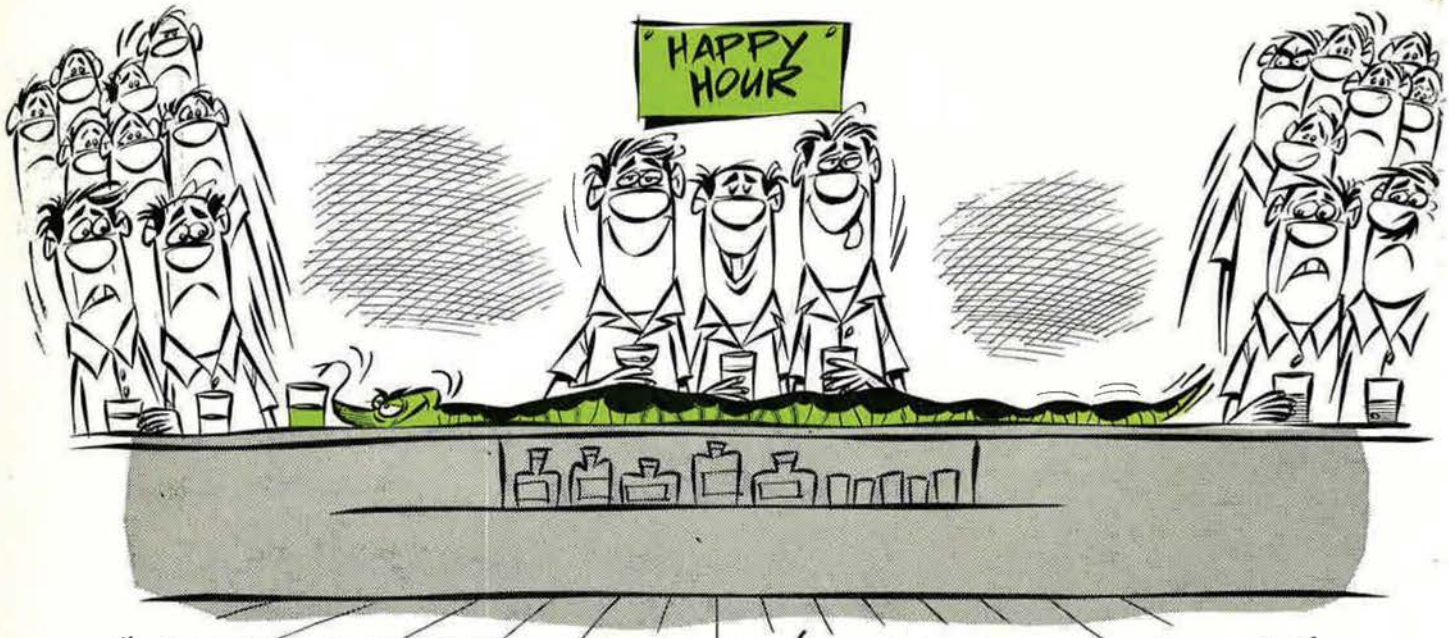
One day I was pedaling my bike by the BX with Ramrod curled around me. With a turn round my neck, his tail snugly wrapped about my chest for balance and stability, we cruised with his head about two feet forward of my right arm as I pedaled along. He liked to move his head gently up and down in the breeze, sample the air with his black, rubbery, forked tongue, and benignly survey all we passed. It so happened that as I came up to the BX, one of those big deuce and a half (2½ ton) Army trucks was parked in front, disgorging about fifteen or twenty GIs. I drew abreast of them on the road, maybe five feet out from the truck. When they saw Ramrod, they froze. Some had been climbing down, some jumping the last two feet, some hanging. And they froze. We just pedaled on by, Ramrod and I, well aware of the impression we created. Ramrod turned his head, tracking the troops as we glided on down the road.

"IT WAS SOMEWHAT DISCONCERTING TO A VISITOR TO HAVE 4 OR 5 FEET OF INQUISITIVE SNAKE SUDDENLY HANG FROM THE RAFTERS TO CHECK ON THE NEWCOMER."

Things were always happening to Ramrod. As he outgrew his cage, we gave him the complete run of the building. He had the whole squadron area to slide around in. Under counters, in the rafters, behind desks, along the molding high up the walls—it was his place. By that time we thought nothing of it and were happy. He kept the place free of rats. Of course, it was somewhat disconcerting to a visitor to have four or five feet of inquisitive snake, tongue darting, suddenly hang from the rafters to check out the newcomer.

Shortly after 3:00 o'clock one black, rainy morning, Ramrod somehow crashed out of the squadron. The roads were muddy and unlighted. Ramrod evidently grooved down the road to the only light showing, a Vietnamese guard shack. Vern got a frantic call from the Air Police and raced down to the area on his bike to find the terrified guard standing on top of his shack pointing and gesturing at Ramrod, who was curled up watching the performance. Vern casually slung Ramrod around his neck and pedaled off in the dark. The guard stayed on top of his post the rest of the night.

Often we wouldn't get out of the squadron until late in the day. By the time we made it to the Officers' Club, the long horseshoe bar would be crowded with wing wienies cashing in on Happy Hour. We soon found how to make room right up front for our squadron. Two or three pilots would slip through the crowd, one behind the other, up to the bar. Then we would feed Ramrod through the crowd much like a firehose to the lead man, who would then change our mascot's direction ninety degrees and slide him flat out along the bar. We could always



count on Ramrod's length for bar space.

Ramrod Goes to War

One day we decided Ramrod should have a combat mission. I believe it was Ken Smith who said he would take him along on his next sortie. Now the cockpit in the F-100 isn't all that big, and just where would you stow a ten-foot snake, anyhow? Ken had it all figured out. He crammed Ramrod into a parachute bag, zipped it shut except for a few inches so the snake could breathe (a great mistake, he was to find out), and pushed the whole thing behind his head, up along the canopy of the big fighter. He then closed the canopy and took off. Everything went just fine at first. The climb-out was smooth, Paris Control got the flight squared away with the FAC, the FAC marked the target, and Ken rolled in.

The first pass was dive-bomb, and evidently Ken pushed a little forward stick as he lined the pipper up on the target. That bit of forward stick gave just enough negative G force to cause old earthbound Ramrod to go berserk! The next thing Ken knew, he was plunging down in a screaming dive, on target to be sure, with ten feet of very panicked snake all over him, the cockpit, and the instrument panel.

Ken did the only sensible thing; he aborted the run. He then slammed in the afterburner and pulled sharply up laying about six Gs on Ramrod, which, of course, glued him wherever he happened to be—which was all over Ken and the cockpit. Ken got off a garbled radio call to the FAC about going through his bomb run dry and that he would be out of the pattern for a while. I mean, how do you tell a FAC you have a snake in your cockpit?

Ken zoomed up to 25,000 feet or so and dumped the cockpit pressurization. Ramrod went quietly to sleep from lack of oxygen, giving Ken the chance to stuff him back in the bag. This time he zipped it completely shut. He poked the bag back above his head, repressurized, and got back into the war. So Ramrod got his mission, leaving Ken not quite convinced of the python's potential as a pilot.

The war became longer, and so did Ramrod; longer and, we noticed, more docile. His tracking, aim, and launch after live, scurrying food no longer seemed quite so precise. In fact, some of his attacks were downright out of phase. He'd miss, look very embarrassed, and try again. (Yes, Virginia, a snake *can* look embarrassed. It's all in the way he curls his body.) Brain damage, we said. Ramrod must have received brain damage from lack of oxygen on his one and only combat mission. We talked about some sort of decoration or medal for him, like a Purple Heart. We gave that up since

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The author, Lt. Col. Mark E. Berent, is a much-decorated veteran of fighter combat in Southeast Asia. In previous contributions to this magazine he has reported on the realities of the air war there (see "Night Mission on the Ho Chi Minh Trail," in the August 1970 issue, and "A Group Called Wolf," February 1971). Colonel Berent is currently the US Air Attaché in Cambodia, following duty with AFSC's Space and Missile Systems Organization (SAMSO) as a staff development engineer.

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we didn't know just where in the world we could hang the thing.

Foul Play

As Bien Hoa was built up, our squadron moved into a new building down on the flight line. We also got a new commanding officer about that time who was totally convinced that snakes were ugly, slimy creatures that could poison you, eat you, twist your bones, crush you at their leisure, and always had your worst interests at heart. In other words, he was terrified of Ramrod. So the word went out—no more snakes running loose in the squadron area. Build a cage for Ramrod.

We did. We built a cage that would have done the Los Angeles Zoo justice. It was large—about ten by ten by six—had sand, a little swimming pool, and was very airy. The door was man-sized and had a firm lock in place. To no avail; Ramrod didn't crash out . . . somebody put the spring on him.

We came to work one morning and Ramrod was gone—door open, lock hanging. Someone wanted him gone. We searched for days, with no luck. Since everybody at Bien Hoa knew Ramrod was missing, we anxiously waited for the usual call saying he had been seen. Many times Ramrod had gone off on expeditions of his own, and invariably Vern would get a phone call saying to come and pick up your damn snake. Not this time.

Then, late one dark and stormy night, Vern received a call from the Air Police Desk Sergeant. A guard in the ammo dump, he reported, had spotted Ramrod among the stacked cases. Vern and some friends happily tore down there armed with flashlights. In the black of night they glopped through the mud to where a slightly terrified Air Policeman was pointing with his light.

About four feet back, through a small space between stacked-up circular munition cartons—a foul place, dripping and full of spider webs—Vern saw Ramrod's tail. Only one thing to do; lean way in, arm and hand outstretched along the hole, head bent, shoulder up against the cases, rain dripping down the neck, and blindly feel around for a tail to pull. Vern reached, groped, and finally grabbed hold of the reptile's tail, the best method of hanging on since, without its use, the snake couldn't anchor himself.

Vern tugged mightily and got a few feet of tail assembly stretched out along the narrow channel. Enough, in fact, so he could back off to see and use both hands. For some reason, Ramrod seemed quite perturbed about the whole operation. He thrashed, tried desperately to crawl further back, pulling his aft section and Vern in behind.

It was a long struggle, and Vern was rapidly losing patience with his green friend. The snake thrashed on, squirmed, and started hissing—something he rarely did. Vern got angrier and meted out a healthy swat. Cussing and sweating, he gave a tremendous heave that brought the snake boiling out, only to reveal that *it wasn't Ramrod!*

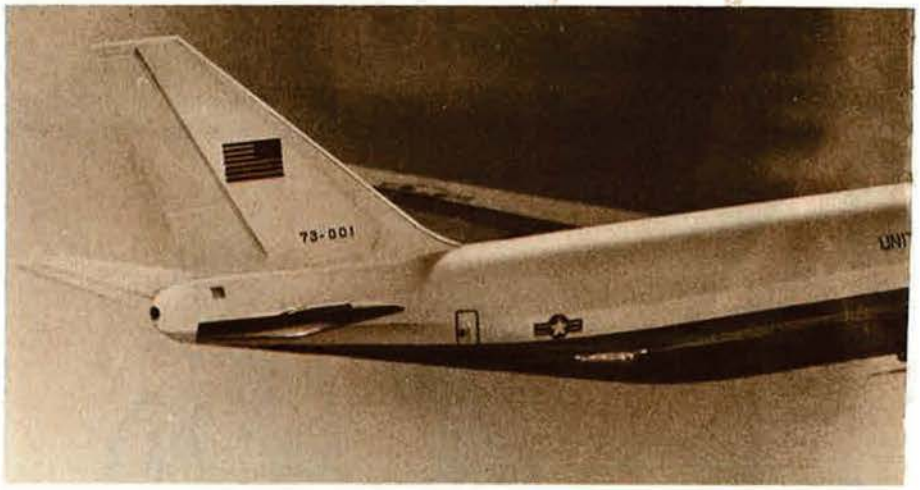
Well, that new snake never did quite catch on to our way of life. He hissed and churned all over his cage and never seemed to enjoy himself as much as Ramrod had. It didn't really make any difference, for one morning we came to work and, as with Ramrod, the cage door was agape, lock hanging, no snake. We caught on: *There Will Be No More Snakes.*

So, Ramrod the First, wherever you are, here's to you! Vern, Ron Barker, Gene, and all the rest of us Hun jocks who flew the green Delta country with "Ramrod" as our call sign salute you.

May you crank in enough mils, compensate for drift, and boresight so your aim is right on, and may you live a long life. ■

"WE DECIDED RAMROD SHOULD HAVE A COMBAT MISSION!"

A nuclear attack on the United States would likely begin with, or at least include, massive strikes against this nation's principal, ground-based command centers such as Washington, D. C., SAC Headquarters at Omaha, Neb., and the US Navy's command and control facility at Norfolk, Va. As a result, one of the most urgent tasks in the field of strategic deterrence is the development and deployment of a command and control system that could not only survive such an attack but would also be capable of functioning reliably and without interruption in a nuclear environment.



Nuclear-Proof Flying Command

By Edgar Ulsamer
SENIOR EDITOR, AIR FORCE MAGAZINE

TO DETER nuclear war, it is just as important to convince a would-be aggressor that he can't paralyze the intended victim's strategic command and control system by surprise attack as it is to demonstrate that he can't hope to annihilate the bulk of the opposing strategic forces the system controls.

The Congress recognized the importance of command and control survivability last October when it authorized the development of the Air Force's Advanced Airborne Command Post (AABNCP), meant to replace the obsolete EC-135s of the National Military Command System and the Strategic Air Command.

The Air Force was named the executive agency for AABNCP by the Secretary of Defense in December 1971, as part of a top-to-bottom revamping of how the National Command Authorities (the President, the Secretary of Defense, or their deputies or successors) command, control, and communicate with the nation's general war forces (*see July '72 issue, "Command and Control Is of Fundamental Importance"*).

As presently constituted, the AABNCP program involves seven Boeing 747 superjets, three of which were funded in the current budget. After detailed studies, the Department of Defense concluded that the 747 is the only available aircraft that meets all criteria of size, endurance, and cost. Total cost of the program is expected to be about $500 million, according to Air Force officials. Three of the giant jets and their sophisticated airborne data-processing equipment will be operated by the Air Force as the National Emergency Airborne Command Posts (NEACP—pronounced "kneecap"), normally from Andrews AFB, near Washington, D. C.; another three aircraft eventually will make up SAC's fleet of new "Looking Glass" airborne command posts; the seventh aircraft is to be held in reserve.

Air Force witnesses have informed Congress that at some future date the Department of Defense may request additional command post aircraft for use by such unified commands as NORAD and the Pacific Command.

The nuclear exchange in a general war is usually, although arbitrarily, presumed to last no more than seventy-two hours, a period during which the command post is to remain airborne, with refueling. The 747 has nearly double the endurance of the EC-135 and can remain airborne from twelve to sixteen hours without refueling.

Command Post: Needed Now

Although it didn't come into the inventory until 1964 and 1965, by 1969 the current EC-135 command post was completely saturated in terms of people, equipment, and available power. In addition, it is

deficient in nuclear hardening. The largest battle staff the EC-135 can accommodate is eighteen. Meanwhile, the jobs that have to be performed aboard NEACP and Looking Glass aircraft are increasing steadily in complexity and scope.

This trend will intensify as new, mostly space-based, sensor systems, which produce more information faster than older systems, come into the inventory. The size of the airborne battle staffs will have to be increased. At the same time, the

This artist's conception depicts a 747 NEACP, which could exercise command and control in the event of nuclear war.

'ost

quality and quantity of the electronic equipment, which processes incoming information from such outside sources as the 647 Early Warning System, must also be improved.

But in spite of better on-board data-processing capabilities, military planners are convinced that people, rather than computers, will have to make the actual decisions and analyze and evaluate the data on which these decisions are based. As a result, some planners predict that in the early 1980s NEACP aircraft may require a battle and support staff of about 100 people.

This kind of growth is completely beyond the capabilities of the EC-135. Adding to these deficiencies are two other factors. The need for heavy shielding against the effects of nuclear detonation—on aircraft and sensitive equipment—drives up the payload requirement at a time when the EC-135 already has to reduce its fuel load on hot days just to get off the ground. Even more crucial, say Air Force experts, is the fact that advancing communications technology in such areas as super-high-frequency (SHF) transmissions from satellites requires new onboard terminals that the current aircraft can't accommodate.

This consideration applies also to the VLF/LF (Very Low Frequency/Low Frequency) equipment used by the critically important Minimum Essential Emergency Communications Net, or MEECN, which requires a five-mile-long trailing antenna installed aboard the aircraft. Both the SHF and the VLF/LF ranges of the electronic frequency spectrum resist the communications blackout effect caused by large-yield nuclear explosions.

(Air Force witnesses have told Congress that the electromagnetic pulse [EMP] generated by the explosion at high altitude of a twenty-megaton nuclear device—the approximate size of the warhead of the SS-9, the largest Soviet ICBM—would cover "practically the entire United States" with EMP.)

The EMP phenomenon usually does not affect certain line-of-sight communications with satellites and ground terminals on which the Advanced Airborne Command Post will rely heavily. Using these line-of-sight communications in concert with VLF/LF "in a multiplicity of arrangements gives us a high probability that we will be able to communicate and exercise command and control over great distances, even in a last-ditch mode," a senior Air Force planner told AIR FORCE Magazine.

The Hardening Problem

Although it is basically a conventional commercial 747, the Advanced Airborne Command Post's appearance differs noticeably from its civilian counterpart. Windows have been eliminated to reduce the aircraft's vulnerability to overpressures, EMP, and other nuclear-blast phenomena.

In theory, aircraft are ideally suited to resist high-voltage and high magnetic pulses because they provide a metallic shield inside of which EMP effects are significantly reduced. In practice, however, cockpits, windows, and antenna lead-ins provide leakage paths that could damage or destroy electronic equipment.

Last year, the Department of Defense requested the Air Force to find ways to alleviate these problems. Work currently in progress involves various forms of simulation and tests that seek to establish "reasonably precisely what represents a sure safe range from a nuclear explosion and what constitutes a sure kill range. The research involves analyzing different nuclear side effects, whose ranges vary, and coming up with shielding and other countermeasures.

"But this hardening has to be balanced because it wouldn't make sense to provide shielding for the electronic equipment heavy enough to withstand a close-in multimegaton blast when we know that the explosion is certain to kill the entire battle staff.

"The result of this research, we expect, will be reasonably good information on where we can and where we can't operate the aircraft, and will validate the hardening techniques to be used," a senior program official told AIR FORCE Magazine.

The schedule of the AABNCP program allows for the uncertainties born of as-yet-unresolved questions, such as the pending decisions with regard to the new command post's computer. The Joint Chiefs of Staff requested last year that the AABNCP's computer be made compatible with the ground-based computers of the World-Wide Military Command and Control System (WWMCCS), of which both NEACP and Looking Glass are integral parts.

At the moment, the experts disagree as to whether this compatibility should be achieved by using a duplicate of the ground-based system's own computer or by some other means. Adapting, or "ruggedizing," the WWMCCS computer for airborne use, however, would cost an additional $40 to $70 million.

Step-by-Step Development

The AABNCP program will start with a direct transfer of the EC-135's equipment to the 747, to be done as soon as possible and involving, so far as FY '73 funding is concerned, two 747s assigned to the NEACP role. To hasten the development and deployment of the final and complete system, a third 747, to be bought with FY '73 funds, will be used initially as a test-bed for the AABNCP's advanced technology command, control, and communications package. Once this aircraft has been proven out in both ground and flight test, it becomes the advanced NEACP aircraft. Meanwhile, in FY '74, another 747 is to be acquired and will be used as the third "interim NEACP aircraft."

At that time, the Air Force plans to initiate the production of three more complete command posts, which will replace the interim NEACP aircraft on a one-for-one basis. The final phase of this musical-chairs arrangement involves retrofitting the three interim NEACP aircraft with the advanced electronic equipment and then turning them over to SAC for use as Looking Glass aircraft. While the detailed schedule is not yet nailed down, Air Force planners are confident that the program will be completed and fully operational sometime between mid-1976 and 1977.

The beneficial effects of changing over to 747s are expected to be immediate, even though the interim aircraft that use the EC-135's equipment will carry no airborne data-processing equipment. But with the changeover, the battle staffs can be increased in size to thirty-nine or more from the EC-135's maximum of eighteen. (Thirty-nine is the envisioned staff size of interim NEACP aircraft; the SAC Looking Glass battle staff size is expected to be twenty-six, except during periods of high alert when it will be increased to thirty-five. The crew size on all 747 command post aircraft will be seven.)

Program Management Uncertainties

Overall management responsibility of the entire program rests with the AABNCP System Program Office (SPO) at the Air Force Systems Command's Electronics System Division (ESD) at L. G. Hanscom Field, Mass. The SPO is being assisted in matters pertaining to the aircraft itself by AFSC's Aeronautical Systems Division, and the Oklahoma City Air Materiel Area of the Air Force Logistics Command is to support the program in the field of aircraft modifications.

The program's industrial contractor structure has not been determined at this writing. While Air Force spokesmen readily point out that Boeing, in effect, was selected as the sole source supplier of the seven aircraft, no contractual agreement confirming this has as yet been entered into. Also, no decision has been reached on "who should act in the role of the industrial prime contractor. We are considering handling the transfer of the equipment from the EC-135s to the 747s ourselves through Air Force facilities," AIR FORCE Magazine was told.

Because the cost of developing and acquiring the new, "nuclear-survivable" command, control, and communications equipment will be more than double the cost of the seven airplanes themselves, it is most likely that these subsystems will be obtained through a competitive process. This competition might involve the selection of one prime contractor or "breaking up the whole package into several pieces which we could develop and buy on a competitive basis." Several major electronics companies have officially expressed an interest in participating in the program, either as the prime or as subcontractors.

Future Requirements

Short-term growth forecasts involving the NEACP and Looking Glass missions, Air Force planners point out, "are reasonably dependable and based on other systems which we know will come into the inventory in the near future. On that basis we were able to tell the Congress with a high degree of confidence that we must be able to increase our present capabilities by as much as 200 percent by 1978. But beyond that point the forecasts become hazy, and if we allow for all the things various study groups predict will be needed in the years ahead, we might even conclude that some time in the mid-1980s even the 780,000-pound 747 jumbojet could be filled to capacity with people and electronic equipment."

One of the features that NEACP and Looking Glass aircraft lack, for example, is the ability to assess battle damage. "Battle-damage assessment, on a near real-time basis, is important, but all the computer models we have been able to develop to date are so complicated and take so much computer time that they can't be accommodated aboard an aircraft for the time being.

"What is required is a computer with a capacity for several million instructions per second. For the moment, this is well beyond the state of the art in airborne data-processing technology. But as the industry moves on from the present fourth-generation computers to even greater data-handling capabilities, it is conceivable that such a computer might come into being by the end of this decade," a senior program official told AIR FORCE Magazine.

Even without this and other futuristic capabilities, there is high DoD confidence that the Advanced Airborne Command Post will strengthen US deterrence significantly because its message to any potential attacker is unequivocal: "If the President gives the order for nuclear retaliation, AABNCP guarantees that the forces that are supposed to react get the word, instantly and reliably." ■

HIGHLIGHTS

1973

MAY AIR FORCE MAGAZINE

Annual Air Force Almanac issue—exclusive articles by the Secretary and Chief of Staff, USAF . . . In-depth reports on all major Commands . . . complete Gallery of USAF Weapon Systems. Must reading . . . important reference issue throughout the year.

JULY AIR FORCE MAGAZINE

"The Electronic Air Force"—special editorial coverage on what is happening now and plans for the future. Must reading throughout the Air Force, particularly in AFSD, ASD, and the Labs, as well as all user Commands.

SEPTEMBER AIR FORCE MAGAZINE

Annual Convention, Fall Briefings and Display issue. Bonus distribution at event, including all military and civilian executives attending by special invitation for briefings. Marketing plus . . . inclusion of advertisement in "Industry Salutes the Air Force" display at show.

NOVEMBER AIR FORCE MAGAZINE

Convention Briefings and Displays Report issue. (Widely read for its comprehensive reports on seminars, industry briefings on latest technical developments, and addresses by key USAF leaders.)

DECEMBER AIR FORCE MAGAZINE

"The Military Balance"—The major report from the International Institute for Strategic Studies, London, England, which documents, country by country, the world's military forces and equipment. A desk-top reference sought after and referred to by military decision-makers in the U.S. Air Force, DoD, NASA, the Congress, and other military services.

AIR FORCE MAGAZINE

PUBLISHED BY THE AIR FORCE ASSOCIATION

The Bulletin Board

By Maj. Robert W. Hunter, USAF
CONTRIBUTING EDITOR, AIR FORCE MAGAZINE

No Lip Service

The Air Force is demanding more than lip service in its social-actions program.

According to Brig. Gen. Lucius Theus, Air Force Chief of Social Actions, Gen. John D. Ryan, Air Force Chief of Staff, has made it clear that he expects commanders to support social-actions programs personally.

"Of the social-actions areas, which include drug and alcohol abuse, domestic actions, race-relations education, and equal opportunity, the latter is probably the most important subject," General Theus said. "We must continue to open communications channels, ensure equal promotion opportunity for all personnel, increase minority officer recruitment, use sanctions against those who practice unfair housing, ensure that base exchanges and commissaries respond to consumer desires, increase minority literature, and educate our people to alleviate misunderstanding."

General Theus and his staff are encouraged, though not satisfied, with improvement of selection rates for minority airmen under the Weighted Airman Promotion System (WAPS).

"Careers of minority officers," General Theus reported, "are being monitored to ensure that they get positions, exposure, schooling, and the opportunity to show they can perform and deserve to be promoted with their contemporaries.

"The drug-abuse education programs are working well," the General said. Those who cannot be educated against using drugs are identified and rehabilitated. Those who cannot be rehabilitated are separated with a discharge appropriate for their service records.

"Alcohol," he added "is a crippling problem often overlooked. The Air Force program for alcoholics is compassionate and comprehensive and has a goal to return these people to useful service."

General Theus believes that "financial support of all programs is in trouble. We are competing for funds that must come from within the Air Force community. Social action, as important as it is, must compete."

MSgt. Frank Walker, left, and TSgt. Ray Messick, of the Personal Affairs Division, Air Force Military Personnel Center, hold part of 309,000 information packages on the new Survivor Benefit Plan (see AIR FORCE *Magazine, "The Bulletin Board," Dec. '72 issue, p. 121). The packages are being sent to all USAF retirees as part of a "direct mail" education program.*

New Phase Points to Captain

The Air Force phase point for promotion to captain is going from thirty-six to forty-eight months of active federal commissioned service.

The phase point was lowered in 1964 from six years to four and one-half years, to three and one-half years in 1967, and to three years in 1968. The reason for these moves was to maintain comparability with the other services and to offer the pay of a captain as an incentive for retention.

With the Army and Navy moving toward the forty-eight-month phase point, and in view of recent pay adjustments, the three-year time to captain is no longer justifiable, USAF feels.

To implement the policy, the phase point will be slipped incrementally between now and December 1974. Those who normally would have been promoted to captain this month or next will be promoted one month later. Other time schedules were not available as of this writing.

JOCs Are Involved

Air Force Junior Officer Councils (JOCs) are "involved" at bases and communities around the world. The latest JOC report from the Air Force Military Personnel Center

confirms that these young officers are playing a vital role in today's force. Established by Air Force directive in 1961, the groups originally met resistance from some "old-timers" who questioned their value and motives. Their achievements now speak for themselves.

For example, the JOC at McChord AFB, Wash., initiated a course in writing officer and airman ratings. At Forbes AFB, Kan., they developed improvements in base security, preventing petty theft. Young officers at F. E. Warren AFB, Wyo., established a Combat Crew Management Committee to solve problems of the missile wing.

All TAC JOCs conducted a study on price limitations within the exchange services. The Goodfellow AFB, Tex., JOC published an Officer Career Planning Guide. At Korat Royal Thai AFB, Thailand, and Malmstrom AFB, Mont., JOCs ran a voter-registration campaign. Vance AFB, Okla., has a participative management program, thanks to their JOC. Junior officers at Edwards AFB, Calif., did a study within AFSC to determine the feasibility of a separate engineering corps. At Lajes Field, in the Azores, the JOC group came up with a study of housing requirements and child-care center studies. Scott AFB, Ill., and Blytheville AFB, Ark., instituted projects to acquaint airmen with avenues open to them for commissioning. And the Southern Command JOC assisted young married airmen in obtaining furniture through redistribution and marketing channels.

These are but a few of the ways JOCs are zeroing in on Air Force problems.

Community College Curriculums

The Academic Council of the Community College of the Air Force (CCAF) has approved seventy-six curriculums for the first edition of its catalog, scheduled for publication next spring.

The curriculum program requirements approximate those of two-year degree programs of the best vocational-oriented civilian institutions. The curriculums are translated into academic nomenclature and semester hours. Each program offering a certificate requires a minimum of sixty-four semester hours.

A typical example is the Aircraft Maintenance curriculum, offering a major in Aerospace Ground Equipment Maintenance. The first sixteen hours of credit are earned by completing the Aerospace Ground Equipment Repairman course at the School of Applied Aerospace Sciences, Chanute AFB, Ill. The course has been broken down into its component CCAF subjects. For example, AVI (Avionics) 1225, Generator and Motor Fundamentals, and AVI 2216, Reciprocating Engines, each earn two semester hours credit, and ELT (Electronics) 2209 earns three hours.

The remaining education requirements must be obtained through civilian schools, except for physical education credit, which is automatic after Basic Training has been completed.

News Briefs

• Holloman AFB, N. M., had its AFA fund drive recently, and MSgt. Malcolm M. Gegenheimer

A former USAF captain shares his job-hunting experiences with AIR FORCE Magazine readers as he points out that . . .

Preplanning Can Get You That Job

How can you who are about to leave the Air Force improve your chances of getting a job in the field you want? Let me tell you how I did it, and you draw what conclusions you want.

First of all, I had to be realistic, look at my talents, and decide what jobs I could honestly qualify for. Secondly, I decided what area I'd like to work in. The Maine coast won hands down. Thirdly—and here's where I parted company with other job-seekers—I put as many irons in the fire as possible.

I began some five months before getting out, by taking about a week and traveling to meet newspaper editors I wanted to work for. I brought along a portfolio, a good suit, and a determination to sell myself. Keep it straight and simple. No gilding the lily, I told myself.

I took the state civil-service exam too, getting on the roster of applicants statewide, opening another category of potential employment. Now I had applications for newspapers and a link to state civil-service jobs.

Then I wrote to all the private organizations I could think of that could use a person with my background. A third iron in the fire.

As a fourth iron, I contacted the state Air Guard and asked if they had any openings. They did. Within a few weeks, I was on my way to becoming part of the state Guard—a step toward a retirement nest egg, extra income, and, as I soon discovered, a fantastically close group of fellow Guardsmen.

There was one more step. About two weeks prior to separation, I called everyone who had showed interest in me, and reminded them I would soon be in their office talking about employment. Thus, the day I separated, I had places to go and appointments to keep.

I next registered with the State Employment Office and discovered there was a Veterans Administration representative ready to help me find a job. Still one more iron. The VA man had access to a job bank of all the openings throughout the state. Within two days, I had two job offers.

I decided to pursue one that seemed to me to stand out head and shoulders above the rest—Director of Public Relations at a small university on the coast. With portfolio, résumé, and veterans preference (another iron) in hand, I went for an interview with the institution president. I was hired.

And so here I am. If this hadn't turned out, I truly believe something else would have. And it would have been a job that fell reasonably well within my experience and desires.

A few more points to remember. Don't ever believe you'll be hired just because you're a veteran. If you haven't finished that college degree, do it if possible. Have something to offer and show it in an explicit résumé.

Don't fawn, and don't come on like General Patton. Be yourself. Translate military experience into civilian terms so your prospective employer can make sense out of it. And finally, don't ever put all your eggs in one basket. Remember the value of many irons in the fire.

—By Gary Guimond

The Bulletin Board

MSgt. Malcolm M. Gegenheimer, Holloman AFB, N. M., personally recruited forty new AFA members from his squadron, the 49th Services Squadron.

was the top recruiter. He contacted all eighty-three members of his squadron and got forty new members. AFA offers a "well done" to Sergeant Gegenheimer.

• Air Force retirees are getting a new channel of communication in the form of an eleven-member Retiree Council being formed at the Military Personnel Center, Randolph AFB, Tex. Members will represent a cross section of retirees from regular and Reserve components. The council will meet annually for one week at Randolph AFB to review policies, programs, and procedures that impact on retirees, and will recommend Air Staff action where needed.

• The new USAF Senior NCO Academy at Gunter AFB, Ala., will begin operation on January 9 with a first class of 120 students. Thereafter, the Academy will graduate 1,200 students a year from five nine-week classes of 240 students each. The first full-size class will begin May 29, 1973.

• Central Base Personnel Offices (CBPOs) will soon adopt a new approach to answering questions and helping people.

Under a new field-tested concept, each CBPO will have a "Customer Service Center" manned by people qualified in a wide range of personnel areas. There will be no more need to run around looking for the "expert."

• Air Force military members and civilian personnel will find their Social Security deductions going up again this year. Effective with the first pay period of 1973, the rate for deductions will increase to 5.5 percent, from the previous 5.2 percent. The amount of gross salary subject to Social Security taxation will also go up from $9,000 to $10,800.

The deduction rate will remain the same in 1974, but the gross salary subject to tax will again rise, this time to $12,000.

It's all part of Public Law 92-336, which became effective on July 1, 1972.

• Airmen toying with the idea of experimenting with drugs should know the facts of civil court actions.

From January through August 1972, 205 indictments involving airmen were returned. Of those, twelve percent were acquitted, twenty percent were convicted and awaiting sentencing, and sixty-three percent had been sentenced at the time the data were collected. The other five percent were awaiting trial. Sixteen percent of those sentenced were fined, eighty-four percent were confined, and sixty-eight percent of those confined also were fined. The average confinement was 23.6 months, but sentences ranged from under one year to fifteen years. Fines ranged from $4 to $1,000, and the average fine was $216.

The 913th TAG, Willow Grove, Pa., was honored before a recent Eagles-Rams game, for its Hurricane Agnes relief efforts. Here, Col. Theodore G. Behling, 913th Commander, accepts a Certificate of Appreciation from Wilkes-Barre City Manager, Bernard J. Gallagher.

• The Squadron Officer School has been shortened from fourteen to eleven weeks, and the course will now run four times annually. Under the new schedule, more than 3,000 career officers will receive military education at SOS each year, compared to an annual student production of some 2,340 in the past.

• Air Force has adopted a policy wherein each person failing to keep a scheduled urinalysis testing appointment for drug detection will be tested every Monday, Wednesday, and Friday for four consecutive weeks. Exceptions can be made by the base commander. Officials say the new policy is not punitive. Instead, it recognizes that only through prompt testing can drug users be found and treated.

Senior Staff Changes

M/G Royal N. Baker, from Chief, MAAG, Bonn, Germany, to V/C, Hq. ADC, Ent AFB, Colo. . . . **B/G Harry M. Chapman,** from Asst. Dir. of Plans for Joint and NSC Matters, DCS/P&O, Hq. USAF, to C/S, DSA, Washington, D. C. . . . **B/G Herbert A. Lyon,** from Dep., Reentry Systems, SAMSO, to V/C, SAMSO, AFSC, Los Angeles, Calif., replacing B/G Thomas W. Morgan . . . **B/G Thomas W. Morgan,** from V/C, SAMSO, AFSC, Los Angeles, Calif., to Cmdr., AF Special Weapons Center, AFSC, Kirtland AFB, N. M. . . . **B/G Frank J. Simokaitis,** from Exec. Asst. to the Secy. of the AF, Hq. USAF, to Cmdt., AFIT, AU, Wright-Patterson AFB, Ohio, replacing M/G Ernest A. Pinson.

RETIREMENTS: B/G John S. **Chandler,** Jr.; M/G Lee V. **Gossick;** B/G Ernest F. **John.** ■

MIA/POW Action Report

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

President Nixon, at League of Families convention, guaranteed that the Administration would do all it could for the prisoners.

Reentry

Some of the prisoners will have been in captivity a few months. For others, the periods of internment have stretched out over long years. But whatever time spent in enemy hands, American POWs released from compounds in Southeast Asia have been assured every assistance necessary to reenter the mainstream of US life.

Immediately upon release, the POWs are to come under a rehabilitation program unparalleled in history. The program, dubbed Egress Recap, has evolved under the direction of a top team of DoD officials over the last several years. And while each of the services has developed the details of its own plan for handling the rehabilitation of its ex-POWs, basic guidelines of Egress Recap will apply universally to all the services.

"The mission of Egress Recap is to be able to go anywhere in the world to receive our men and ensure that they get the very best treatment possible—sensible, individualized processing and care," said Dr. Roger E. Shields, chairman of the Defense Department's POW-MIA Task Force.

Research into what problems might afflict the returning POWs has been thorough. Data derived from studies of repatriated Korean War POWs have been analyzed; Vietnam POWs who have either been released or have escaped have been interviewed; French officials have been consulted regarding their experiences with returning POWs following the termination of that country's involvement in Indochina in the 1950s; reactions of the returned crew of the captive USS *Pueblo* have been noted; and the League of Families has submitted a list of recommendations of what might benefit the men and their families during the potentially troublesome period of rehabilitation and readjustment.

Much of the preliminary planning for Egress Recap was accomplished at a special facility—the Center for POW Studies—set up at the Navy's neuropsychiatric research installation at Point Loma, Calif. (Here it was noted by physicians and psychiatrists that men long in captivity under enforced docility might have to be reconditioned toward more aggressive behavior patterns. "After the complete servility of the camps, it might take weeks for the men to once again openly express negative feelings or anger," one doctor believes.)

The broad scope of the Egress Recap Program was deemed necessary because of the past record of American POWs returning after World War II and the Korean conflict. These men averaged a much higher mortality and suicide rate than the national level; they had much higher instances of mental illness and were more accident-prone; they experienced a much higher degree of marital discord and divorce.

While the returning POWs will be confronted with problems as varied and individual as themselves, two general areas of difficulty—medical and psychological—are anticipated.

When the men are released, under whatever terms are agreed upon in the cease-fire in Southeast Asia, of most immediate concern will be the state of their health. "Egress Recap is founded on the basic premise that all returnees will require medical attention, some much more than others," Dr. Shields explained. "Certainly all will require rest and time to readjust." Therefore, they'll all be given a quick medical check to determine the extent of disease and malnutrition and whether or not they are in good enough shape to withstand air evacuation.

Following this, those able will be flown by Air Force medevac aircraft to probable processing points at Clark Field in the Philippines, Guam, or Okinawa. There, extensive medical examinations will take place.

"Immediately following medical treatment will be an initial debriefing. This will be undertaken by experienced interviewers who will obtain any information the returnees may have concerning remaining captured or missing in action personnel before further processing activities confuse their minds," a DoD official said. It is hoped that this information will help to clarify the status of many

At AFA's Arizona convention in Tucson in October, from the left, Mrs. Verna Van Loan, wife of a POW, mans a MIA/POW booth as she chats with her father-in-law, W. L. Van Loan of Corvallis, Ore., and Air Force Secretary Robert C. Seamans, Jr. Looking on is William P. Chandler, State President of Arizona's AFA. *See p. 76 for details of the Arizona convention.*

of the other men listed as missing in action.

Once a man has been identified as being among those released, his family will be notified, though no reunions will take place until the men have been cleared through the processing center and flown to the States. Telephone talks at the center will be arranged, however.

Each ex-POW will be fitted with a uniform at the center, which is calculated to help restore confidence and identity, fundamental to the process of reorientation. Each returnee will also receive a brochure that will contain photographs and information concerning the status of his family. The emphasis, however, will be on transporting the men as quickly as possible to military hospitals near their homes in the US.

Easing the ex-prisoners and their families through the trauma of reunion has been the objective of special teams of DoD experts who have been touring the country to brief POW wives and other family members on potential problems. The teams included medical doctors, psychiatrists, plans/policy officials, legal officers, casualty assistance officers, and comptroller personnel. "The families have been familiarized with the captivity situation, the physical and psychological effects on the men, the procedures we will apply, and the assistance that will be provided," Dr. Shields said.

It is feared that the men who have spent years in confinement may experience some sort of combined cultural/chronological shock upon return to a world that, in effect, has left them behind. "Many of the men will be familiar with the environment that existed when they went into captivity," a DoD official explained. "Clothing styles, technology, customs and mores, and even newly coined words will be strange to them. Imagine coming home to find that the crew-cut, ten-year-old son you left behind is now six feet tall and has hair to his shoulders. What's more, he will have developed a will of his own and even thoughts about the war that might run contrary to your own. A reunion of this nature could be deeply disturbing for all concerned."

(Navy Lt. Mark Gartley, released recently after four years in enemy hands, reported that life within the camp was not a total blank as far as news of the world was concerned. Lieutenant Gartley said that news trickled in via North Vietnamese news broadcasts and newly captured prisoners.)

To help the returnees cope with whatever cultural readjustments are necessary, several programs have been devised under Egress Recap. To bring the men up to date, illustrated publications will be supplemented by other informative materials including film of major news events, "highpoint" summaries, and year-end reviews contributed by news magazines and other media. As part of its effort, the Air Force has in the works a dictionary of the latest slang, especially that used by today's teenager. This may help to narrow whatever communications gap has opened in the intervening time period.

The reunions of the returnees and their family members are to take place as soon as possible after the ex-POWs arrive in the US. Family members will be provided transportation to the hospital site and quarters at government expense during their stay there.

Following their medical rehabilitation, the ex-POWs will be granted generous convalescent leaves. Thereafter, counseling will be available to help the men to resume either military or civilian careers. If the decision is made to remain on active duty, specialized training will be provided to bring the returnee up to date with his contemporaries.

In an Egress Recap information pamphlet published for the benefit of the MIA/POW families, Secretary of Defense Melvin R. Laird has avowed that the US government will do everything in its power to determine the status of Americans listed MIA, that they will not be abandoned.

On Behalf of MIA/POWs

Rescue Line Incorporated of Santa Fe, N. M., is filling orders for its third annual MIA/POW calendar. Money raised through the project is used to purchase ads in foreign publications "in the hope of identifying prisoners and documenting those missing in specific and somewhat remote areas."

Rescue Line's Director, Mrs. James Lindberg Hughes, is the wife of an Air Force colonel being held in North Vietnam. The calendars are being offered to groups or individuals for ten cents each for orders of 100 or more or twenty-five cents each for orders less than 100. Rescue Line will pay normal mailing costs. Write to Post Office Box 2392, zip code 87501. ■

League of Families members applaud Navy Lt. Mark Gartley following his remarks at the League convention. From left, Mrs. Bonnie Metzger, Mrs. Evelyn Grubb, Lieutenant Gartley, and Mrs. Carole Hanson. Gartley is a released POW.

AFA News Special Report

The USAF Twenty-fifth Anniversary celebration was climaxed October 28 with a glittering event on the West Coast, where . . .

THEY HAD A BALL

Bob Hope highlighted the ball's program, drawing laughter and applause from the more than 550 guests.

THE Air Force Ball, the first such event sponsored by AFA on the West Coast, was held in the Beverly Wilshire Hotel, Beverly Hills, Calif., on October 28. The ball climaxed the USAF Twenty-fifth Anniversary celebration, which began March 24 with AFA's Iron Gate Chapter's National Air Force Salute in New York City.

Net proceeds from the West Coast $100-a-plate, fund-raising ball went to a scholarship fund for children of US servicemen killed or missing in action, or prisoners of war in the Southeast Asian conflict, and to the Aerospace Education Foundation, an AFA affiliate.

Among the more than 550 distinguished guests were Air Force Secretary Robert C. Seamans, Jr.; Air Force Assistant Secretary Richard J. Borda; SAC's Commander in Chief, Gen. John C. Meyer; AFSC Commander, Gen. George S. Brown; AFLC Commander, Gen. Jack J. Catton; MAC Commander, Gen. Paul K. Carlton; and AFA's first National President and Medal of Honor winner, Lt. Gen. James H. Doolittle, USAF (Ret.). Also present were other Air Force officials, key leaders of the aerospace industry, and many Los Angeles civic leaders and Hollywood celebrities.

General Chairman for the ball was AFA's National President, Martin M. Ostrow. Lt. Gen. Kenneth W. Schultz, Commander of the Air Force's Space and Missile Systems Organization, served as the Military Host. Bob Hope headlined the formal program and introduced three performers for the Air Force's "Tops In Blue." SAC's Fifteenth Air Force Dance Band and the Michael Paige Orchestra provided dance music.

President Ostrow, serving as master of ceremonies, presented AFA Certificates of Honor for outstanding support of the MIA/POW effort to JoAnn C. Doell and Jacqueline L. Jorgensen of Pasadena and San Moreno, Calif., respectively; Shary Aument of Tokyo, Japan; and Col. Chester D. Taylor, Jr., Judge Advocate at SAMSO.

President Ostrow received congratulatory messages from Air Force Chief of Staff Gen. John D. Ryan; California Gov. Ronald Reagan, who also served as Honorary Chairman of the ball; and President Richard M. Nixon, who described the event as being "consistent with the patriotic purpose and high ideals of the Air Force Association and characteristic of its splendid humanitarian tradition."

The second Air Force Ball to be held in Los Angeles is planned for October 27, 1973. ■

USAF Olympic Gold Medalist, Capt. Micki King, chats with SAMSO's Lt. Gen. Kenneth W. Schultz.

General Jimmy Doolittle and wife were among the celebrities at the $100-a-plate gala.

AF Secretary Robert C. Seamans, Jr., and Mrs. Seamans, left, and AFA President Martin M. Ostrow and Mrs. Ostrow chat before dinner.

Photos courtesy of 9012th Air Reserve Information Squadron, Los Angeles, Calif.

THE ROCKY MOUNTAIN CHAPTER, UTAH . . .

cited for effective contributions to the mission of AFA, most recently exemplified in its domestic-action program to assist in the restoration of the Wilkes College, Pa., library.

By Don Steele
AFA AFFAIRS EDITOR

The helping hands of AFA's **Rocky Mountain Chapter**—the women's Chapter of the Utah AFA—have a long reach, from Ogden, Utah, to Wilkes-Barre, Pa.

More than 6,000 books were gathered by the ladies and shipped recently to **Wilkes College, Wilkes-Barre,** to help replace the school's library of more than 100,000 volumes destroyed in Hurricane Agnes in June.

The books were donated by individuals and institutions in Utah's Weber and Cache counties during the month-long campaign conducted by the Chapter.

Suzanne Pearson, book-drive chairman, said IML truck lines donated the carrier to haul the books from temporary storage at Hill AFB to Wilkes-Barre. Arrangements for the trucklift were made by Utah AFA President **Lynn Summers** and **Joe Hyde,** Utah State President for the National Defense Transportation Association.

Carefully packaged and sorted by the ladies, the books weighed more than 9,000 pounds, and included texts, periodicals, novels, encyclopedias, dictionaries, etc.

Inspecting books collected by AFA's Rocky Mountain Chapter for shipment to Wilkes College, Pa., are, from left, Joe Hyde, NDTA; Chapter President Helen Hilburn; Don Kranendonk, IML freight lines; and Utah AFA President Lynn Summers (see accompanying story).

Chapter President **Helen Hilburn,** a CAP officer, arranged to have CAP cadets assist in packing the books, while Utah AFAers provided the muscle to load the books on pickup trucks that hauled them to Hill AFB for temporary storage.

A welcoming committee, headed by **Capt. Richard J. Carpenter, Jr.,** met the truck at IML's Wilkes-Barre terminal. The Captain is a member of the AFROTC staff at the college and brought the need for books to the attention of the Utah AFA.

More than 2,000 volumes came from the library of the late former Ogden city commissioner, **W. J.**

Distinguished guests at the Fresno Chapter's recent Honors Night Banquet included, from left, Brig. Gen. John R. Kelly, Jr., Commander, 93d Bomb Wing (SAC); Air Force Academy Cadet 3d Class Terry M. Symens, Cadet 3d Class John R. Wolters, and Cadet 2d Class Michael T. Giersch; and Maj. Gen. Horace A. Hanes, Vice Commander, Aerospace Defense Command, the banquet keynote speaker.

Rackham. Several hundred volumes were donated by the **Weber County Hospital** in nearby Roy. Substantial stocks of books were contributed by **Weber State College** in Ogden and the **Utah State University** in Logan. Donations by private citizens in the two counties rounded out the campaign.

In recognition of the Chapter's efforts, we are pleased to name the Rocky Mountain Chapter as AFA's "Unit of the Month" for January.

The **Fresno, Calif., Chapter's** annual Air Force Honors Night Banquet and Awards Ceremony not only provided a platform for the Chapter and the local Air Force units to honor their "Outstanding Men of the Year," but this year observed the USAF's Silver Anniversary and paid tribute to the Aerospace Defense Command.

Maj. Gen. Horace A. Hanes, Vice Commander, Aerospace Defense Command, was the guest of honor and speaker. AFA National Director **Jack Withers** was master of ceremonies, a job he has performed at this annual function for a number of years.

Awards and citations went to members of the Air Force, Air Force Academy Liaison Officers, Air National Guard, Civil Air Patrol, AFROTC, the Fresno Chapter, and the city of Fresno.

Special awards were presented "for devoted service on behalf of our MIA/POWs" to **Mrs. Carole Hanson** of El Toro; **Mrs. Eldora Ford** of Sacramento; **Mrs. Lourdes Bowling** of Lemoore Naval Air Station; **Mrs. Ruthann Stephenson** and **Mr. and Mrs. Jerry Wright** of Merced; and **Brig. Gen. John Schweizer,** USAF (Ret.), of Los Angeles.

Air Marshal Hugh Campbell, left, and the Immediate Past Chairman of AFA's Board, George D. Hardy, right, admire the plaque presented to Sid Hart, center, the Royal Canadian Air Force Association's "Member of the Year." The presentation took place at the RCAFA's recent convention in Ottawa, at which Mr. Hardy was the guest speaker.

Abel Espinosa and **George Lindsey** shared the Fresno Chapter's "Man of the Year" award.

Distinguished guests included **Maj. Gen. George Edmonds,** Chief of Staff, California ANG; **Brig. Gen. John Kelly, Jr.,** Commander, 93d Bomb Wing (SAC), Castle AFB; **General Schweizer,** Executive Director of VIVA; **Col. James Kilpatrick,** Commander, 144th Fighter Group; and Korean War ace **Robert J. Love.**

The California AFA was represented by its President, **Stanley J. Hryn,** and by **Floyd Damman,** Chairman; **Tillie Henion** and **Ben Snell,** Vice Presidents; **Barbara Rowland,** Secretary; and **Gordon Meinert,** Treasurer.

Three special guests of honor, all central Californians and Air Force Academy cadets, were: **Cadet 2d Class Michael T. Giersch,** and **Cadets 3d Class Terry M. Symens** and **John R. Wolters.**

The banquet was held in conjunction with Fresno's Air Force Week activities, which included a large display of Air Force exhibits, an updated B-1 briefing, a MIA/POW seminar, the California AFA Executive Committee Meeting, a two-day air show featuring jet aircraft in "missing-man" formations in honor of our MIA/POWs, and the first annual gathering of the World War II Warbirds.

S. Samuel Boghosian, chairman of the banquet, Chapter President **Robert R. Anderson,** and all members of the Chapter are to be congratulated on this outstanding annual program.

During the Air Force Ball, sponsored by AFA and held recently in Beverly Hills, Calif., AFA President Martin M. Ostrow, left, and Lt. Gen. K. W. Schultz, Commander, SAMSO, ball chairman and Military Host, respectively, accept a check for $2,500 for a scholarship fund for the children of men missing or killed in action, or prisoners in SEA. The presentation was made by Edward A. Stearn. The contribution was part of the receipts from the fourth annual AFA Charity Golf Tournament. (See ball coverage, p. 73.)

The **New Jersey AFA's Twenty-fourth Annual Convention,** held at the McGuire AFB Noncommissioned Officers Club, featured a reunion reception, a tour of base facilities, a business session, and an awards banquet.

Highlight of the convention was AFA National President **Martin M. Ostrow's** banquet address. Mr. Ostrow refuted the myths related to our national defense policy by citing the realities of the situation.

Summing up, Mr. Ostrow said, ". . . the nub of the whole issue is this: That at seven percent of our

gross national product—or at twenty percent of our formally budgeted public funds—national security, right now, is a bargain."

In closing, he said, "Robbing vital national defense programs to pay for poorly executed projects does not necessarily represent social advance. It is easy to forget that the fundamental and basic social requirement of the United States is for its citizens to be *free*. And, freedom, ladies and gentlemen, can only be assured through adequate defense. Without freedom, the good life remains just the impossible dream. So let us first, above all else, *maintain* our freedom."

Among the many awards presented during the program were the State AFA's "Sal Capriglione Memorial Airpower Award," which was won by **Brig. Gen. Francis R. Gerard,** Commander, 108th Tactical Fighter Wing, New Jersey ANG, "for combined effort and support of both civilian and military aviation and AFA objectives and activities."

A special airpower award "for overall contributions to maintaining a military facility and community relations on behalf of airpower" was accepted for **McGuire Air Force Base** and its components by **Col. George M. Wentsch,** Commander, 438th Military Airlift Wing.

The State AFA's award for the "Best AFA Chapter Programs" went to the **Sal Capriglione Chapter,** and the "Thomas B. McGuire, Jr., Memorial Award" for "dedication and service with the Air Force Association (New Jersey)" went to the Chapter's President, **Joseph M. Capriglione.**

The State AFA's current officers will remain in office during FY '73. They are: **Amos L. Chalif,** President; **Daniel B. McElwain** and **Joseph J. Bendetto,** Vice Presidents; **James P. Grazioso,** Secretary; **Lloyd G. Nelson,** Treasurer; **Henry M. Carnicelli,** Organizational Director.

During the New Jersey AFA's recent convention, John J. Currie, left, convention chairman, presents the State AFA's "Sal Capriglione Memorial Airpower Award" to Brig. Gen. Francis R. Gerard, Commander, 108th Tactical Fighter Wing, New Jersey ANG. AFA President Martin M. Ostrow, the guest speaker, is in the foreground.

John J. Currie was chairman of the convention, and **Lloyd G. Nelson** served as cochairman.

Air Force Secretary **Robert C. Seamans, Jr.,** was the guest of honor and speaker at the **Arizona AFA's annual convention,** held recently at the Skyline Country Club in Tucson.

In his address, Dr. Seamans praised the Air Force's all-**AFA's annual convention,** held reported on the development of the B-1 strategic bomber, and, referring to the budget, said that inflation and growing personnel costs

At the Wright Memorial, Ohio, Chapter's annual Air Force Anniversary Banquet, AFA President Martin M. Ostrow presents a citation to Col. George R. Weinbrenner, Commander, Foreign Technology Division, "for long and outstanding support of AFA objectives." AFA National Director and master of ceremonies Jack Withers is at left, and seated, from left, are Mrs. Brown; Chapter President Edward Nett; Mrs. F. C. Gideon, wife of the AFLC Vice Commander; and Rep. Clarence J. Brown (R-Ohio).

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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Holyoke, Mass.

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have already reduced the Air Force's funds "in real terms" to their lowest level since 1950. He noted that since 1964 money for research and development, purchasing, and construction has decreased by almost $7 billion.

The master of ceremonies, **Will Rogers, Jr.,** noted actor, author, lecturer, newspaper publisher, and former congressman, entertained the audience and set the stage for Dr. Seamans' address with anecdotes about his famous father's experiences in the early days of aviation.

Arizona AFA President **William P. Chandler** presided and, on behalf of Tucson's **Mayor Lewis C. Murphy,** presented Dr. Seamans a Tucson Honorary Citizen Proclamation.

Among the many distinguished guests were **Verna Van Loan** and **W. L. Van Loan,** wife and father of Air Force POW Maj. Jack L. Van Loan; **Brig. Gen. H. M. Darmstandler,** Commander, 12th Strategic Missile Division; **Brig. Gen. J. E. Paschall,** Commander, 26th Air Division; **Brig. Gen. Slade Nash,** Deputy Director of Information, Office of the Secretary of the Air Force; **Col. Jack K. Massie,** Commander, Military Aircraft Storage and Disposition Center; **Col. F. A. Haeffner,** Commander, 355th Tactical Fighter Wing; **Col. E. A. Northrup, Jr.,** Commander, 390th Strategic Missile Wing; **Col. Donald S. White,** Commander, 100th Strategic Reconnaissance Wing; **Col. Paul D. Copher,** Commander, Davis-Monthan AFB; **Col. E. C. "Mike" Cook,** Military Aide to the Secretary; **Col. Richard Bowman,** a member of the Secretary's staff; **SMSgt. Louis Salcido,** "Outstanding Representative" from the 162d Tactical Fighter Training Group, Arizona ANG; **Sgt. William Peterson,** Davis-Monthan "Airman of the Year" from the 390th Strategic Missile Wing; four honor students from the University of Arizona AFROTC detachment—**Cadet Majs. Robert Hanson, Vincent Milosevich, and Sharon Sladek,** and **Angel Flight 1st Lt. Patti Bauman,** also from the university—**Robert S. Lawson,** Vice President for AFA's Far Western Region; and AFA National Directors **George M. Douglas** and **Hugh W. Stewart.**

Principals in the Iron Gate Chapter's recent luncheon meeting were, from left, William M. Magruder, Special Assistant to President Nixon and guest speaker; Chapter President Herbert O. Fisher; and New York AFA President Gerald V. Hasler.

On his arrival at Davis-Monthan AFB to speak at the Arizona AFA's annual convention, Air Force Secretary Robert C. Seamans, Jr., left, is greeted by Brig. Gen. H. M. Darmstandler, Commander, 12th Strategic Missile Division, and Arizona AFA President William P. Chandler.

A special feature of the convention was **Tom Hopper's** excellent presentation on the B-1 strategic bomber. Mr. Hopper is Staff Assistant B-1, North American Rockwell Corp.

The **Iron Gate Chapter's** quarterly luncheon meeting on October 17 featured an address by **William M. Magruder,** Special Assistant to President Nixon.

Mr. Magruder spoke on "Technology, National Goals, Aerospace, and Our Society." *(See also p. 38.)*

During the program, New York AFA President **Gerald V. Hasler** presented a Certificate of Merit to **Col. Robert E. Sheridan,** Air Force Representative, US Mission, UN Military Staff Committee; and a Certificate of Appreciation to **SMSgt. William E. Walters,** Ad-

ministrative Officer, Office of the Air Force Representative, US Military Staff Committee, US Mission to the United Nations. Both awards were in recognition of support to the New York AFA.

Chapter President **Herbert O. Fisher** presided at the luncheon.

IN SYMPATHY . . . AFA extends its deepest sympathy to the family and friends of **Col. Edward "Ted" Merrill,** USAF (Ret.), President of AFA's newly chartered **Mid-Ohio Chapter** of Newark, who died Sunday, October 22, 1972, after suffering a heart attack at Buckeye Lake, Ohio. AFA and the Mid-Ohio Chapter have lost a very capable and enthusiastic leader.

During the Civil Air Patrol's national convention in Dallas, Tex., AFA President Martin M. Ostrow presents the AFA "Outstanding Civil Air Patrol Cadet of the Year" trophy to Cadet Lt. Patricia E. Glade, of the Oklahoma CAP Wing.

CROSS COUNTRY . . . When the 509th Bomb Wing (specially trained in World War II to drop the first nuclear bombs) held its reunion in Omaha, the **Ak-Sar-Ben Chapter** — AFA's largest — sponsored a golf tournament and a hospitality suite for the delegates.

• **Col. Josef Alon,** Israeli Air Attaché to the United States and Canada, was guest speaker at a recent dinner meeting of the **Richmond, Va., Chapter.** Special guests included **Col. William F. Haymes,** Chief of Staff, Virginia Air National Guard; and **Col. L. B. Hollenbeck,** Vice Commander, 20th Air Division (NORAD).

• **Richard J. Borda,** Assistant Secretary of the Air Force (Manpower and Reserve Affairs), was guest of honor and speaker at the **Minot, N. D., Chapter's** November dinner meeting. Chapter President **John H. Hoeven** presided and introduced Mr. Borda. More than 165 members and guests attended the meeting in the Minot AFB Officers Open Mess. Special guests included **Col. Grover Graves,** Missile Wing Commander at Minot AFB; and **James Fisher,** immediate Past President of the Minot Chamber of Commerce.

• More than ninety members and guests attended the first program sponsored by the **High Desert Chapter,** Calif. Held in the George AFB Officers Open Mess, the program featured an address by **Lt. Col. Frank Bloomcamp,** Deputy Test Director for the F-15 Eagle, now being tested at Edwards AFB. Colonel Bloomcamp spoke on the overall procurement and development phases of the F-15 program. A highlight of his presentation was a ten-minute color film of the F-15 in flight demonstrations. Chapter President **Ralph A. Hoyt** presided, and **Col. William J. Holton,** 35th Tactical Fighter Wing Commander, introduced the speaker.

COMING EVENTS . . . **Iron Gate Chapter's** Tenth Annual Air Force Salute, Americana Hotel, New York City, March 23 . . . **California AFA Convention,** Palm Springs, April 6–8 . . . **Colorado AFA Convention,** Pueblo, May 12 . . . **New Hampshire AFA Convention,** Pease AFB, May 19 . . . AFA's Annual Dinner honoring the **Outstanding Squadron at the Air Force Academy,** The Broadmoor, Colorado Springs, Colo., June 2 . . . **Virginia AFA Convention,** June 16 . . . **Pennsylvania AFA Convention,** Pittsburgh, June 22–23 . . . **Texas AFA Convention,** San Antonio, June 29–30. ■

Participants in the York-Lancaster, Pa., Chapter's recent Charter Night Dinner were, from left to right, Henry W. Dorwart and Col. R. C. Albright, Jr., Chapter Vice President and President, respectively; Pennsylvania AFA President Thomas W. Fry; AFA National Director Carl J. Long; and Chapter Secretary Richard J. Boyd. Mr. Long was the guest speaker, and Mr. Fry installed the Chapter's officers.

Bob Stevens'

"There I was..."

Last June, we touched on how to bail out of a P-38. This brought forth a pilot's manual which contained—honest Injun—the following verbatim quotes:

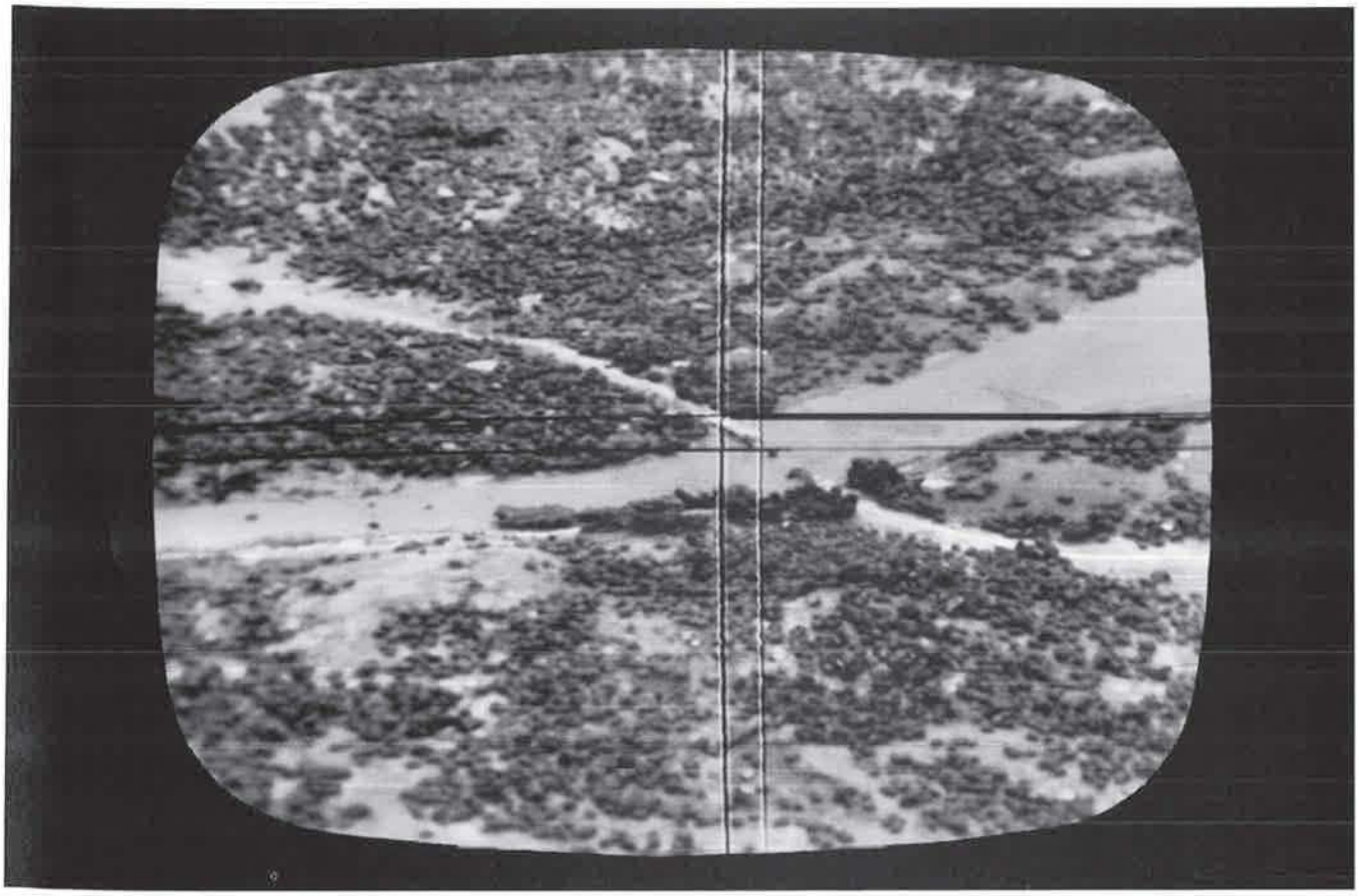
ON BAILING OUT—

"ONCE YOU HAVE STARTED FALLING YOUR FIRST INCLINATION MAY BE TO SEE HOW FAST YOU CAN GET THAT CHUTE OPEN. IF THIS IS YOUR INCLINATION—*CONTROL IT!*"

"THE IMPORTANT THING TO REMEMBER IS: DO NOT RISK DAMAGING YOUR CHUTE BY OPENING IT AT HIGH SPEEDS"

"WHENEVER POSSIBLE WAIT UNTIL YOU GET THAT 'OLD FLOATING FEELING'"

"SOME PILOTS STILL BELIEVE THAT OLD FABLE ABOUT COUNTING THREE WHEN PULLING. FOR OUR MONEY THAT IS JUST ANOTHER RUMOR"



(Simulated Photo)

If the pilot can see it... HOBOS can hit it.

HOBOS is a low-cost, proven, modular homing bomb system that readily converts conventional bombs into guided weapons. Airmen call them "smart bombs."

The North American Rockwell Missile Systems Division (MSD) designed and is producing HOBOS to meet the Air Force requirement for a system that provides great accuracy while reducing crew hazard from enemy defenses. Here's how the HOBOS (HOming BOmb System) works. The pilot sees the

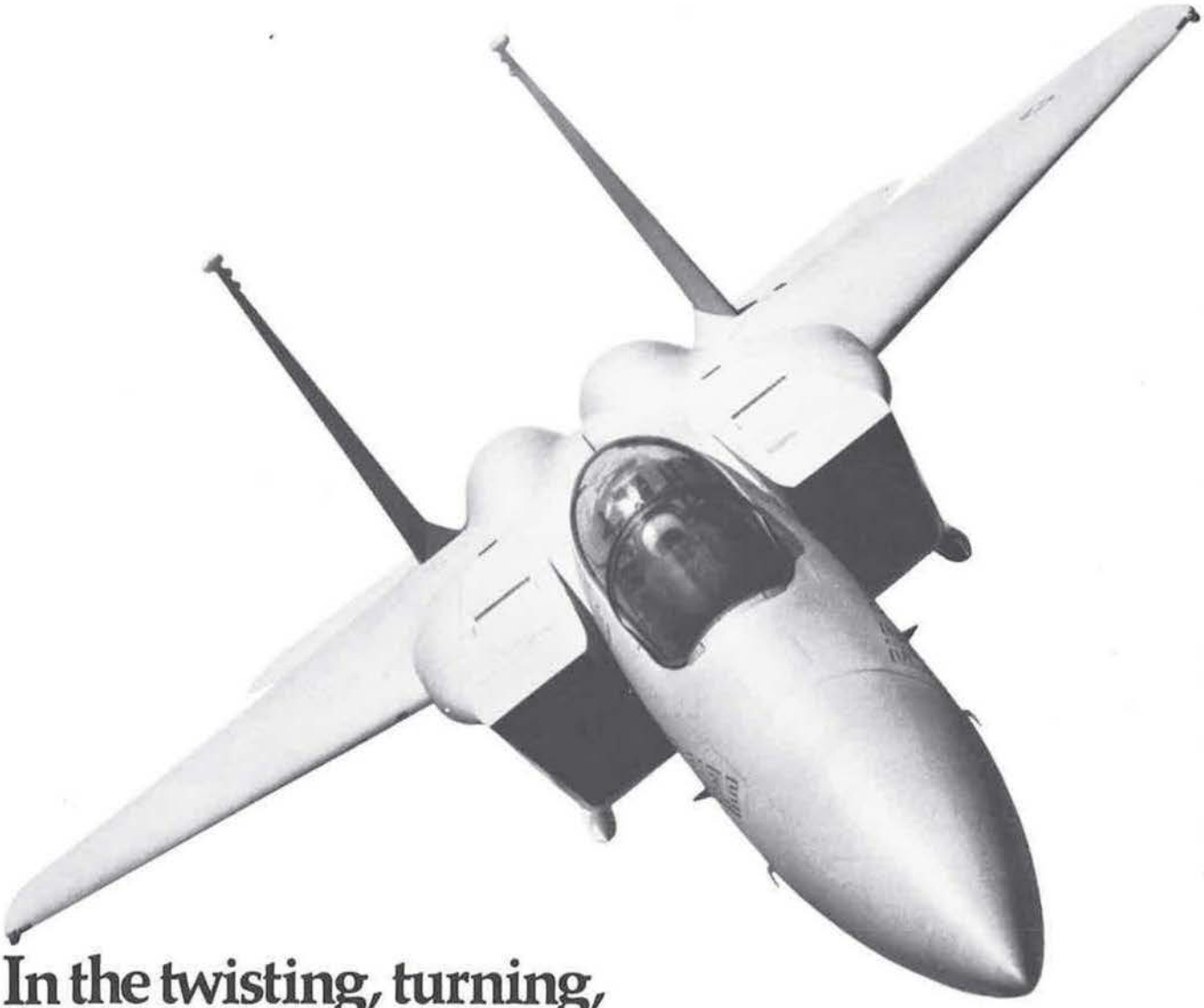
target on a cockpit TV monitor, locks in the TV guidance system, releases the weapon, and then begins his escape maneuver.

For day and night operations, an infrared guidance system has been developed that senses heat-emitting sources and homes in on them.

HOBOS is doing the job. Airmen say, "They hit nearly anything we aim at."

MSD, responding to a need for advanced weapons, is engaged in the design, development and production of a variety of highly accurate stand-off weapon systems.

Missile Systems Division
North American Rockwell



In the twisting, turning, gut-pulling world of air superiority, the USAF F-15 Eagle is designed to out-fly, out-fight and out-fox the rest.

Jet-to-jet combat demands agility, blazing dash speeds, and the sting of weapons delivered from miles away or at close-in ranges. This is the world of the air superiority fighter—where the new F-15 will excel.

The McDonnell Douglas F-15 will give U.S. Air Force pilots the capability to acquire, identify, engage and defeat any type of hostile aircraft in any weather.

A carefully balanced design, the F-15 combines high speed with unprecedented turn and climb rates. It will carry advanced AIM-7F Sparrow and AIM-9L Sidewinder missiles, an internal rapid-fire cannon, and the most advanced avionics available for navigation and for clutter-free, look-down target acquisition, fire control and defensive warning.

Its weight-saving airframe is designed to withstand the G-pulling rigors of air combat maneuvers, and with its F-100 Pratt & Whitney fanjet engines it has a thrust-to-weight ratio greater than one-to-one.

The F-15—it's a fighter pilot's fighter.

MCDONNELL DOUGLAS