

AUGUST 1971 / \$1

AIR FORCE

Published by the Air Force

MAGAZINE

T-38
Talon
Trainer

—An Instructor-Pilot's View

Fish-eye-lens camera
looks into a T-38 simulator



RYAN
+ RCA
= RPV

"RPV" — Remotely Piloted Vehicle — a new term to some, but not to TRA — Teledyne Ryan Aeronautical. TRA has been designing and producing RPVs for more than 20 years. Now, add the proven command and control, avionics and television know-how of RCA and you've built a first team . . . a unique blend of expertise needed to deliver low cost, high performance RPV systems of the

future. The same industry duo that worked together on Apollo systems to help man land on the moon and **return** home safely . . . now their new systems designs proposed for the Air Force's RPV program will help man **remain** home safely while he performs reconnaissance, interdiction and air superiority missions.

 **TELEDYNE RYAN AERONAUTICAL**
SAN DIEGO, CALIFORNIA 92112



The Buffalo can hop in and out of 400 yards with ~~6~~ tons on its back.

9

Now 40,000 hours

North American Rockwell and de Havilland Aircraft of Canada have a unique cargo plane—the C-8B Buffalo. It's a front line, (STOL) tactical support aircraft.

A proven, off-the-shelf airplane, the C-8B's design and development costs were jointly funded by the U.S. and Canada. In fact, the airplane is designed to U.S. Mil Specs with 95% of the aircraft material of American origin. Every Buffalo sold returns one million dollars to the U.S. economy.

The Buffalo lands on just about any makeshift strip because of its rough-field landing gear and extremely steep approach. It can zero in on a postage stamp, staying within the confines of a small, protected area.

It can deliver to the front lines virtually all the air transportable and palletized equipment now in the field. The cargo bay is not volume limited.

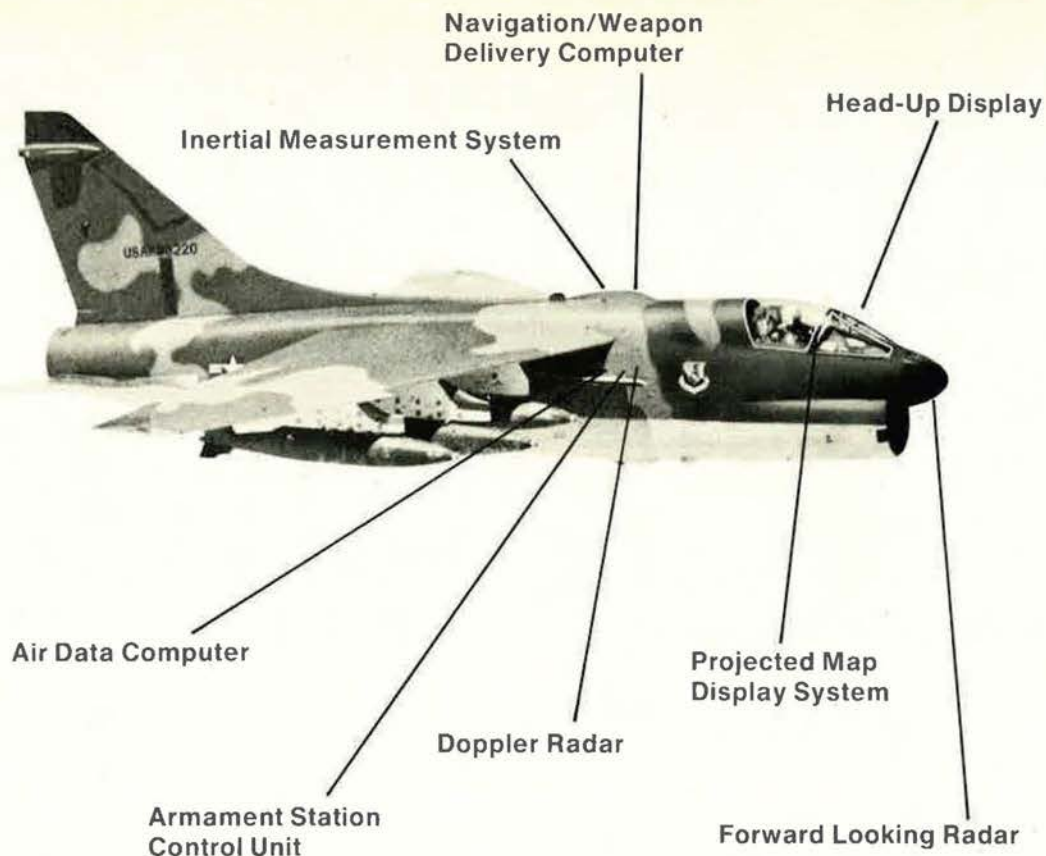
It climbs out in little more than 1,000 feet. (Specifically,

with a payload of 11,750 lbs. on a dry sod field, the Buffalo will clear a 50-ft. obstacle 1,000 ft. from brake release.) This gives the Buffalo greater mobility for military peace keeping missions.

Add to this, that the C-8B Buffalo is already in production and has proved itself in over 15,000 hours of operational use and you've got a flying machine that can lend support to any situation.

The only STOL aircraft with MM hrs./HR ft. less than 7 is a Buffalo.





The whole is greater than the sum of its parts.

This simple definition of synergism is the best way to describe today's A-7. Its advanced electronic systems are so skillfully integrated that they out-perform each of their individual capabilities. Together they make the A-7 the most versatile and effective close air support and interdiction aircraft in the world.

Vought Aeronautics is the first aircraft manufacturer to produce an operational navigation and weapons delivery system that equals or betters unprecedented performance and accuracy guarantees.

Successful development of these systems took almost five years. Vought began with a proven air frame. Then we worked closely with the U.S. Air Force and U.S. Navy to design a superior avionics package that would meet the most exacting operational requirements. System interfaces were resolved with compo-

nent suppliers. And computer software was developed to ideally coordinate these components.

In all, more than 4½ million man hours were invested. Plus thousands of simulation and flight test hours. Over ten thousand pieces of ordnance dropped. A quarter of a million 20MM rounds fired. Under rigorous test conditions.

As a result, today's A-7 delivers up to 15,000 pounds of varied payload with better than 10-mil accuracy. Destroying hard targets in one-third the sorties required by other systems.

Other aircraft today contain many of the same components found in the A-7. But the A-7 is the only weapons system in operation with demonstrated proof that its integrated whole is greater than the sum of its component parts.



**VOUGHT
AERONAUTICS**

THIS MONTH

- 6 **Those Pentagon Papers—Who Needs Them?**
An Editorial by John F. Loosbrock
- 14 **CBS Won't Do It Again** / By Claude Witze
- 28 **How the USSR Is Headed Toward Technological Superiority**
By Edgar Ulsamer
- 32 **How Our New R&D Policy Relies on the Extensive Use of Prototypes**
- 36 **I Fly the T-38** / By Capt. David R. (Rich) Croft, USAF, with
Capt. Robert W. Wickman, USAF
- 39 **T-38—Biography of a Beautiful Bird**
- 42 **Air Superiority Into the 1980s** / By Gen. John C. Meyer, USAF
- 46 **The Ominous Danger of Being Second**
- 48 **The People Get a Plan** / By Lt. Gen. Robert J. Dixon, USAF
- 54 **Of Arms and the Man** / By Dr. Walter C. Langsam
- 56 **Why Ploesti?** / By Gen. Leon W. Johnson, USAF (Ret.)
- 57 **Ploesti!** / By Col. William R. Cameron, USAF (Ret.)
- 62 **The Ploesti Raid—A Statistical Summary**
- 64 **Levy's 9 Laws of the Disillusionment of the True Liberal**
By Marion J. Levy, Jr.
- 65 **Jane's All the World's Aircraft Supplement**
- 78 **AFA Nominees for 1971-72** / By Don Steele

THIS MONTH'S COVER . . .

The soaring T-38 Talon, a Mach 1.24 trainer, and its earthbound flight simulator prepare a student pilot for the world of supersonic flight. See page 36 for a pilot's report on the T-38.



THE DEPARTMENTS

- 10 **Airmail**
- 14 **Airpower in the News**
- 17 **Aerospace World**
- 21 **Index to Advertisers**
- 22 **MIA/POW Action Report**
- 24 **Airman's Bookshelf**
- 74 **The Bulletin Board**
- 77 **Senior Staff Changes**
- 81 **AFA News**
- 86 **This Is AFA**
- 88 **There I Was**

Publisher: James H. Straubel

Editor and Assistant Publisher:
John F. Loosbrock

Managing Editor: Richard M. Skinner

Art Director: Philip E. Kromas

Associate Art Director: James W. Keaton

Production Manager: Mary Bixiones

Senior Editorial Assistants:

Peggy M. Crowl
Nellie M. Law

Editorial Assistants:

Catherine L. Bratz
Pearlie M. Draughn

Senior Editors:

John L. Frisbee, William Leavitt, Edgar Ulsamer, Claude Witze

News Editor:

William P. Schlitz

Regional Editors:

Stefan Geisenheyner, Editor for Europe
Sonnenberger Str. 15
D-6200 Wiesbaden, Germany
Telephone: (06121) 37 23 97

Irving Stone, West Coast Editor
10000 Santa Monica Blvd.
Los Angeles, Calif. 90067
Telephone: (213) 879-2447

Contributing Editors:

Maurice L. Lien, Patricia R. Muncy,
Don Steele

Advertising Director:

Charles E. Cruze
1750 Pennsylvania Ave., N.W.
Washington, D.C. 20006
Telephone: (202) 298-9123

Sales Representatives:

Douglas Andrews, New York (212) 687-3544
James G. Kane, Chicago (312) 296-5571
Harold L. Keeler, Los Angeles (213) 879-2447
Yoshi Yamamoto, Tokyo 535-6614

European Sales Director:

R. A. Ewin
20-23 Holborn
London EC1, England
Telephone: (01) 242-7484



Circulation audited by
Business Publications Audit

AIR FORCE Magazine (including **SPACE DIGEST**) is published monthly by the Air Force Association, Suite 400, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006. Phone: (202) 298-9123. Second-class postage paid at Washington, D.C. Membership rate: \$10 per year (includes \$9 for one-year subscription). Subscription rate: \$10 per year; \$2 additional for foreign postage. Single copy \$1. Special issues (Spring and Fall Almanac Issues) \$2 each. Change of address requires four weeks' notice. Please include a recent mailing label. Publisher assumes no responsibility for unsolicited material. Trademark registered by Air Force Association. Copyright 1971 by Air Force Association. All rights reserved. Pan-American Copyright Convention.

When the Atlas was retired as an ICBM it was the beginning of a new career.

To make a rocket fly, you really have to find out how to do three basic things.

Find a way to guide it. Find a way to hold it together as it flies. And find a way to keep down its weight, so it carries more than itself.

Finding a way to solve all that was, to say the least, one big problem. We know.

We build the Atlas rocket.

First, how do you steer a rocket?

We invented a new way. We made the main engines do two things at once: besides pushing the rocket up, the engines swivel on their axes and control flight.

The effect is like this: balance a baseball bat upright in the palm of your hand. To keep it

stable, your hand is constantly correcting for the motion of the bat.

The engines do about the same thing for the rocket.

How do you build a structure strong enough to withstand the pressure of leaving the atmosphere?

Until Atlas, the hardest material around was boiler plate.

We developed another idea. Roll steel so thin that it almost reaches its breaking point. This steel will take four times the pressure per square inch of ordinary steel, but will not take an ounce more stress.

This thin steel, thin as a dime, became the outer skin of the Atlas. It reduced weight. It also let us do one other important thing.

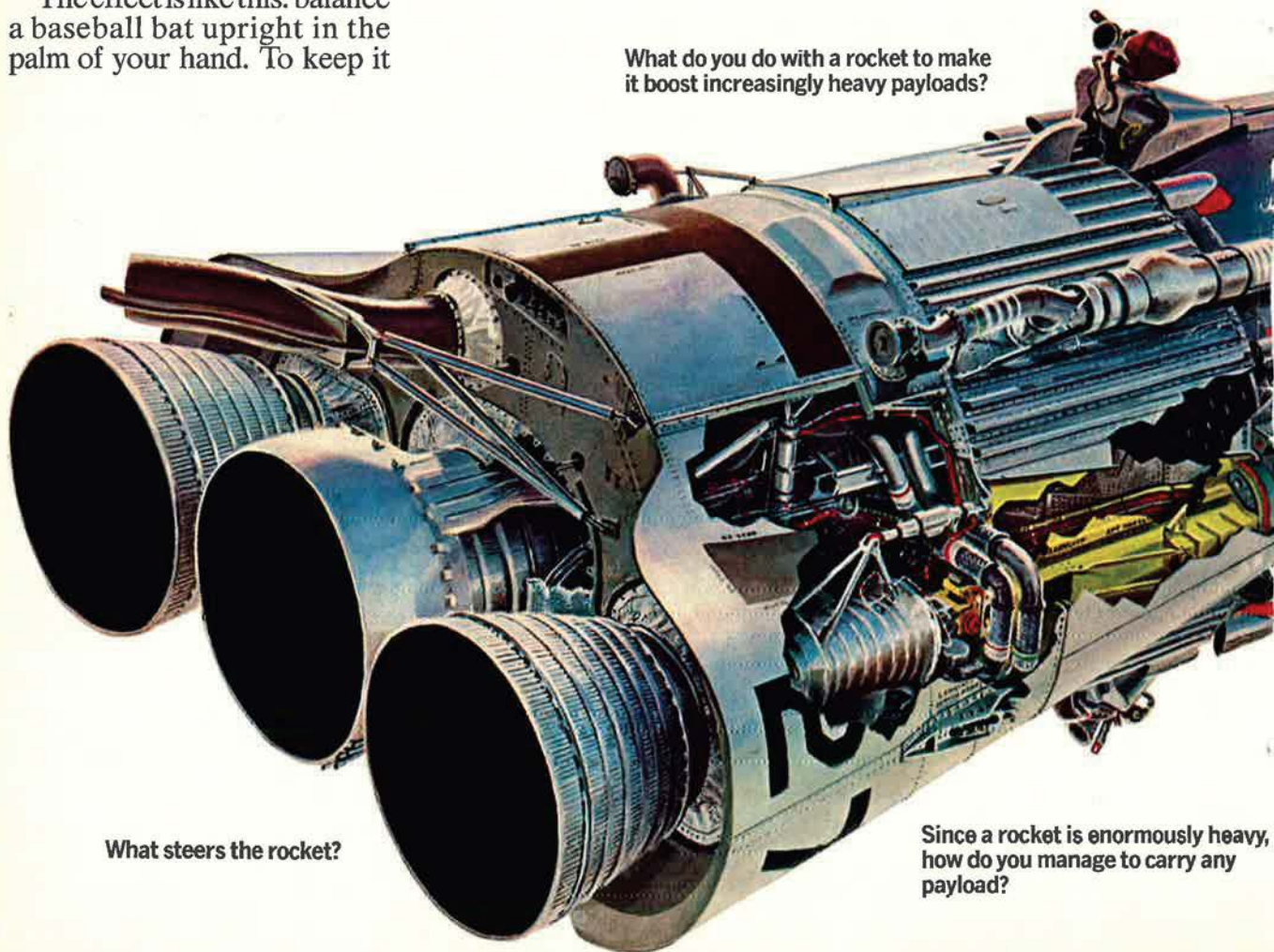
It let us design a fuel tank like a balloon, so the fuel not only provided power but also held the tank rigid, and reduced structural weight even more.

In 1954, after all this work by our Convair Aerospace Division, we began to develop the Atlas under government contract.

In 1957, the first Atlas flew.

It was ready for mass production as our first ICBM. Happily Atlas was never called on to

What do you do with a rocket to make it boost increasingly heavy payloads?



What steers the rocket?

Since a rocket is enormously heavy, how do you manage to carry any payload?

carry out this mission.

But as new requirements developed, the booster was modified to handle them.

To date, Atlas has fulfilled dozens of different missions for NASA and the U.S. Air Force. So far, Atlas has been launched more than 390 times.

These launchings include putting the first American into orbit; boosting our first unmanned payload to the moon; sending our first orbiting spacecraft around the moon; and launch-

ing the first close-up probes of Venus and Mars.

After all this, Atlas is far from a museum piece. Through the years, the addition of its second-stage mate, Centaur, has helped enlarge Atlas' capabilities.

In this decade, Atlas-Centaur has been selected to send probes on their way to Venus, Mercury, Mars and Jupiter.

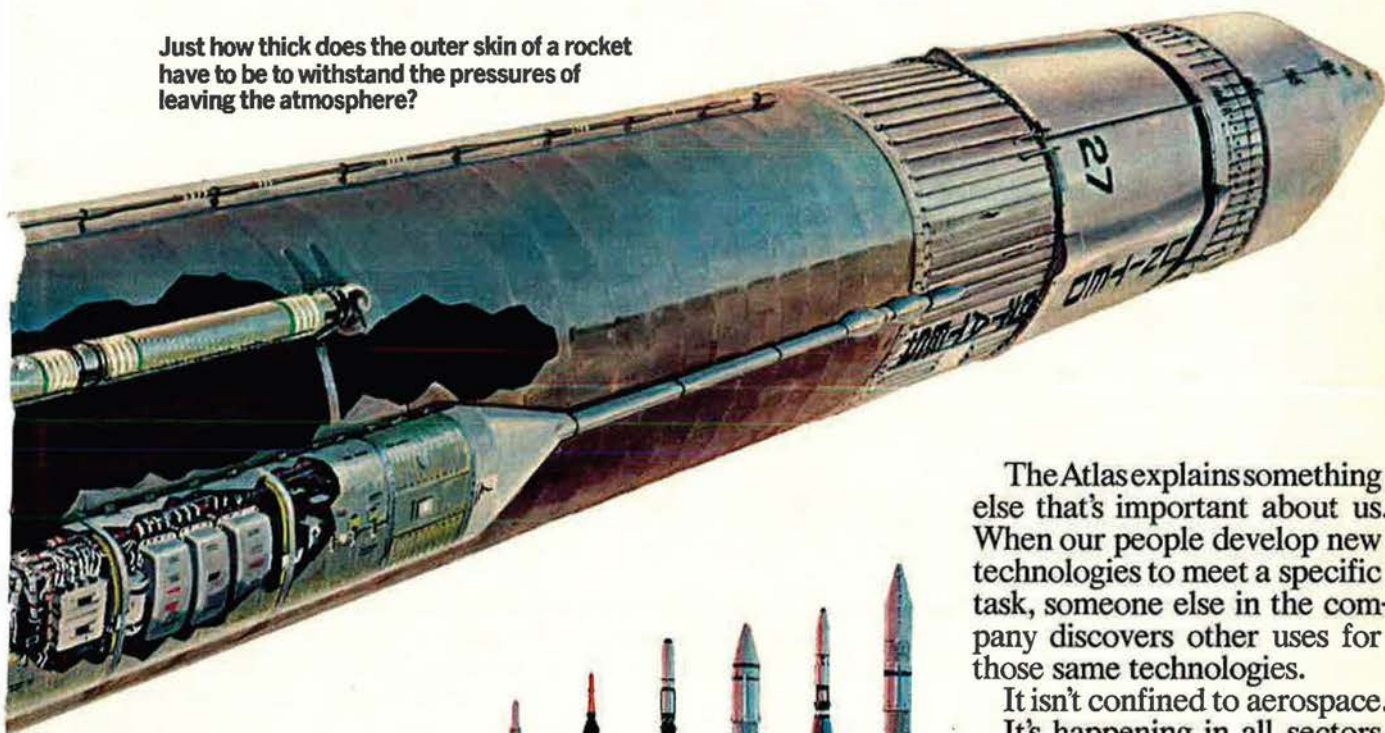
Recently, Atlas-Centaur boosted the first of a series of

the heaviest, most complex communications satellites ever put into orbit: Intelsat IV. It can relay more than five thousand telephone conversations at once, greatly expanding world communications.

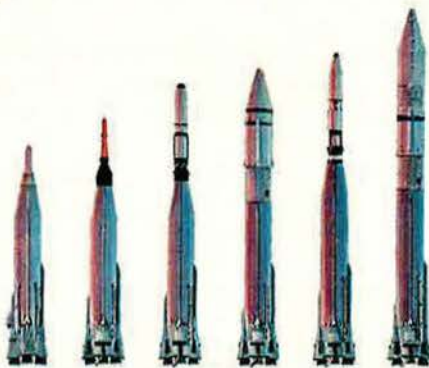
When we first began designing the Atlas, we couldn't have foreseen all its uses.

But we designed in the basic adaptability that has accounted for its varied missions through the years.

Just how thick does the outer skin of a rocket have to be to withstand the pressures of leaving the atmosphere?



Doesn't the fuel tank have to be very rigid to hold all its fuel?



The booster Atlas has been modified, upgraded, and changed through the years to handle missions ranging from ICBM to communications satellite booster.

The Atlas explains something else that's important about us. When our people develop new technologies to meet a specific task, someone else in the company discovers other uses for those same technologies.

It isn't confined to aerospace.

It's happening in all sectors of our business. Not just in defense work, but in growing commercial markets: shipbuilding, telephone systems, electronics and natural resources.

It's productive technology that makes us a company that keeps making things no one ever made before.

GENERAL DYNAMICS

Those Pentagon Papers—Who Needs Them?

By John F. Loosbrock

EDITOR, AIR FORCE MAGAZINE

AN EXAMINATION of the paperback-book version of the now famous Pentagon Papers—which we predict will become the biggest unread best seller since the Bible—leads us very quickly to some firm conclusions:

1. To a steady reader of AIR FORCE Magazine, there is little in them that is new, except perhaps for documentation of what we have been saying for many years.

2. The American people were indeed deceived about the risks involved and the ultimate cost in blood and treasure of the Vietnam War, as the government was proposing to wage it—and in fact did wage it. So were the policy-makers, but they deceived themselves.

3. If the electorate—and its representatives in the Congress—had had any idea of where US strategy was leading them, disaffection about the war would have come early—either win it quickly and get out or get out quickly short of winning. Thousands of lives and billions of dollars would have been saved in either case.

4. The Vietnam War was undoubtedly the worst-managed conflict in American history, not excepting the Spanish-American War.

5. Three basic and fatal errors in judgment stand out:

a. The initial acceptance, and the clinging to after it had been manifestly discredited, of the fallacious strategy of flexible response—which proved neither flexible nor responsive;

b. The attempt to finance the unconscionable costs of the war on a “business-as-usual” basis, creating a galloping inflation that underlies the economic problems and exacerbates the social ills now afflicting the country;

c. The uneven and unfair distribution of personal sacrifice brought about through dependence on the antiquated machinery of Selective Service and a concomitant refusal to mobilize the reserve forces.

The ability to say “I told you so” is cold comfort, but we do take some pride in the consistency and accuracy with which the issues of Vietnam have been viewed in the pages of this magazine, as well as in the several pertinent Statements of Policy of the Air Force Association. A sampling of those which seem especially prescient and penetrating are set forth on the following three pages.

As to the Pentagon Paper Caper itself, it seems ironic that the leaked study could never have proved such a gold mine to critics of the war today had the government been more candid with the people it serves while the chronicled events were transpiring. For ourselves, time after time we have urged greater candor, citing the historic willingness of the American people to respond to demonstrable needs and laudable aims. Nature abhors a vacuum and, if a credibility gap develops, it will be filled with shoddy news and half-truths if those are the best that are available.

One cannot condone the action of Daniel Ellsberg in trafficking in goods that were not his. And we will reserve judgment on the selflessness of his deed until we know the size of the advance he will receive for the book he is sure to write. Nor are we impressed by the purity of the New York *Times*, Supreme Court decision notwithstanding. Truly gutsy journalism called for publication of the entire series, without warning and in one fell swoop, rather than stringing the stories out in several installments to boost street sales. Another opportunity for publishing courage was missed when the *Times*—and the other papers involved—bowed to the court injunction instead of “publishing and be damned.” There were crass overtones even to this act of civil obedience, since the court fight served to whet the public appetite for the still unpublished portions—when the best stuff had already been printed.

Judged by the sterner standards of history, the Pentagon Papers are but a thin slice of the meaty documentation still in the files. It has already been pointed out that they provide little insight into what was going on at the White House, the State Department, and, indeed, in most of the Department of Defense. Basically, they are culled from the files of one office, that of the late John McNaughton, former Assistant Secretary of Defense for International Security Affairs. This fact, taken together with the further culling and interpreting by the several editors involved, serves mainly to show that a news-hungry citizenry will be satisfied with a watercress sandwich if no meat is available.

Meanwhile, we will stick by our own judgments of the past, which thus far are standing the test of history quite well.

A Political Prophecy

—AIR FORCE Magazine, September '66 issue. "Do They Want Us There? Are We Fighting Honorably? Can We Win?" by J. S. (Sam) Butz, Jr.

Unless there is a dramatic turn of events for the better, war policy will dominate the choice of our next President. . . .

Two more years of hard fighting in Vietnam with no prospect of victory could be the most divisive issue in US politics in modern times. Even our two-party system could be fractionated. The basic tenets of our post-World War II foreign policy will come under strong attack, and the US might abandon much of its leadership of free-world interests over large parts of the globe. . . .

The stage setting for a cataclysmic fight in US politics is virtually complete. The opportunities for demagoguery and distortion have seldom been more fertile. Political reputations can be built on the foundation of hard, unpleasant, and irrefutable facts of a long war of attrition. . . .

There can be no optimism about the final price. There is no easy shortcut. As long as this is not accepted by the majority of Americans, our growing losses are certain to trigger a major political upheaval eventually. In such a crisis the facts of the Vietnamese situation could be obscured and the nation left at the mercy of misinformation and its emotions.

A Prescient Analysis

—AIR FORCE Magazine, July '69 issue. "Will the Real Dr. Strangelove Please Stand Up?" by William Leavitt.

Was it really the men in uniform and their commanders who are fighting this frustrating war who advocated our involvement in the first place? In the large, the answer is no. Vietnam is primarily the ultimate and sour consequence of policies that evolved in the early 1960s out of disenchantment with the late Secretary of State John Foster Dulles' massive-retaliation policy. . . .

What began among the Kennedy defense people as a useful critique of massive retaliation and overreliance on strategic nuclear power evolved into a new policy called "flexible response." Its bible was Army Gen. Maxwell Taylor's book *The Uncertain Trumpet*, which brought the General back to prominence in Washington as President Kennedy's military adviser, then Chairman of the Joint Chiefs of Staff, and finally as Ambassador to Saigon. But General Taylor was by no means the only advocate of flexible response. And it ought to be pointed out, for the benefit of those who find it convenient to view "the military" as a monolith, that as limited war came to the dogmatic fore, it was, not surprisingly, the Army that most strongly supported the concept. Limited war promised to restore the ground service's prenuclear age preeminence. . . .

Overnight, there developed a new mystique of counterinsurgency. The Army and Marines were generally enthusiastic. The Air Force, pressed to doff its A-bomb image, reluctantly climbed on the bandwagon. We were all treated to replays of the post-World War II British triumph over the Communist guerrillas in Malaya and we were subjected to endless computations on how many counterinsurgents you needed to cope with and prevail over one Red guerrilla.

But, for a time, it was mostly talk. In Vietnam, the cautious President Kennedy was willing to try out some of the techniques advocated by the counterinsurgency enthusiasts. . . .

What John Kennedy, had he lived, would have done in Vietnam beyond the technical-adviser stage is an "iffy" question. . . . Some argue that, in view of his initial commitment, Kennedy, as disturbed as he was by the repressive Diem regime of the period, would have followed the course his successor in the White House took. Others suggest that for a time, during the worst of the Diem days, there was at least a theoretical possibility that Diem's bankrupt regime and its excesses might be used as an excuse for US withdrawal. The weight of evidence favors the first argument, that Kennedy was in Vietnam to stay, if only Diem could be removed in a US-approved coup, which he was.

Both Presidents Kennedy and Diem were removed from the scene by assassination and Vietnam evolved rapidly into a new kind of dilemma. By mid-1964, the US was faced with an even more aggressive North Vietnam, emboldened by what looked like the inevitable collapse of the South Vietnamese regime. And the decisions were in the hands of Lyndon Johnson, advised by the same people, for the most part, who had sold flexible response and COIN to his predecessor. And by now US forces were being restructured to meet the new orthodoxy of flexible response and COIN.

The new President, convinced by the counterinsurgency advocates and by those who put their faith in what they viewed as the cold logic of strategic persuasion that they believed could be applied successfully against North Vietnam, responded with a series of US escalations, which in sum took the US into a full-scale war. . . .

To say that President Johnson took the country into a major war under circumstances of questionable legality is to belabor the obvious. To ask whether what he did was right or wrong from the standpoint of national interest, in the long run, is to enter a field of argument where no one can tread with certainty. . . .

But there is a set of larger, moral, questions that needs to be asked. Did not President Johnson and the coterie of advisers on whom he leaned, including particularly Secretaries McNamara and Rusk, delude themselves and the people by taking the country into a major war stage by stage, almost by stealth, as it were? Once having done that, did they not compound the deception by pretending that such a war on such a scale could be mounted without seriously affecting the economy? Was it not a cruel hoax on the poor, who had been promised a war on poverty, to tell them and the country that the war in Asia could be prosecuted without effect on the struggle to overcome domestic problems? The hoax was exposed early when civil rights and antiwar campaigns merged.

And, one may ask, did not the Johnson Administration, particularly the ever-quantifying civilian defense hierarchy, also fail the military who were, after all, the people who had to do the fighting and dying in Vietnam, by running the war as if it were some species of war game being played out at a think-tank seminar and with small regard for such variables as public opinion and popular support that so often make the difference?

Looked at in this light, the genesis of the Vietnam War becomes much clearer. We got into this conflict up to our necks, and, it may be added, isolated from virtually all of our allies, as a consequence of military theorizing by a band of planners who in retrospect were largely dilettantes. The irony is that these Strangeloves, for the most part, are now aboard the bandwagon of critics blaming the whole mess on the "military." If the military is guilty of anything, it is a certain impatience with having been given an escalatory game to play with most of the proscriptive rules applied to our side. . . .

A further irony, of course, is that the North Vietnamese and the Viet Cong turned out to be rather better

An Editorial

at the game than our own Strangeloves. For it is *they* who have successfully molded world opinion against America as a bully who bombed the innocent and as the Western busybody who bloodily intervened in a "civil" war.

We have paid an enormous price.

The basic lack of candor about Vietnam, masked primarily by the prestigious public image of Mr. McNamara as the world's greatest manager, lies at the root of almost every major problem the US is currently concerned with. Half of the \$80 billion defense budget the military-industry complex is blamed for is attributable to Vietnam. The desperate fiscal gamble involved in waging the war on a business-as-usual basis, with no restraints on the economy, has fed the flames of inflation. In turn, inflation has eroded the purchasing power of both the government and the private economy.

Defense programs and social programs cost more and hence are more competitive for the tax dollar, exacerbating a conflict in priorities which need not ever have developed. A taxpayers' revolt is brewing. Relations with our allies, particularly in Western Europe, have been strained nearly to the point of rupture at times. The inequities of the draft, especially to feed the needs of a war so open to just criticism, have swelled the ranks of the peace movement, provided a focus for campus dissent, and further complicated the economic and social unrest in the nation.

It is the tragedy of Mr. McNamara and of the country that the impeccable management expert failed to manage his most important assignment.

About the Bombing in the North

—AIR FORCE Magazine, March '66 issue. "Tactical Airpower in Vietnam—The Trial by Fire," by J. S. (Sam) Butz, Jr.

Political, not military, considerations have dominated the planning behind the air attacks on North Vietnam. Little real military pressure has been placed on the Hanoi government because there have not been enough aircraft applied to the job, and they have been severely restricted to the least lucrative targets. . . .

—AIR FORCE Magazine, March '66 issue. "North of the Border," by John F. Loosbrock.

We have bombed north of the line and we have not bombed north of the line, and Hanoi is no closer to the conference table than it was a year ago. Clearly, token bombing is not going to accomplish this purpose. . . .

A no-bombing policy, or our present policy of highly restricted bombing, will require eventually an increased level of activity south of the border. Our ground force involvement will grow and, presumably, so will air activity in support of these troops and those of our South Vietnamese allies. And we know that in the kind of fluid "no-front" sort of war that is being waged in the South innocent civilians are going to suffer. We could be putting ourselves in the anomalous position of being willing to risk bombing our friends but unwilling to risk bombing our enemies.

—AIR FORCE Magazine, April '66 issue. "Those Bombings in North Vietnam," by J. S. (Sam) Butz, Jr.

To the men of the United States Air Force actually flying the air missions over North Vietnam, the strikes are more of an elaborate exercise in pulling punches than a valid test of the military effectiveness of military airpower.

Airpower is still jabbing lightly at the North Vietnamese. The targets being hit are still the least lucrative ones available. . . . The directions from Washington are very explicit and often preclude both the use of sound combat tactics and sufficient aircraft to assure the complete destruction of targets.

—AIR FORCE Magazine, January '67 issue. "The Case for a Unified Command," by Claude Witze.

One officer complained that his men are sent out on missions, perhaps to die, trying to hit targets that are not worth the risk.

"Go back to the World War II environment," he suggested. "If the men in charge of target selection had selected targets comparable to those chosen in Vietnam today, they would have been fired on the spot."

—AIR FORCE Magazine, April '67 issue. "Vietnam and the Warfare State Complex," by Herman S. Wolk.

The major point is that this is a carefully directed and controlled war. . . . If the Administration ever had any idea of bringing down the North by bombing, it couldn't have gone about it in a more desultory fashion.

—AIR FORCE Magazine, May '67 issue. "Why Not More Targets in the North?" by Maj. Gen. Gilbert L. Meyers, USAF (Ret.).

Never have pilots been so tightly controlled as to type and location of targets to be attacked. Every mission briefing could be summarized as follows: "Do exactly what you have been told to do—no more—no less." Very little is left to individual initiative or judgment.

—AIR FORCE Magazine, October '67 issue. From the Stennis Subcommittee Summary Report on the Air War Against North Vietnam:

That the air campaign has not achieved its objectives to a greater extent cannot be attributed to inability or impotence of airpower. It attests, rather, to the fragmentation of our air might by overly restrictive controls, limitations, and the doctrine of "gradualism" placed on our aviation forces which prevented them from waging the air campaign in the manner, and according to the timetable which was best calculated to achieve maximum results.

—AIR FORCE Magazine, April '68 issue. "Vietnam—Limited-War Strategy at a Dead End?" by Mark E. Swenson.

It is a vast mistake to think that a committed, determined enemy will quit a human and material war of graduated attrition when he is not being hurt badly in his own backyard.

—AIR FORCE Magazine, July '69 issue. "Tactical Bombing: The Unproved Element," by Col. A. P. Sights, Jr., USAF (Ret.).

Deterrence or military victory does not follow automatically from the mere possession of superior airpower. They can be negated by using airpower ineptly. Viewed as a purely military operation, the bombing of North Vietnam

at once reaffirmed the ability of airplanes to break through ground-based defenses, and illustrated the harm of giving airpower unproductive tasks.

About Flexible Response

—AIR FORCE Magazine, June '66 issue. "It Ain't Necessarily So," by John F. Loosbrock.

As applied in Vietnam, the result of flexible response has been a gradual engagement of a major fraction of our military strength in a war of attrition against a small and weak enemy. The creeping nature of our involvement has seriously affected the fragile economic and political fabric of South Vietnam, the country we are defending. And this in turn has greatly impaired our own chances for success. . . . The dragging out of the war is also affecting our domestic economy, our chances for social and technological progress here at home, and our relations elsewhere in the world with both friend and foe. . . .

Under the doctrine of flexible response, the course of the war has been inevitable.

—AIR FORCE Magazine, November '67 issue. "Needed—A Sense of History," by John F. Loosbrock.

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

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

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

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

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

—AIR FORCE Magazine, December '67 issue. "A Case of Misjudged Staying Power," by Mark E. Swenson.

Our present position in the Vietnam quagmire is the direct result of an inappropriate military strategy mismatched with an admirable political objective and undergirded by a fatal misjudgment of the depth of the enemy's fanaticism, resiliency, and resources.

—AIR FORCE Magazine, April '68 issue. "Vietnam: Limited War Strategy at a Dead End?" by Herman S. Wolk.

US ensnarement in Vietnam is surely one of the most striking misapplications of strategy in American military

history. We have become bogged down in a backwater by a strategy as futile and inappropriate as it is staggeringly costly. . . . And the fact of the matter is that the American public will not long support a prolonged stalemate in Vietnam. The longer the war drags on, with increasingly greater casualties, the more intense will become the drum-fire of protest at home.

How many wars in history have been won in an environment fantastically favorable to the enemy? By adapting to the enemy's strategy? By being stretched far too thin in places remote from one's power? By leashing and restricting one's strong suit? By a thousand compromises in strategy, weapons, numbers of men, and organization? By a nation divided and in turmoil at home? Thus structured—or fragmented—will the US support this war indefinitely?

To ask these questions is to answer them.

From AFA Statements of Policy

1966: "Airpower is doing all it is presently being called upon to do in Vietnam. But with superior technology the key to military strength, and airpower as its cutting edge, airpower is not being called on to do enough. . . . The alternative war of attrition, with its high costs in lives, matériel, and damage to the countryside and population of South Vietnam, we find as repellent as we believe it to be unnecessary. Such a war would form a dangerous pattern for our responses to future aggressions wherever they may occur."

1967: "If we view the war as a testing ground for national policy, the Vietnam experience projects a grim future. The wealth and technological resources are available to bring the war to a relatively quick, decisive, and favorable conclusion for the United States. But in this so-called limited war, these resources are being applied falteringly, with the result that both American wealth and American manpower are subjected to the drain of attrition while at the same time US technological efforts are [being] diverted from other necessary long-range objectives."

1968: "The war can be shortened only by a radical change in both the pace and direction of our military effort. Token increases will not suffice. The enemy must be hurt faster than he can recuperate. In our judgment, this will call for:

1. An end to sanctuaries in North Vietnam;
2. The denial of seaborne imports to North Vietnam by appropriate applications of air and naval power;
3. Coordination of the above with a sustained air and ground offensive against the forces of North Vietnam and those of the Viet Cong.

"To support such an effort, business as usual on the home front must be put aside for the duration. Economic sacrifices at home must be required to support the personal sacrifices of our fighting men in Southeast Asia. The entire nation must get involved. Military solutions can be found in Southeast Asia. Political solutions can only be found here at home."

1969: "The impasse in Vietnam is not military. Rather it marks the failure of a political doctrine to evoke the kind of response from our enemies it was expected to evoke. . . . We must order our priorities so as to separate peripheral threats from those that are vital to our own national survival and those of our allies. We cannot, as in the case of Vietnam, rob our strategic forces of money and technology to pay for indecisive and expensive adventures in conventional warfare." ■

A Word of Praise

Gentlemen: I wish to express my appreciation to you for your fine magazine. In the two years I have been reading the AIR FORCE Magazine it has always contained the sort of well-reasoned and objective articles that are rare in any publication today, let alone one in your position as advocate for the Air Force.

Your "side" has to be heard, and by maintaining rationality in the face of the current intensive criticism, you do service to your organization, the Air Force, and to our country.

JIM HATTON
Kirkwood, Mo.

MCPL

Gentlemen: For months I have intended to write suggesting you take on the Members of Congress for Peace through Law (MCPL).

I am so glad that you did it without awaiting my suggestion! ["Airpower in the News," by Claude Witze, June '71 issue.]

Yours is one magazine my husband gets that I enjoy very much.

MRS. JOHN L. ENGLAND
Kettering, Ohio

F-100 Fighter Pilots

Gentlemen: With dismay and regretful disappointment I reviewed your May '71 issue and found that although the F-100 is referred to several times as three squadrons were deployed from PACAF last year, and the "Bullpup" missile is distinctly hung on a "Hun," why was the Supersabre conspicuously absent from the fighter section of the aircraft summary?

The F-100 must have been completely overlooked as she is not mistakenly pictured in any other category and yet she is still flying operationally in at least three commands. Students are currently upgrading at Luke AFB, Ariz., and at least a dozen Guard units are equipped with the F-100.

Here at Cannon AFB, the 524th Tactical Fighter Squadron "Last of a Breed" is operationally ready in the F-100 and has been for over six months. Average flying time in the bird for the squadron is 1,100 hours per pilot, and seventy percent of us flew our SEA tour in the F-100. . . .

I, as well as several hundred other current F-100 drivers in the world and probably several thousand ex-F-100 pilots, would certainly appreciate rectification of your omission, and in the

future more cautious reporting so as not to ignore a bird with such a long and proud history as the F-100 fighter-bomber before she has finished her flying.

CAPT. DOUGLAS A. SHALE
524th TFS IO
Cannon AFB, N. M.

Gentlemen: Suspicions confirmed! For a long time now, we here at RAF Lakenheath, England, have had the feeling we have been forgotten. Now even the AIR FORCE Magazine has deleted all reference to the F-100 from its May 1971 issue.

Yes, Virginia—there really is an F-100 . . . a whole wing of them at that. A fully operational, combat-ready wing at that! She may be an old bird but she's one of the few single-seat fighter aircraft we have left. Surely she deserves a better fate than being buried and forgotten before she's dead!

CAPT. JAMES O. ICENHOUR, JR.
APO New York

• *We really didn't "delete all reference" to the Supersabre. (See top of column 1, page 155, in the "Fighter" section of the "Gallery.") Granted, it isn't much information, but it's about the same coverage given the F-106, the F-5, and the F-104, all also pretty good airplanes. The reason: space limitations and the fact that USAF's older (though, admittedly, still operational and still needed) aircraft have been covered fairly well in past Almanacs.*
—THE EDITORS

Time Will Tell

Gentlemen: I read with interest the articles on the F-15, B-1, and A-X aircraft, "The Accent Is on Flying," by Edgar Ulsamer, and it sounds real good. These three aircraft are presented as the best we've got. They are spoken of in the present tense, and performance data and avionics capabilities are discussed as if they were actualities rather than figures on specification sheets, drawing boards, and computer printouts.

May I point out that not one of these planes has yet turned a wheel?

Once the F-111 sounded real good, too. So did the C-5, though I would not class it with the F-111 just yet. The current practice is to play what I call "musical missions," which is simply changing the mission to fit the airplane when it becomes apparent

that the airplane will not perform the mission. This may have started with the F-105, which was originally conceived as a nuclear-carrying "city-buster," then changed cleverly into a tactical fighter-bomber when no one was looking. About a year ago I read an article which said the F-111 should have been designated the IB-111 for Interdiction Bomber ('cause that's what it really is).

I wonder if, three years from now, we will be saying, "We never said it would do that," and playing musical missions with the new crop of aircraft.

Specifically, on the F-15: You say it is the first "air-superiority" fighter, "unencumbered by . . . dual-role requirements," in twenty years. Two pages later you are talking about its potential as an interceptor, and, "loading it down to optimize it for some other mission."

I do not doubt the value of engineering studies, computer models, etc. Still, time was when we built an airplane, shot down the bad guys' airplane with it, and announced that we had air superiority. Now, it seems, we say, "We will build an airplane that will give us air superiority in three years." Talk is cheap.

I realize that I do not have all the information, and certainly hope that the parts I don't know will prove me wrong. If not, may a benign providence save these United States.

WILLIAM H. WINGO
Shalimar, Fla.

Reactivation

Gentlemen: Effective July 1, 1971, a numerical redesignation of three Aerospace Defense Command squadrons brought about the reactivation of the 2d Fighter Interceptor Squadron at Wurtsmith Air Force Base, Mich.

We would appreciate it if any individuals possessing pictures, trophies, newspaper clippings, or other 2d Fighter Interceptor Squadron relics would send them to me at Wurtsmith AFB.

LT. COL. ROBERT C. JESSUP
Commander
94th Fighter Interceptor Sqdn.
(ADC)
Wurtsmith AFB, Mich. 48753

Something to Add

Gentlemen: Re Col. "Cal" Carpenter's "Is Your Safety Belt Fastened?" in the June issue, "Billy's" real name is/was Elliot H. Lynam, Jr. He oper-

SCIENCE/SCOPE

The first production modules of two types of mobile operations centers for the U.S. Air Force's 407L Tactical Air Control System were delivered on schedule recently by Hughes. A complete center -- electronic gear, communications equipment, display boards, tables, chairs, and inflatable shelter -- is packaged in one or more of the lightweight modules, depending on how it is to be deployed. Centers can be airlifted to any part of the world and moved rapidly within the combat area by cargo plane, helicopter, or truck.

The health of America's crops, forests and rivers will be checked every 18 days next year by a new scanning device aboard NASA's Earth Resources Technology Satellite. The 100-lb. optical-mechanical instrument, called a Multi-spectral Scanner, was developed by Hughes. It is designed to detect and record the different "signatures" of the solar energy emitted by all objects on Earth and to convert them into photo-like images that will show the condition of various natural resources.

The U.S. Army Safeguard System Command, Huntsville, Ala., recently awarded letter contracts to three companies for contract definition leading to the competitive selection of a prime contractor for a hardsite defense prototype demonstration program. Hughes has teamed with Boeing and System Development Corp. The work will be performed over a five-month period.

The synchronous communications satellite's first decade was featured in the Hughes display at the Telecom '71 exhibition staged by the International Telecommunications Union in Geneva, Switzerland, June 17-28. Included were: the first synchronous satellite, shown at the 1961 Paris Air Show by the Hughes team credited with the original concept; a full-scale model of Anik I, Canada's new domestic satellite; and third-scale models of all others built by Hughes -- from Syncom, world's first, which was launched in 1963, to the giant Intelsat IV, which began commercial service March 26.

A new traveling wave tube for Canada's Anik I domestic synchronous communications satellite will operate even more reliably and with higher efficiency than previous Hughes TWTs. It is expected to operate for more than 12 years, compared with the six-month life expectancy of the Syncom II TWT (which, however, is still operable after eight years). Hughes TWTs have also been used on all the Intelsat, ATS, TACSAT, Mariner, and Lunar Orbiter satellites and the Surveyor and Apollo spacecraft. Their record to date: 100 years in space without a relevant failure.

The first tri-service validation of an Air Force contractor's program performance measurement system was won by Hughes recently on the cost-schedule control system for the Maverick missile program. Maverick -- a TV-guided air-to-ground missile -- is being developed under a "total package procurement" contract. It has completed flight tests by Hughes and is now in USAF's Category II flight test.

Creating a new world with electronics

HUGHES

HUGHES AIRCRAFT COMPANY

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



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

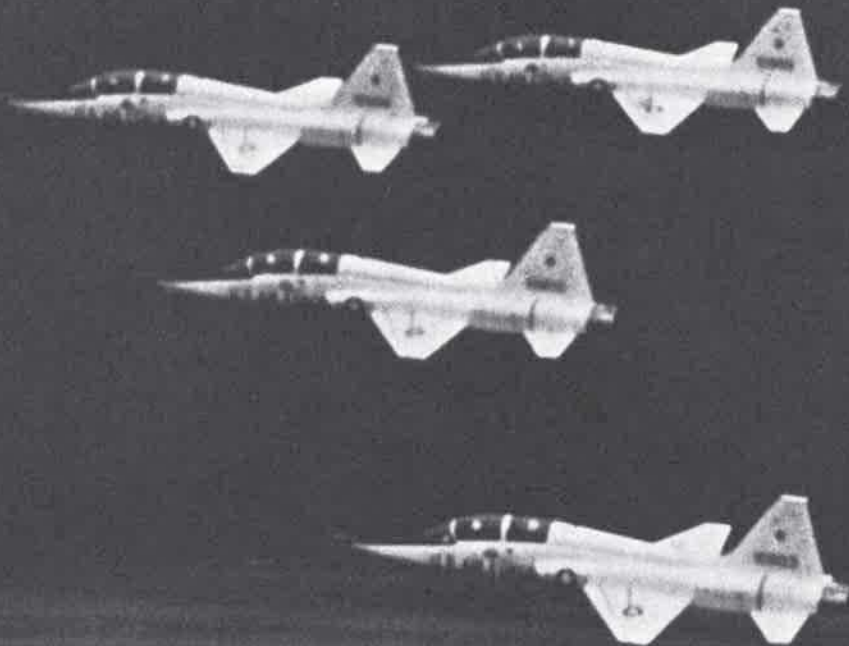


ously since 1580.

Also flown by the German Air Force, NASA's Astronauts

and the U.S. Navy, the T-38 has the best safety record of any supersonic jet. All T-38s have been delivered on or ahead of time, at promised costs. And no change of design has been required.

NORTHROP



Airmail

ated Sumter Airways, Sumter, S. C., a flying school, charter, crop-dusting, etc., service through 1949. Billy was one of my instructors and flight examiner when I took commercial flight training in 1948, most of which was in sixty-five-hp, J-3 Piper Cubs. He was married, and I think he had a couple of children.

As for "precision" flying, when he told you to pull out of a three-turn spin lined up with a one-track railroad, you almost thought he expected you to ask, "Right or left rail?"

CWO MORTON GOLDMAN,
USAF (RET.)
Daytona Beach, Fla.

Anybody Know About Bartigan?

Gentlemen: I am just completing a book called *Log of the Liberators* for Doubleday & Company, Inc., in New York, and hope that AIR FORCE Magazine readers might be able to add the concluding pieces to a puzzle for me.

Toward the end of the war, on Ie Shima, a highly talented artist decorated Liberator fuselages with the most exotic artwork of World War II.



Anyone know an artist named Bartigan—who painted these comic-strip types on this B-24? He's being sought.

It Aint So Funny, the aircraft in the photo, was probably his most intricate work, but it was rivaled by *The Dragon and His Tail*, *Mickie's Menace*, *Last Horizon*, *Mabel's Labels*, *Michigan*, and *Cocktail Hour*.

It is believed that his work was exclusive to the 64th Squadron of the 43d Bomb Group, "Ken's Men," and that the artist's name was Bartigan—but that's all I know.

I want to run an art gallery of his work, but I need more information, both about the artist and his addi-

tional works, and particularly needed are clear photos of the aircraft involved. Obviously, color photos would be most valuable, but any pictures will be more than useful. Naturally, these would be returned in original condition, with a copy of the completed book. Any help will be appreciated.

STEVE BIRDSALL
53 Wycombe Road
Neutral Bay 2089
Sydney, Australia

Phantom Photos

Gentlemen: I am in the process of writing a definitive book on the F-4 Phantom and need all the photographs I can get, from every possible source.

Would like to borrow or buy clear black-and-white photographs and negatives, color slides, or color negatives.

STEPHEN RILEY
41 Potter Crescent
Saskatoon, Sask., Canada

Military History Symposium

Gentlemen: The theme of the fifth Military History Symposium at the Air Force Academy, to be held on October 5-6, 1972, is "The Military and Society." At this point the program is quite tentative, however, three conventional working sessions in addition to a combined Banquet Address and Harmon Memorial Lecture are being planned. A workshop session has been added to the agenda.

The purpose of this advance notice is to allow supporters and prospective participants to mark the date on their long-range planning calendars. Additional information detailing the theme, program, and some of the participants will be published in future announcements.

MAJ. RONALD FOGLEMAN
Executive Director
Military History Symposium
Department of History
USAF Academy
Colorado 80840

UNIT REUNIONS

Class 42-B

Our big 30th reunion of Mather and Luke Aviation Cadet graduates is scheduled for Southern California February 18-20, 1972. Make your plans now. More details will follow. Send your name and address and those of other graduates to

R. E. Monroe
4462 Elm Tree
Irvine, Calif. 92664

Phone: (714) 833-2238

or

Ed D. Radtke
Marsh & McLennan, Inc.
One Bush St.
San Francisco, Calif. 94104

Phone: (415) 981-1900

American Fighter Aces

The 10th anniversary and 4th annual American Fighter Aces Rendezvous and invitational golf tournament will be held at the US Naval Air Station, Miramar, Calif., August 12-15, 1971. Joining in the festivities will be distinguished aces and guests from the German Fighter Aces Association. Also, the newly formed Japanese Zero Fighter Pilots Association, headed by Saburo Sakai, President, top living Japanese ace. Contact

Service Information Office
NAS Miramar
San Diego, Calif. 92145

Phone: (714) 271-3511

432d Bomb Squadron (M)

The daddy of them all, the 432d Bombardment Squadron (M), 17th Bomb Group, will hold its sixth reunion in New Orleans, La., on August 12-14, 1971, at the Hilton Inn, across from New Orleans Airport. Come and join the other 150 who have already signed up.

Jake Mueller
3800 N. Nora Ave.
Chicago, Ill. 60634
Phone: (312) 725-3432

475th Fighter Group

The 4th reunion of "Satan's Angels" since World War II will be held at the Newporter Inn at Newport Beach, Calif., from September 30 through October 3. All former members of the 475th Fighter Group are welcome to attend. Reservations may be made by contacting Pete Madison, chief honcho and formerly of the 431st "Hades" Squadron. Pete's address is

Pete Madison
144 S. Mission Rd.
Los Angeles, Calif. 90033

Reminder: In order to meet our printing deadlines, reunion notices should be in this office at least eight weeks prior to the issue in which they are to appear.

Airpower in the News

By Claude Witze

SENIOR EDITOR, AIR FORCE MAGAZINE

CBS Won't Do It Again

WASHINGTON, D. C., JULY 14

On June 28, four days after he faced a grueling cross-examination by the Subcommittee on Investigations of the House Committee on Interstate and Foreign Commerce, Dr. Frank Stanton, President of the Columbia Broadcasting System, issued a new set of "operating standards" to govern the editing of documentary television films at CBS.

At the hearing on June 24, Dr. Stanton's network was accused of practicing deception and fraud in the production last winter of the now-controversial program called "The Selling of the Pentagon." Under questioning, the witness refused to answer questions about how the program was edited and argued that his organization had not practiced deception and fraud. His new "operating standards" constitute a promise that CBS won't do again what Dr. Stanton said it hadn't done.

From the standpoint of this magazine's interest in "The Selling of the Pentagon," we are satisfied that CBS has acted to clean its own house and that from now on it will take more seriously its public trust—the one handed to it with the franchises it holds to profit from use of the public's television channels.

Yesterday, by a vote of 226 to 181, the House of Representatives in effect killed a proposed citation for contempt of Congress against CBS and Dr. Stanton. While CBS and the press in general hailed the decision as a victory in a test of the government's power to investigate broadcast journalism, our editorial interest is only academic.

The outrage was that CBS used the kind of television techniques practiced by Rowan and Martin for the production of "Laugh-In" to misrepresent a Defense Department activity. Editorially, we claim credit for helping to focus attention on the network's transgressions.

If, in the aftermath, it happened that Dr. Stanton was dragged before the bar, that CBS was sued for libel and misrepresentation, and that public confidence in television news presentations has been shaken, that's the price to be paid for this kind of shenanigans. "The Selling of the Pentagon" was an example of shoddy journalism, in our opinion, and deserved to be treated as such.

As previously pointed out in these pages, coverage of the controversy by the daily press has been highly inadequate. In the *Congressional Record* of July 8 there were no fewer than six insertions of documents and speeches that have a bearing on the case. They got scant notice in the newspapers. The June 24 hearing, where Dr. Stanton spent nearly four and a half hours in a blistering inquisition, won little space, and that little space was devoted to his defiance of the subcommittee subpoena calling for surrender of the clips from the cutting-room floor.

The fact of the matter is that the subcommittee, headed by Rep. Harley O. Staggers (D-W. Va.), can demonstrate deception by CBS without the cuttings. Apparently, the staff believed it could produce a more searing indictment—and more effective legislative proposals—if it had full access to the source material. Mr. Staggers, the first man to

tell Dr. Stanton he would press for a contempt citation, told his conferees the case was complete:

"Deception in broadcast news is like a cancer in today's society. The spread of calculated deception, paraded as truth, can devastate the earnest efforts of any one of us seeking to represent our constituents. Make no mistake.

"We have clear evidence of deceit—men's words electronically altered to change their very meaning. Allegations of other instances of fraud are awaiting our further exploration; the whole story behind this program has not yet been told."

One member of the parent committee, Rep. Clarence J. Brown (R-Ohio), is quoted as having declared that CBS "has a right to lie and does so frequently." He added that it is up to the people who run CBS, under Dr. Stanton, to do something about it—not the government. In his new "operating standards," the CBS President appears to have done just that.

The germane revised in-house regulations at CBS are:

"If the answer to an interview question, as that answer appears in the broadcast, is derived, in part or in whole, from the answers to other questions, the broadcast will so indicate, either in lead-in narration, bridging narration lines during the interview, or appropriate audio lines."

Had this rule been in effect last February, when "The Selling of the Pentagon" was aired, Daniel Z. Henkin, Assistant Secretary of Defense for Public Affairs, would not have been able to accuse CBS of misrepresentation. When they distorted his interview with Roger Mudd, the narration would have made this distortion clear to the audience.

A second new CBS rule:

"If more than one excerpt from a speech or statement is included in a broadcast, the order of their inclusion in the broadcast will be the same as the order of their inclusion in the speech or statement, unless the broadcast specifically indicates otherwise."

If this rule had been in effect last February, it is unlikely that Col. John A. MacNeil, the Marine Corps officer, would feel he now has grounds to sue CBS and the Washington Post Company for \$12 million on a libel complaint. The Colonel, until recently on the staff of the Industrial College of the Armed Forces, suffered these indignities when CBS "editors" rearranged a film of his appearance at a meeting in Peoria, Ill. Says the Staggers subcommittee:

"... the portion of Colonel MacNeil's speech shown in the documentary, was manufactured by selecting disconnected sentences and then splicing them nonsequentially. . . . Through such film-editing techniques, the words were made to appear as if they had been delivered exactly as shown in the broadcast."

It also goes without saying that if the new CBS rules had been in effect last February, there probably would have been no issue between Dr. Stanton and Mr. Staggers.

These subjects were discussed at length at the subcommittee hearing on June 24. For example, Rep. Richard G. Shoup, a freshman Republican from Montana, showed interest in TV footage that appears to be continuous, but is not. From the transcript:

MR. SHOUP: . . . I am speaking of a man being inter-



Col. John A. MacNeil, US Marine Corps, has filed a libel suit for \$6 million each against CBS and the Washington Post Co. as a result of the Pentagon broadcast. Another suit, for \$25 million, was started in Los Angeles by actor Robert Stack, who says CBS misrepresented his stand on Vietnam.

viewed in which he will be asked a question and then the answer is not the answer that he actually gives. . . . Is there any attempt to tell the public that the answer to this question was not in response to the question?

DR. STANTON: It varies. Sometimes there is and sometimes there is not.

MR. SHOUP: May I be specific then, sir. Was there in the case of "The Selling of the Pentagon"?

DR. STANTON: I have to respectfully decline to answer that question.

As the questioning continued, Dr. Stanton made it clear that "if we want to be unfair and deliberately distort, we can do it. There is not any way that we could be prevented from doing that." He said it is wrong to do so, but at no time would answer a question designed to make him admit such deceit was practiced in this particular show. The gist of his argument was that these evils should be eliminated by the networks themselves and not under decree of some regulatory agency or the Congress. On this point, there was no disagreement with Dr. Stanton. The only thing he failed to explain is why CBS did not feel this responsibility until after "The Selling of the Pentagon" had been criticized publicly.

Indeed, Mr. Shoup told Dr. Stanton the thrust of the investigation was to determine whether these things happen. Dr. Stanton held that a probe into this particular program encroached on the First Amendment and freedom of the press. Mr. Shoup's reply was that it has nothing to do with the First Amendment.

The reason for this was brought out in a rather dramatic confrontation of the witness with Rep. William L. Springer (R-Ill.). Here is the way it went:

MR. SPRINGER: When did you start with CBS?

DR. STANTON: In October 1935.

MR. SPRINGER: The Federal Communications Act was written in what year?

DR. STANTON: 1934, was it not?

MR. SPRINGER: Correct. If we had not created the act of 1934 and you became President of CBS, to whom would you have made your application for a license?

DR. STANTON: If you had not created the act of 1934?

MR. SPRINGER: Right.

DR. STANTON: The Department of Commerce.

MR. SPRINGER: I am afraid you are wrong. You would have applied to this committee. This committee gave the FCC that power. Now this is why . . . in 1958 we created this special Subcommittee on Investigations to supervise all of the seven agencies of which the Federal Communications Commission is one. We delivered up the power of this committee to the FCC, and they laid down certain

rules with reference to radio and TV, and you have been guided by them since then, have you not?

DR. STANTON: We have.

MR. SPRINGER: Now do you claim that you are the same as the press?

DR. STANTON: As far as the editing, yes. As far as the editing process is concerned.

MR. SPRINGER: Well, I am not asking you that. I am asking you, you do have the same powers of the press? That is what I asked you, not for editing purposes. Do you have the same power as the press?

DR. STANTON: Under the First Amendment, yes.

MR. SPRINGER: All right. Now, let's just go at it for a second. Does the newspaper apply for a license to the Federal Communications Commission?

DR. STANTON: No, sir.

MR. SPRINGER: You do?

DR. STANTON: Yes, sir.

MR. SPRINGER: Do you say yes, sir?

DR. STANTON: I did.

MR. SPRINGER: Does a newspaper comply with the Fairness Doctrine?

DR. STANTON: Do you mean is there a rule from government that says they shall?

MR. SPRINGER: In there anything in the Constitution or law, either one?

DR. STANTON: There is not.

MR. SPRINGER: Do you have a rule of fairness of the FCC with which you comply?

DR. STANTON: We do, and we had it before the FCC had its fairness doctrine.

MR. SPRINGER: Right. Now, does the newspaper supply equal time to candidates for public office?

DR. STANTON: Not by law.

MR. SPRINGER: Do you, by law?

DR. STANTON: We do.

MR. SPRINGER: All right. Then you are not the press, are you?

DR. STANTON: I think we are the press, sir.

MR. SPRINGER: You're the press except that you're regulated by a government-created regulatory commission; you're regulated by them and you are granted a license each three years provided you have served in the public interest . . . isn't that correct? . . . You come to the FCC every three years to be relicensed?

DR. STANTON: We do.

MR. SPRINGER: And you put a hearing in, in which you describe yourself and you tell what you have done, and questions are answered and you file a long series of things, and you have shown you have acted in the public interest in order to get relicensed, do you not?

DR. STANTON: Yes.

MR. SPRINGER: Does a newspaper do that?

DR. STANTON: It does not.

Later Mr. Springer summarized: "You come here with a certain theory that you are an electronic newspaper. Dr. Stanton, you are not an electronic newspaper; you are a government-regulated industry operating in the public interest, and when you don't operate in the public interest the FCC can revoke your license."

Again, Mr. Springer had a question:

"Do you know of one single responsible journalist—and I didn't say a TV journalist — one single responsible journalist that you know who would agree that it is allowable or commendable to edit out a sequence during a question and answer interview?"

Dr. Stanton said yes. Mr. Springer challenged him to name one. Then:

DR. STANTON: I can name several. I will supply them for the record.

Airpower in the News

MR. SPRINGER: I would like to have them publicly now. One. One.

DR. STANTON: I will supply them for the record.

MR. SPRINGER: The fact of it is, Dr. Stanton, you don't know of one, do you?

DR. STANTON: I don't want to misstate myself, and I want to supply it for the record.

The Congressman insisted that the practice, used in "The Selling of the Pentagon," of shifting interview answers from the question that provoked them to a different question is not done by real journalists. He added: "We don't have anything to do with the First Amendment. What we are talking about is deceit. . . . It is our preliminary opinion that CBS is guilty of deceit. If I view the word deceit correctly, it is a fraud."

The subcommittee staff also cited later a court decision by Judge Learned Hand, who sanctioned FCC regulations as necessary to preserve the freedom of speech of the listener: "The licensing system established by Congress in the Communications Act of 1934 was a proper exercise of its power over commerce. The standard provided for the licensing of stations was the 'public interest, convenience, or necessity.' Denial of a station license on that ground, if valid under the act, is not a denial of free speech."

Dr. Stanton, in his prepared statement for the subcommittee, held that "the compulsory production of evidence for a congressional investigation of this nature abridges the freedom of the press. The chilling effect of both the

subpoena and the inquiry itself is plain beyond all question."

Dr. Stanton used that phrase, "the chilling effect," about a dozen times in his testimony, finally provoking both Chairman Stagers and Daniel J. Manelli, the subcommittee counsel, to use it themselves.

Mr. Manelli indicated that Defense Secretary Melvin R. Laird had been chilled recently when he flatly refused to submit to a CBS interview unless it were broadcast live, and not from tape.

Mr. Stagers said he is chilled by the power of the television medium. He recounted an incident involving a fellow member of the House of Representatives who said he could not vote for contempt charges against CBS. Mr. Stagers asked why. The reply was, "The TV station in my city has already told me that if I vote for contempt of Congress charges that I will not be elected to Congress next time—they would see to that. . . ."

To Mr. Stagers, that was chilling.

Today, in the reports of yesterday's House vote, the subcommittee chairman is quoted as saying, "So many things happened in the last two or three days. It's the greatest lobbying effort I've ever seen. The boys were saying, 'We just can't stay with you. The pressure's too great.'"

For his part, Dr. Stanton expressed pleasure and promised, "We shall continue to do our best to report on public events in a fair and objective manner." Under his revised "operating standards," this should be possible.

For the sake of the record, our readers also should know that Colonel MacNeil's libel suit is not the only legal action being taken as a result of CBS's near-disastrous effort. Robert Stack, a Hollywood actor, has filed a \$25 million damage suit, charging that "The Selling of the Pentagon" misrepresented his position on the Vietnam War. ■

Facing a showdown, Rep. Harley Stagers chats with Dr. Frank Stanton, CBS President, at hearing where the network refused to produce subpoenaed production material involved in "The Selling of the Pentagon." The Stagers subcommittee voted to cite Dr. Stanton for contempt, but failed to prevail in the final test before the House of Representatives. CBS, however, has revised its "operating standards" to ensure against future deceptions.

—Wide World Photos



By William P. Schlitz

NEWS EDITOR, AIR FORCE MAGAZINE

WASHINGTON, D. C., JULY 12

On reentry from a record-breaking twenty-four-day orbital mission in June, the three Soviet cosmonauts aboard *Salute-11* arrived home dead. Soviet officials blamed the disaster on a leakage of the spacecraft's atmosphere.

AFA Headquarters sent the following message from the AFA President to the Soviets:

His Excellency
The Ambassador of the Union of
Soviet Socialist Republics
1125 16th Street, N. W.
Washington, D. C.

My dear Mr. Ambassador:

Please accept the heartfelt condolences of the United States Air Force Association on the tragic deaths of the three Soviet Cosmonauts, as reported in official news dispatches from the Soviet Union. The entire membership of the Association joins me in this expression. We would deeply appreciate your transmission of this message of sympathy to the families of the Cosmonauts and to the chiefs of state and government of the USSR.

Sincerely,
GEORGE D. HARDY

What the tragic death of the three means in terms of the future of the Soviet manned space program is the subject of widespread speculation at this point. Despite certain questions raised by the Russian catastrophe, NASA officials said the US's orbital laboratory—*Skylab*—is expected to be launched in 1973 as planned.



Congress has approved a NASA budget of some \$3.3 billion for the Fiscal Year 1972, which began July 1. Much to the space agency's satisfaction, the money authorized included \$125 million to finance development of the Space Shuttle.

The space budget passed by Con-

gress was about \$160 million more than the Administration's request.

Now, appropriations committees from both houses must allocate actual funding of the space agency.

The House space committee has projected NASA budgets at around \$3.7 billion annually through 1977.

Regarding the Space Shuttle, NASA recently announced program management plans. Overall responsibility will be retained by the Headquarters Office of Manned Space Flight in Washington. It will oversee assignments and basic performance requirements, and also control major milestones and funding of the various field centers.

The Manned Spacecraft Center, Houston, Tex., will be responsible for program control, systems engineering, and system integration, and overall responsibility for definition of interacting elements of the entire system, such as total configuration and com-

bined aerodynamic loads. MSC also will have responsibility for the orbiter stage.

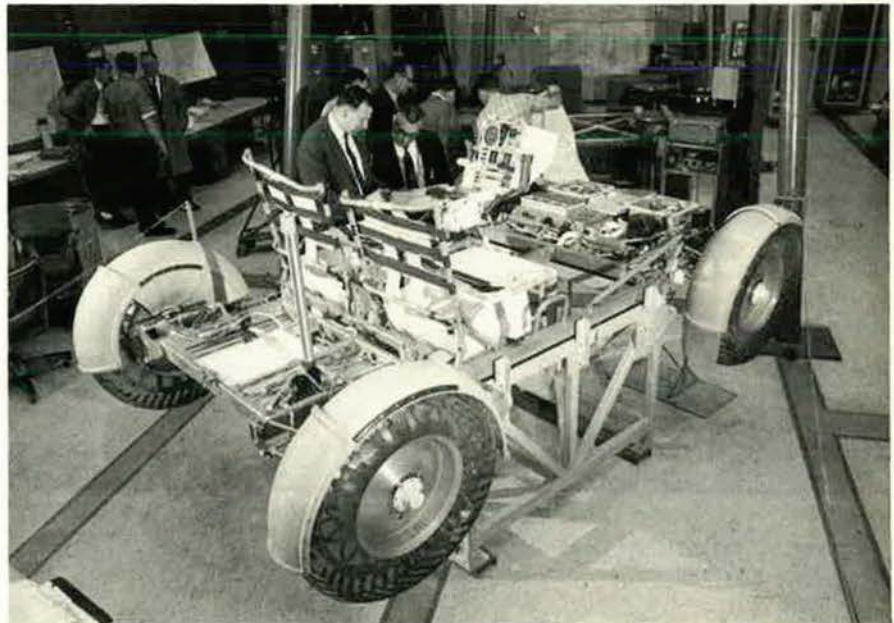
The Marshall Space Flight Center, Huntsville, Ala., will be responsible for the Shuttle's booster stage and main engines.

The Kennedy Space Center, Fla., will be responsible for design of launch and recovery facilities.

All three centers will station personnel at MSC as part of overall systems engineering and integration.

The Space Shuttle is to be a reusable space vehicle designed to carry payloads between earth and near-earth orbit. Missions for the Shuttle include deployment of unmanned spacecraft, satellite repair and retrieval, space rescue, and short-duration orbital science and applications projects.

Recently, NASA extended its Space Shuttle preliminary design contracts with four industry teams.



When the astronauts of the *Apollo-15* go on their trips of exploration across the lunar surface, they will travel in style aboard this type of Lunar Roving Vehicle (LRV). The *Apollo-15* mission will mark the first moon landing during which the crew will have had surface transportation. The lunar rover is a product of the Boeing Co.

Aerospace World

The companies are McDonnell Douglas Corp., St. Louis, Mo., with Martin Marietta as a major subcontractor; North American Rockwell Corp., Downey, Calif., with General Dynamics as a major subcontractor; Grumman Aerospace Corp., Bethpage, N. Y., with Boeing Co. as major subcontractor; and Lockheed Aircraft Corp., Burbank, Calif.

The fixed-price contracts have been extended through October.

The companies have been requested to study the pros and cons of a "phased approach" to development of the Space Shuttle in which the orbiter vehicle would be built first and initially tested with an interim expendable booster. Based on data from these studies, NASA expects to decide this fall if a phased development of the Shuttle will be undertaken instead of concurrent development of both the orbiter and booster.

Candidate interim expendable launch vehicles include a modification of the S-IC (first) stage of the Saturn V launch vehicle; an outgrowth of the Titan III rocket; a single 260-inch-engine solid booster; and multiple 120-inch or 156-inch solid rockets.

The team headed by McDonnell Douglas will study solids and the



—Wide World Photos

NASA Administrator James C. Fletcher, left, and Lee R. Scherer, director of NASA's lunar exploration office, look over lunar material exchanged with the Russians for US samples. Mr. Scherer headed the US exchange group in Moscow.

Titan-type booster; Grumman, the S-IC and solids; Lockheed and North American Rockwell, solid booster variations.

Early in July the Department of Defense announced that it was abolishing the US Strike Command and replacing it with a new organization

called the US Readiness Command.

Deputy Secretary of Defense David Packard said that the new command would be headquartered at MacDill AFB, Fla., previous home of the Strike Command.

The Readiness Command, he said, is to provide a reserve of combat-ready forces to reinforce other unified commands and to assist the Joint Chiefs of Staff in such roles as training and formulating doctrine.

The Readiness Command will have a unified structure worldwide and an "austere" headquarters to control major US combat forces not assigned to other commands.



Talk about esoteric fallout from the space program. Would you believe motor-driven wheelchairs that can be controlled and directed solely by the action of the occupant's eyes?

Under NASA direction, Hayes International Corp.'s Missile and Space Support Division has built a number of prototype wheelchairs guided by sight switch devices.

The sight switch is mounted on an eyeglass frame. It directs low-intensity beams into a wearer's eyes. An attached photodetector senses changes in reflected light, such as the difference between that reflected by the white of the eye and the darker iris. Glances from the left eye control forward and reverse motion and from the right eye, steering.

The eye-controlled wheelchair, currently under test, may find a serious—and humane—application. There are an estimated 100,000 quadriplegics in this country alone.

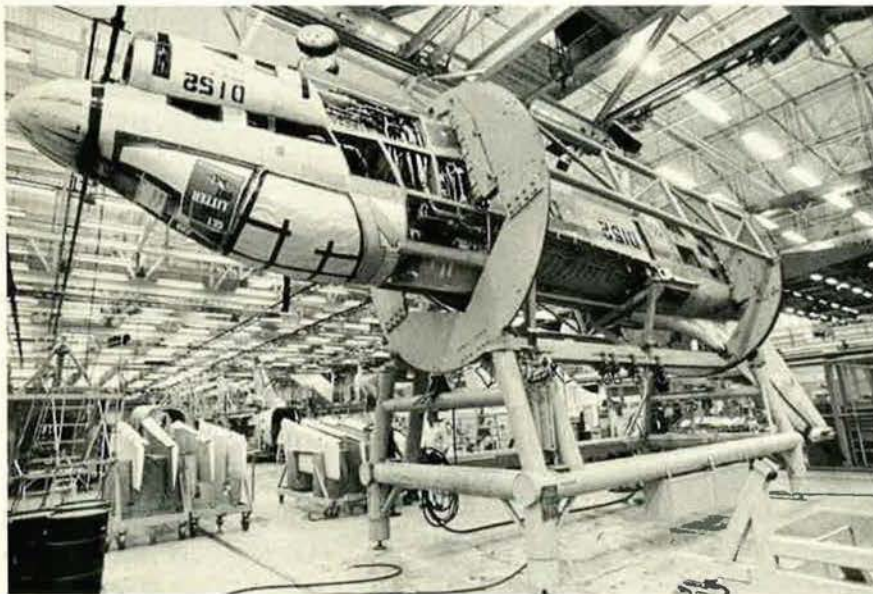
The sight switches were developed because early in the space program technicians thought that at times G forces might be strong enough to prevent astronauts from moving their arms. This proved not the case.

If the test program proves out, the chairs may be produced commercially.



A group of select Pentagon officials, chaired by Deputy Secretary of Defense David Packard, has sent to the Congress a study report concerning development of such close-support aircraft as the A-X, Cheyenne, and Harrier.

The group concluded that the three aircraft offer "sufficiently different capabilities for our future forces to justify continuing all three programs at the present time." This opinion is sure to produce comment from those who have questioned whether development of all three systems is really necessary. (Air Force has presented its fixed-wing A-X for consideration,



A gargantuan gadget, this roll-over apparatus at LTV Aerospace Corp.'s Vought Aeronautics division in Dallas will rotate the entire fuselage of an A-7 Corsair tactical fighter under construction. This allows any loose material and foreign objects to fall out and is part of the company's debris-control activities.

while Army is opting for its Cheyenne helicopter gunship, under development by Lockheed for several years now; USMC already has British-built VTOL Harriers in its operational inventory.)

The group was organized in February 1970 specifically to study this issue. Based on scenarios created to demonstrate what the future might hold for those responsible for the close-support mission, the group determined that the current inventory now lacks the projected capability in both delivery platforms and weapons. Further, the group concluded that the capabilities of the three aircraft "are uniquely different" and examination showed that each is "markedly superior to the others in likely and important situations."



The Air Force, to counter the plague of drug abuse among young people in its ranks, has implemented a narcotics abuse identification and rehabilitation program for USAF personnel returning from Southeast Asia.

Lackland AFB, Tex., has been selected as the site of the rehabilitation phase of the program. Lackland was chosen because it has facilities that can be made use of quickly and on a temporary basis until a more permanent rehabilitation center can be established, the Air Force said.

To be treated at the Lackland facility will be only those with a potential for rehabilitation who have already

been withdrawn from drugs before their arrival. The rehabilitees will be separated from the basic trainees at the base and will live in a self-contained area where special therapy will be available, the Air Force said.

This program is just one part of USAF's campaign to combat the use of drugs by its personnel. For the larger picture, see January 1971 issue of this magazine, p. 28.



The Air Force and Lockheed-Georgia Co. have arrived at a supplemental agreement to the C-5 transport contract.

The total-package-procurement pact has been restructured to a fixed-loss, cost-reimbursement-type contract. Part of the new deal was the allotment of \$61.1 million to Lockheed for continued production of the mammoth transport, the object of criticism because of large cost overruns.

C-5s are presently coming off the assembly line at the rate of two a month. Some forty aircraft are in regular overseas service from squadrons based at Charleston, Travis, and Dover Air Force Bases.

Under the agreement, the Air Force is to have direct "participation and control in fiscal as well as technical management decisions and provide workable contractual disciplines for efficient completion of the C-5 program."

The supplemental agreement super-



Above, Capt. Frank A. McHenry, Jr., of the 366th TFW, Da Nang, South Vietnam, scrambles aboard his F-4 in a simulated mission to intercept enemy aircraft from North Vietnam. Below, Brian Maki inspects cannon linkages.



—Wide World Photos

Daniel J. Haughton, Chairman of Lockheed Aircraft Corp., testifies before a Senate inquiry into the Administration's proposed loan of \$250 million (additional to the C-5 agreement). In foreground are Sens. William Proxmire (D-Wis.), who opposes the loan, and John J. Sparkman (D-Ala.), Banking Committee chairman.



Aerospace World

sedes several provisions of the original contract and establishes a fixed-settlement loss to Lockheed of \$200 million. The government will reimburse Lockheed for certain costs not to include various limitations imposed by Congress and the company's investment of \$100 million. The remaining \$100 million is to be repaid to the government in quarterly increments of \$2.5 million beginning in January 1974. Interest will be paid annually.



The CAB is looking into procedures for the sale of airline tickets to military personnel. This followed a bid, declined by the Board, by four trunk airlines to tighten such procedures.

The carriers—American, Braniff, Delta, and National Airlines—had asked for permission to sell tickets at military rates only upon presentation of a specific DoD form. The current practice by domestic ticket desks is to accept the form, a copy of orders, or some other proof of leave or discharge as the requirement for seat booking at the military rate.

The Board decided to investigate the matter before giving the airlines a go-ahead because, among other reasons, "the proposal may result in some hardship to military personnel, particularly those on emergency leave."



Air Force Maj. Travis Wofford has been named recipient of the 1970 Cheney Award for heroism. Serving with the 37th Aerospace Rescue and Recovery Squadron in Vietnam, the Major was cited for "extreme fortitude and valor" while on a particularly grueling rescue mission near Dak Nay Puey in April 1970 during which his aircraft was shot down and he was extensively wounded.

Major Wofford, now serving as an instructor pilot at Hill AFB, Utah, is the fifth successive Cheney Award winner honored for heroism in SEA; the previous four were also helicopter crew members.



The General Thomas D. White Space Trophy for 1970 has been presented to Brig. Gen. Robert A. Duffy, Vice Commander of USAF's Space and Missile Systems Organization.

The trophy, sponsored by the National Geographic Society and named for the retired Air Force Chief of



Col. Norris M. Overly, one of nine released POWs (his story appeared in our November 1970 issue), is now Deputy Commander/Ops, 3535th Navigator Training Wg., Mather AFB, Calif.

Staff who died in 1965, is awarded annually to the military or civilian member of the Air Force who made the most outstanding contribution to US aerospace progress.

In his previous position as Deputy for Reentry Systems, General Duffy was cited for his role in "the vital responsibility of ensuring that Army, Navy, and Air Force offensive and defensive ballistic missile reentry systems

will continue to provide an adequate and credible posture of strategic deterrence."



Another award in memory of General White—the 1970 General Thomas D. White Environmental Protection Award—went to Tyndall AFB, Fla., and the New Hampshire Satellite Tracking Station.

Tyndall, in Class A for bases with more than 2,000 acres devoted to conservation, was cited for its improvements in both wildlife land and water habitats and such protective measures as fire control. Also noted was the base's considerable increase in recreational facilities for the public.

The New Hampshire Tracking Station, near New Boston and in Class B with less than 2,000 acres allocated for conservation, was recognized for the quality of its forest, game, and recreation management.

The tracking station has won the award three times and Tyndall twice since the Air Force competition began in 1960.



The Navy has picked the prime contractor for its Mark 48 Mod 1 torpedo, a weapon system on which the service has bet a big stack of chips.

The Mark 48 is intended as a weapon having speed, range, depth, and acquisition capability able to contend with any of the advanced subma-



At RAF Upper Heyford, England, USAF Maj. William H. Hill, left, and Capt. Jon M. Butenbah accept an F-111 model on behalf of the 20th TFW. C. W. Cecil, director of logistical services for General Dynamics' Convair Aerospace Division, extended the courtesy to mark the 100,000th flying hour logged in the variable-wing jets. The 77th TFS aircrew chalked up the figure in the unit aircraft numbered 077.

rines and surface ships of today or the foreseeable future.

The wire-guided torpedo is designed primarily for launch by submarines but can be operated from surface vessels. It has a conventional warhead.

The contract, for a hefty \$115,957,412, went to Gould, Inc., a Chicago-based firm, and covers torpedo production in Fiscal 1972 with the option for additional quantities in Fiscal '73. The contract follows a development project that began in 1964 and included competitive testing of two versions.

In another action, Navy chose McDonnell Douglas Corp. as prime contractor to develop the new all-weather, antiship missile system called Harpoon.

The missile, with an extended stand-off range, will equip either aircraft or surface ships.

McDonnell Douglas' contract calls for about \$60 million to be spent on development and demonstration of engineering models over the next two years.



The Navy has sponsored development of a system that will provide additional safety for parachuting pilots.

Landing in water has always been a tricky business, with a better-than-even chance of becoming entangled in shroud lines and being dragged under by the chute. The new system will automatically separate a crewman from his parachute and also inflate his life vest on water entry. The system works even if the downed crewman is unconscious or incapacitated.

In the event of a descent on land, the quick release will prevent a pilot from being dragged.

The system is so sensitive that it will operate only in water with a saline or other mineral content. It is unaffected by a descent through rain or other weather.

In late June, the Swedish Air Force took possession of the first three production AJ 37 versions of the Viggen, built by Saab-Scania. Here the aircraft are shown along with an array of their weapons stores.



The system, designed by LTV Aerospace Corp.'s Vought Missiles and Space Co. under Navy contract, also has a manually operated quick-disconnect feature that will instantly free a crewman from his harness and other equipment attachments in case of fire aboard a carrier or some similar emergency requiring escape from an aircraft.



On July 1, Selfridge AFB, Mich., was turned over by the Aerospace Defense Command to the Air National Guard. It is the first major active Air Force base to come under control of the Air Guard.

Selfridge is rich in history. It was named for 1st Lt. Thomas E. Selfridge, the first Army officer to pilot a plane and the first military man killed in an aircraft accident. The lieutenant was flying with Orville Wright on September 17, 1908, when the plane's propeller failed and it crashed.

Many aviation greats were trained at Selfridge and, through the years, many more served there. Among them were Doolittle, Rickenbacker, Lindbergh, Spaatz, and LeMay. Famous units stationed at Selfridge included Rickenbacker's "Hat-in-the-Ring" 94th Squadron, on duty there following its return from France in 1919. During

the war years, the distinguished all-black 332d Fighter Group was one of the celebrated units trained there.

In recent years, the base played a major part in ADC's participation in the US/Canadian North American Air Defense Command.

Now under Air Guard control, the base will continue to host flying and ground units of all the services.



An agreement between the military and the FAA has resulted in the initiation of a program to make more efficient and safer use of US airspace.

Under the program, an effort will be made to minimize the number of military aircraft operating under visual flight rules (VFR).

The plan calls for all military flights when possible to apply instrument flight rules (IFR). These will include administrative and cross-country flights and portions of flights to and from military operating areas.

With such flights under control of FAA air traffic control facilities, the agency anticipates extended benefits to all users of US airspace.

Pilots will be required to file flight plans and obey instructions from ATC facilities, which will assure separation in controlled airspace. (VFR flights maintain separation on a "see-and-avoid" basis.)



The Air Force is studying the possibility of increasing the simultaneous in-flight refueling capability of its standard tanker—the KC-135.

Presently, the tanker can refuel only one aircraft at a time. The object would be to increase this to three.

Air Force Systems Command's Aeronautical Systems Division, Wright-Patterson AFB, Ohio, will work with Boeing Co. to design a system that will be aerially convertible to accommodate both boom and drogue-equipped tactical aircraft in Air Force and other service inventories. ■

Index to Advertisers

General Dynamics Corp.	4 & 5
Hughes Aircraft Co.	11
McDonnell Douglas Corp.	26 and Cover 4
North American Rockwell Corp., Aviation Divs.	1
Northrop Corp.	12
Teledyne Ryan Aeronautical	Cover 2
TRW Systems Group	Cover 3
Vought Aeronautics Div., LTV Aerospace Corp.	2

MIA / POW Action Report

By Maurice L. Lien

SPECIAL EDITOR FOR MIA/POW AFFAIRS

South Carolina

South Carolina Gov. John C. West has traveled to Europe twice in recent months to seek more humane treatment for POWs and information on men listed as MIA.

In late May, Governor West appeared in Geneva, Switzerland, before a meeting of the International Committee of the Red Cross as spokesman for the National Governors' Conference on the MIA/POW issue. At this writing, he is in Paris attempting to meet with representatives of the North Vietnamese and Viet Cong delegations to the peace talks and with neutral-nation officials.

Governor West is armed with the appeal of more than a million South Carolinians, gathered during a "week of concern" designated by the Governor in May. He also has a special five-minute color documentary film, narrated in French and produced by South Carolina Educational Television, that describes the petition campaign and the humanitarian appeal by the South Carolinians. There are forty-four men from that state on the MIA/POW list.

Credit for originating the South Carolina campaign goes to Charles Wickenberg, Public Affairs Editor for *The State*, of Columbia, S. C., a newspaper with statewide circulation. Mr. Wickenberg has given extensive coverage to the MIA/POW situation since mid-1969. He first proposed a coordinated campaign at a meeting at Shaw AFB, S. C., and then interested Governor West in his idea. By the time the drive was fully under way, some 250 cities and towns and hundreds of civic, school, and church organizations were involved.

Cochairmen of the drive were the Governor's wife and Gen. Hugh Harris, USA (Ret.), immediate past president of The Citadel, South Carolina's renowned military school. Appeals went out to public and civic officials to join in the drive, followed by campaign material on methods of organizing and publicizing local activities, sample proclamations and petitions, fact sheets, and a time schedule.

Materials used in the campaign were furnished by the South Carolina AFA State Organization, headed by Maj.

First-place winner in two parades during the twentieth Annual Sun Fun Festival along South Carolina's Grand Strand was this MIA/POW float sponsored by AFA's Grand Strand Chapter of Myrtle Beach.



Gen. James F. Hackler, USAF (Ret.), and by the Charleston and Columbia Chapters, and the Grand Strand Chapter at Myrtle Beach. Coordinating AFA support for the drive was Lt. Col. Stanley V. Hood, of the South Carolina Air National Guard, from Columbia.

According to Colonel Hood, "The success of this effort, in which we obtained signatures equal to about half the state population, was due in large part to four people: Governor West, who showed his genuine concern by putting his office behind the organization; Mrs. West and General Harris, who gave unselfishly of their time and talents to assure that everything possible was done; and Charles Wickenberg, who, through his reporting in *The State* both before and during the drive, helped assure that people throughout the state knew what we were trying to accomplish."

Advertising Campaign

A full-scale advertising campaign to keep the MIA/POW situation in the public eye is now in the final planning stages. The campaign will be conducted by the Advertising Council, under sponsorship of the Red Cross and the National League of Families.

Handling the campaign is SSC&B, International, a major ad agency headquartered in New York, which volunteered to take on the project. The

ads will be nonpolitical, stressing the humanitarian aspects of the MIA/POW issue.

Ads in newspapers across the US were scheduled to begin in mid-July, to be followed by magazine ads in early August, and TV coverage in September. The League is considering an extensive ad campaign in foreign newspapers. SSC&B would act as adviser.

Mrs. Joan Vinson, National Coordinator for the League, said of the campaign, "We have every confidence that SSC&B will produce memorable advertisements on behalf of our prisoners and missing, effecting, perhaps, North Vietnam's adherence to the Geneva Convention and sufficient embarrassment to her allies that all POW facilities will be opened for impartial observation. The agency staff seems most knowledgeable on the POW issue and extremely sincere about performing a real service for our men."

Atlanta Classic

Visitors to the Atlanta Country Club in early June had a special opportunity to learn more about the MIA/POWs. About 20,000 people stopped at a table set up there during the Atlanta Golf Classic to sign letters supporting the campaign. Signatories included most of the professional golfers participating in the tournament.

Organizer of the project was Miss Carolyn Collins of Atlanta, whose brother, Air Force Capt. James Quincy Collins, Jr., has been a POW in North Vietnam since September 1965. For a full week, the table was manned by family members, local radio and TV personalities, and sports figures.

Air Force Maj. James F. Low, released by the North Vietnamese in August 1968 after more than seven months as a POW, came up from McCoy AFB, Fla., for two days of the event. Other guests included Mrs. Cathy Plowman, Assistant National Coordinator for the League of Families; Georgia's Lt. Gov. Lester Maddox; and a bevy of beauty queens including Miss Atlanta, Georgia's Junior Miss, Miss American Teenager, and Miss Georgia USA.

Sports figures who assisted included golf pro Tommy Aaron, Bill Curry of the Baltimore Colts, Lee Calland of the Pittsburgh Steelers, Bruce Lemmerman with the Atlanta Falcons, and Bill Bridges of the Atlanta Hawks.

Project Freedom

At least 1,500,000 people in Ohio are now more aware of the MIA/POW issue. This was indicated by the number of signatures attained there recently in a statewide campaign titled "Project Freedom."

Project Freedom was originally organized and sponsored by the Columbus, Ohio, Council of the Navy League, but was quickly joined by other organizations, primary among them the Ohio Jaycees. A committee headed by Navy Commander E. Frank Poyet of Columbus was formed and a coordinated, statewide campaign undertaken.

The Jaycees, with AFA member Capt. Bob Frank as state chairman, played a major role in Project Freedom. Captain Frank, visiting Washington, D. C., in his role as chairman of AFA's Junior Officer Advisory Council, discussed the campaign with AFA Headquarters staff members and with Department of State and Defense officials. He used information gathered in Washington and material furnished by the Jaycees' national headquarters to assemble a package of basic materials to support Project Freedom at the local community level.

Some 380 of these packages were mailed by the Ohio Jaycees, with 260 going to Chapter presidents and 120 to Jaycee wives clubs. Follow-up information was also provided to support the campaign, including a brochure reproduced from DoD and AFA printed material.

Captain Frank estimates that more than 230 speeches were made during the drive, including nearly 100 to high school students throughout the state. Sixty speeches were delivered by three AFA members—Lt. Col. Gene J. Stergar, Maj. Robert E. Johnson, and by Captain Frank. The three are assigned to the Defense Construction Supply Center in Columbus, Ohio.

Stop In and Be Counted

The theme was "Stop In and Be Counted," and more than 700 people did. June 16, designated by the Red Cross and a newly formed group called "The Friends of the POW/MIA League," was a day in which Santa Clara County, Calif., residents showed their concern for men imprisoned and missing in Southeast Asia.

Red Cross chapters throughout the



Ron Edwards and Heather Hoogs accept an award for Butler University's Arnold Air Society and Angel Flight from Brig. Gen. John Bradshaw, USAFR (Ret.).

Peninsula Area held open house teas at which citizens could ask questions and sign letters to the ambassadors of foreign nations and to Hanoi.

Mrs. Shirley Temple Black attended teas in Menlo Park, Palo Alto, and San Jose. Mrs. Black, who has served as a member of the US delegation to the UN General Assembly, urged visitors to write to other governments in an appeal for compliance with the Geneva Convention.

The teas also served to introduce the new POW/MIA League of Friends to Bay Area residents. Prior to the League's formation, wives and relatives of POWs and MIAs took on individual responsibility for informing the public. Now, the League acts as a dispersing center for information, speakers, and activities throughout Santa Clara County.

The address for The Friends of the POW/MIA League is P. O. Box 207, Mountain View, Calif. 94040. ■



AFA's National President George D. Hardy (left) congratulates high school English teacher Alan Bixby on his receipt of a Certificate of Honor for instigating an MIA/POW student letter-writing program in his Hailey, Idaho, classrooms. The award was presented to the teacher at the Idaho State AFA Convention held in Boise (see also p. 83).



Campaign chairman Miss Lee Gilbert, and Robert H. Farrell (far right), of the Red Cross, look on as the Commander of Hill AFB, Utah, Col. William D. Kyle, Jr., turns over to Saturn Airways pilots Marty Hill and Alex Kaddad a portion of some 50,000 letters destined for Hanoi that were collected by AFA's Ute Chapter.

Internment in Cambodia

Forty Days With the Enemy, by Richard Dudman. Liverwright, New York, N. Y., 1971. 182 pages. \$5.95.

On May 7, 1968, six days after the South Vietnamese and American invasion of Cambodia, three reporters, Richard Dudman of the *St. Louis Post Dispatch*, Elizabeth Pond of the *Christian Science Monitor*, and Michael Morrow of the *Dispatch News Service International*, were separated from friendly troops and captured by the Communists. The forty-day internment that followed is the subject of Richard Dudman's book.

The title leads the reader to expect a close and indeed unique examination of the North Vietnamese and Viet Cong. Most readers, however, will be severely disappointed; Dudman has chosen to expand his own political views and not to recount his experiences objectively. As a result, the reader is treated to a combination of antiwar polemics and long quotations of his captors on the nature of revolution and the revolutionary—a rehash of Truong Chinh and Giap.

Early in the book Dudman claims to be objective. On page fifty-two, however, he destroyed whatever faith this reviewer had in his objectivity by announcing that ". . . the killings at Hué during the Tet Offensive of 1968 were committed in the heat of battle. . . ." The meticulously prepared "death lists" captured by Allied intelligence both during and after the battle for Hué belie this.

The most serious weakness of the book is Dudman's use of lengthy quotes by his captors and others, with little or no objective analysis. On page 112, Hai, the political leader of Dudman's guards, talks at length about the relationship of revolution and religion. Dudman, instead of pursuing this crucial question, changes the subject to "life in the little hut. . . ."

The book, however, is not without value. The five captors were a microcosm of the enemy in Cambodia—a combined force headed by a North Vietnamese, with a Cambodian errand boy. Michael Morrow's facility in Vietnamese gave Dudman's descriptions an added dimension.

Regrettably, whatever his political views, Dudman had a remarkable op-

portunity to add to our understanding of the nature and conduct of the war in Vietnam, but the opportunity was largely forfeited. The very uniqueness of his experience will make the book required reading for all students of the Vietnam War. The reader's profit from this book, however, will depend on his ability to read between the lines.

—Reviewed by Capt. Richard F. High, a SEA veteran who teaches the History of Unconventional Warfare at the USAF Academy.

Devastation of War and Peace

The Pacific: Then and Now, by Bruce Bahrenburg. G. P. Putnam's Sons, New York, N. Y., 1971. 318 pages with index. \$7.95.

War brought devastation and death to the Pacific islands, but the tragedy and destruction of war are expected and comprehensible. Peace, in the aftermath of war, has brought its own brand of devastation that is less comprehensible and infinitely sadder, perhaps because the expectations that the end of war engenders are so much greater. Bahrenburg captures, with stark clarity, the devastation of both war and peace. His sentimental journey to some of the great battle sites of World War II, including visits to Pearl Harbor, Wake Island, Manila, Bataan, Corregidor, Midway, Guadalcanal, Rabaul, Tarawa, Saipan, Tinian, Guam, Peleliu, Iwo Jima, and Okinawa, among others, brings a new perspective to the contrasts between the war and the peace.

The series of thumbnail sketches outlines the Allied island-hopping strategy, the significance of each site to the progress of the campaign against Japan, and the grisly casualty statistics on both sides of each engagement. The whole adds up to a concise and surprisingly coherent account of the entire Pacific campaign. But this is more than a brief recap of the war. It is also a penetrating look at what has transpired in the intervening years to date.

Two particular aspects of present-day circumstances are sources of special disappointment: the general lack of social progress or improvement in the past twenty-five years and the

virulent anti-Americanism that is spreading through the Pacific basin. In the Philippines, for example, where the average annual income today is less than \$100 and the great mass of the people live in the most abysmal poverty, an American risks his life if he walks around Manila alone or drives through some areas with his car windows open. Ironically, the current generation, the children of the guerrillas who fought side by side with Americans against the Japanese, now look upon us as "the enemy."

Americans are not the only ones on whom the peoples of the Pacific place the blame for all their frustrations. The British, who administer many of the islands, are as adept as Americans at antagonizing natives and thwarting their social and national goals. The fact that we do so inadvertently, not with malice but with the highest motivations, makes it all the more tragic. If there is a lesson to be learned here, it is that no amount of technology, none of the so-called attributes of a modern "civilization," can be superimposed on an unwilling populace in order to drag them into the twentieth century.

The book is extremely well written, and Bahrenburg displays a perceptive and sensitive appreciation for details that reflect the larger realities. And yet, an air of despondency permeates it; the war had to be fought and had to be won, but now, twenty-five years later, there is an unspoken feeling that it was all an exercise in futility that, beyond attaining the objective of winning, nothing of lasting value was accomplished. We won the war, but the peace is defeating us.

—Reviewed by Harry Zubkoff, Deputy Chief, Research and Analysis Division, Office, Secretary of the Air Force.

Soviet Revisionist History

The Memoirs of Marshal Zhukov, by G. K. Zhukov, translated by Novosti (official Soviet press agency). Delacorte Press, New York, N. Y., 1971. 703 pages with maps and index. \$15.

This massive volume is Zhukov's life from youth through World War II. Zhukov became Chief of Staff in 1941 and Deputy Supreme Commander in Chief in 1942. He was

Stalin's Dwight D. Eisenhower and George C. Marshall simultaneously, and probably the greatest general of World War II. His memoirs might have been a valuable addition to the history of the war, but they are not, because of the nature of Soviet historiography.

Soviet historiography is both fascinating and aggravating. Authorized history is at once a cold-war document and an internal political polemic; Zhukov's memoir is both. It is full of interesting and significant omissions, fabrications, and ambivalences.

Zhukov supposedly covers his entire public life through the war, but missing in this 700-page opus is his journey to Germany to study under von Seeckt. For Zhukov to admit going to Berlin would be to acknowledge Russia's secret treaty with Germany to frustrate the Versailles Treaty. The Soviets supplied Germany with airfields, factories, and test centers. Germany repaid in part by training Russians in their advanced staff schools. Russia's material aid in clandestine German rearmament is also omitted, as are Zhukov's fighting in Spain and his advising Chiang as part of the mission to China.

Stalin is not blamed for the military purges in 1937; the purges (called "arrests . . . unnatural" and "alien to our system") fetch only four lines. Zhukov fails to inform us that the arrested were rapidly executed. Stalin is not connected with the arrest of the commanders on the western front in June 1941, although he ordered the arrests and executions (also excluded). Stalin is doubly to blame for the disaster in the early months because he purged permanently the competent generals, and he refused to believe the attack was coming—yet Zhukov exonerates Stalin by omission.

There are other predictable exclusions—predictable, but injurious to the reader trying to learn Russian military history without deep prior knowledge. Trotsky is left out of the Civil War; yet he planned, organized, and commanded the forces that defeated the counterrevolutionaries and foreign interventionists. Chuikov is all but absent from Stalingrad. There would have been no turning point in 1942 if Chuikov had not held out for two months against Germany. Chuikov was a political rival of Zhukov's and chief critic when Khrushchev wanted to cut Zhukov's reputation; therefore, Chuikov gets no credit for holding off von Paulus. Chuikov was commander of the 8th Guards Army, the spearhead that took Berlin, but one would not know that from Zhukov's history.

The most contemptible omission is

Zhukov's nontreatment of the non-aggression pact with Germany. This treaty is indirectly mentioned long after the story has moved past 1939. Zhukov offers, "The Second World War was the outcome of extreme shortsightedness of . . . leaders of Western Imperialist states who connived with . . . Nazi aggression." As culpable as Chamberlain was, the signing of the pact in Moscow on August 23, 1939, unmistakably freed Hitler from his nagging fears of a major two-front war and released the greatest beast of the Cenozoic era on all mankind. Zhukov's treatment of Stalin is no more forthright and full of ambivalence.

"I know from my war experiences that one could safely bring up matters unlikely to please Stalin, argue them out, and firmly carry the point." But elsewhere Zhukov confesses: ". . . should [Stalin] come to the sitting with a ready resolution, there would be no argument at all, or it would die down if he supported one of the parties." The only arguments came when ". . . Stalin himself had not arrived at a definite decision." Comments on Stalin's warmth and judgment are counterbalanced: "He sometimes lost his temper and objectivity failed him . . . he grew pale, a bitter expression came to his eyes. . . . I knew of few daredevils who could hold out against Stalin's anger and parry the blow."

By contrast, Khrushchev, not surprisingly, is treated as a fool. There is no mention of him in which he is not shown giving disastrous and exceedingly costly military advice, or made to be a buffoon—soft, stupid, and unsoldierly. We know he played a major role in battling the Wehrmacht in the South and helped organize the Stalingrad defense. Stalin did not suffer fools in high places with real responsibility. It is not unreasonable to believe that Zhukov's portrait is a false one. Equally erroneous is his treatment of the role played by the Allies.

Out of a deep-seated distrust of the West, dating back to the intervention in the Civil War, comes the constant denigration of the British and American contributions and a misinterpretation of their goals. Zhukov gives equal weight to the Soviet and American strategic bombing—but there was no Russian strategic bombing. He informs us that "toward the end of 1944, the armaments output began to decline sharply [and] Germany was hard pressed." This decline was due to Allied strategic bombing, but we are not told that. To do so would mean the Allies made a contribution to Hitler's defeat.

Zhukov claims there was no American interest in the second front until 1944. He belittles Eisenhower's achievement at Normandy because Rommel had only "a little over one gun per kilometer." Zhukov claims that the British refused to disarm German soldiers in their sector and gave captured German commanders "complete freedom of action."

He writes that Churchill ordered Montgomery to prepare German units to fight the Soviets, and that American bombers were ordered not to bomb certain "big munitions plants" in Germany "owned by American and British monopolies." Zhukov believes there were secret, frequent "negotiations" between Germany and the West to relieve the Nazis. Yet the documents have been captured, and Zhukov cannot produce one that indicates any two-way secret conversation to let Hitler off the unconditional-surrender hook.

This inconsistent, frequently perverse book is of value to those who have a deep enough background in military history to fathom the deliberate falsehoods, and to those Kremlinologists who can fill in the gaps and learn from the tortured prose. It is of little value for the uninitiated.

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

Small Actions, Grand Strategy

The Race for the Rhine Bridges, by Alexander McKee. Stein and Day, New York, N. Y., 1971. 490 pages. \$8.95.

Alexander McKee is a British author who served at the Headquarters of the First Canadian Army during the latter of the three campaigns he details. His episodic writing illustrates well how World War II expanded from squad and company actions to movements of whole divisions against the same objectives—from the German attacks in May 1940 on the bridges in and around Arnhem and Nijmegen, through the unsuccessful and badly conducted Market-Garden operations of September 1944 in the same general area, to the final combined British, Canadian, and American push of March–April 1945.

When McKee is describing the conduct of small unit actions, *à la* S.L.A. Marshall, he is very good, and most of his words are reserved for that. But most of his bitterness and contentiousness are reserved for his *undocumented* charges about the bungling of high command and the tired old allegations that American naïveté and duplicity prevented the clear-



The Air Superiority "Challenge"

"The Challenge" is a nostalgia-tinged motion picture about the men and machines that fought for and won the skies in the past, and the need for American air superiority in the 1970s and beyond.

The evolution of the mission is traced from its beginning to the USAF's newest answer to the air superiority challenge, the F-15.

A number of 16mm prints are available on loan for showing at industrial, civic or other meetings of aviation enthusiasts. Running time is 18 minutes. There is no charge if the film is returned in one week. Send request on organization letterhead. Include date desired for showing, an alternate date, and the name of the organization to which the film will be shown.

Mail request to:
"THE CHALLENGE"

MCDONNELL DOUGLAS
BOX 14526
ST. LOUIS, MISSOURI 63178



In 25 years he'll have more say about your business than you do.

The most crucial investment you can make for tomorrow is the contribution you make today. Write for booklet "How To Aid Education."

Council for Financial Aid to Education,
6 East 45th Street, New York, N.Y. 10017

Airman's Bookshelf

sighted British (especially Field Marshal Montgomery) from advancing east and saving Central Europe from Soviet Russia. He charges the Americans with having lost the peace in the closing days of the war.

Montgomery is his champion, and woe unto those who have thwarted the Field Marshal in the past. McKee rips with the pen where Montgomery refrained from using the sword. On the other hand, he pictures Eisenhower as blowing hot and cold, incapable of making an independent decision. Patton is written off as a vulgar poser and a grandstander; Churchill—as bloody-minded as Patton but without his military intuition.

McKee also spends much useless descriptive effort on the many senseless horrors of modern mass warfare. Perhaps there are still those who need this, but certainly not the serious military historian or the professional soldier bent on learning lessons that will reduce the senseless horrors if there is a next time.

This book will titillate some and provide good antidotal material for others. It also gives one man's highly opinionated discussion of the "broad front" vs. "narrow thrust" controversy, and of how high-level decisions affected men at the fighting level. *The Race for the Rhine Bridges* offers little new knowledge to students of paratroop and special assault operations in WW II, or the opening and closing days of the European war in general.

—Reviewed by Capt. Douglas M. Tocado, a 1962 graduate of the Air Force Academy, now an instructor of military history at the Air Force Academy.

New Books in Brief

The Fall of Eben Emael, by Col. James E. Mrazek, USA (Ret.). The author describes hour by hour the German airborne operation of May 11, 1940, that captured Belgium's supposedly impregnable Fort Eben Emael. The Fort's fall opened the way for German invasion of the Low Countries and was a landmark in development of airborne operations. Robert B. Luce, Inc., Washington, D. C., 1970. 204 pages with bibliography. \$6.95.

Ho, by David Halberstam. A short,

incisive portrait of Ho Chi Minh by a Pulitzer Prize winner who covered Vietnam for the *New York Times*. Ho's contributions to the political philosophy and tactical methods of North Vietnam are examined by a political reporter in this masterful biographical essay. Random House, New York, N. Y., 1971. 118 pages. \$4.95.

The Missile Gap: A Study of the Formulation of Military and Political Policy, by Edgar M. Bottome. Dr. Bottome, who teaches foreign policy at Goddard College, examines the political, military, economic, and informational elements that interacted to create the missile-gap myth of 1959-61. Includes an appendix on comparative US/USSR weapon systems from 1949-66. Fairleigh Dickinson Univ. Press, Cranbury, N. J., 1971. 265 pages with bibliography. \$10.

Pictorial History of the USAF, by David Mondey. This concise history of the Air Force from 1907 to the Apollo-11 mission of July 1969 contains ninety-six pages of text, and 144 pages of excellent photographs from USAF files. The British author gives a somewhat different perspective to this account of Air Force evolution. ARCO Publishing Co., New York, N. Y., 1971. 236 pages. \$6.95.

Space Frontier, by Wernher von Braun. This is a completely revised and updated edition of Dr. von Braun's popular book that now has gone through several revisions. Holt, Rinehart and Winston, New York, N. Y., 1971. 307 pages. \$6.95.

The Twelve Hats of a Company President, by Willard F. Rockwell, Jr. The Board Chairman of North American Rockwell examines the various roles of an industry leader: skipper, pioneer, impresario, student, reporter, coach, crusader, salesman, etc. Many of the problems and techniques discussed by Mr. Rockwell are as relevant to the military as to industry. Prentice-Hall, Englewood Cliffs, N. J., 1971. 244 pages with index. \$8.95.

Three titles in the Georgetown University Center for Strategic and International Studies Special Report Series are available in paperback format. Each covers the deliberations of a panel of experts. The reports are: *The [Persian] Gulf: Implications of British Withdrawal* (February 1969, 110 pages); *New Trends in Kremlin Policy* (August 1970, 168 pages); and *Soviet Sea Power* (June 1969, 134 pages). Center for Strategic and International Studies, Georgetown Univ., Washington, D. C., \$3.95 each. ■

This Book Could Save Your Life . . .

The Safe Driving Handbook is published for AFA's Aerospace Education Foundation. Based primarily on the Air Force's highly successful safe driving program, more than 200,000 copies are in print. Many people have said good things about it. Here is a sampling:



- "More than just another book on safe driving. It covers topics well known to many who work in traffic safety but it does so in a clear, easy-to-read, and practical manner that makes it impressive—regardless of how many other books you have read on the same subject."—From the newsletter of the American Association of Motor Vehicle Administrators.
- "One of the great advantages of this useful reference is that it can be studied with profit by every kind of driver—beginner and veteran alike—and for every kind of driving, from the short trip to the supermarket to the long cross-country journey on the superhighway. It makes a particularly invaluable introduction to the subject for the young person about to get his first driver's license."—Book-of-the-Month Club, which picked **The Safe Driving Handbook** as a "Pro Bono Publico" special selection.
- "It is the finest book that I have ever read on the subject. I hope that it becomes part of every driving course. I learned more from your book than from all the courses I have taken in safe driving."—Mrs. Agnes Beaton, Women's Safety Director, Allstate Foundation.
- "As good a text for average men and women as any I have seen."—Bill Gold, columnist, *The Washington Post*.
- "If a man cares about his car, about passengers who ride in it, and about his own safety, the book is probably the best accident insurance ever bound between two covers."—**The Retired Officer**.

The Safe Driving Handbook is the best dollar's worth you can find. And all royalties go to AFA's Aerospace Education Foundation. For your copy, direct and postpaid from the Air Force Association, fill in the coupon and mail with one dollar today. Please allow three to four weeks for delivery.

8/71

THE SAFE DRIVING HANDBOOK

Air Force Association
1750 Pennsylvania Avenue, N.W.
Washington, D.C. 20006

Please send _____ copies, postpaid, of THE SAFE DRIVING HANDBOOK at \$1 per copy. My check or money order is enclosed.

(PLEASE PRINT)

Name _____

Street _____

City _____

State _____

Zip _____

The determination of whether this nation's technological efforts in the military field are adequate or inadequate presupposes reliable information about the technological base and intensity of R&D efforts of the Soviet Union. On the basis of new measuring techniques, the government now has evidence that shows conclusively that . . .

The USSR Is Headed Toward Technological

IT CAN now be shown "with high confidence" that the Soviet Union's military technology effort is outstripping that of the United States, probably between forty and fifty percent.

Expressed in equivalent US costs, this is a difference of more than \$3 billion annually. To boot, Soviet spending is growing at a yearly rate equivalent to about \$1 billion. This imbalance is being accelerated by the fact that the US chose to curtail its efforts in the field of military technology in 1968, concurrent with the steep, steady increases by the Soviet Union. In 1968, the United States was presumed to be ahead of the USSR in military technology by between two and three years. Now this lead is vanishing at a rate of about one-third of a year per year, which means that by 1975, or

soon thereafter, the Soviets could lead the world in military technology.

In addition, the Soviet space effort, while not increasing in phase with the Soviet military effort, is, nevertheless, about sixty percent (the equivalent of \$2 billion annually) greater than that of the United States. Because of the interplay between space and military technologies, the greater Soviet space effort helps tilt the balance even further in favor of the Soviet Union.

This assessment of the status and trends regarding Soviet and US technology in the fields of defense, nuclear weapons, and space—the three measuring areas—is the product of painstaking, long-term studies involving the broad structure of the US intelligence community.

Dr. John S. Foster, Jr., Director of Defense Research and Engineering, is the third highest official in DoD. A native of New Haven, Conn., he holds a B. S. degree from McGill University and a Ph.D. from the University of California at Berkeley. An AAF technical consultant during WW II, he joined the Lawrence Radiation Laboratory at Berkeley in 1948, specializing in radar countermeasures and nuclear physics. Leaving Lawrence as Director of the Livermore facility, Doctor Foster assumed his present position with the Defense Department on October 1, 1965.



By Edgar Ulsamer

SENIOR EDITOR, AIR FORCE MAGAZINE

Superiority

Dr. John S. Foster, Jr., Director of Defense Research and Engineering and the government's ranking weapons technologist, discussed the significance and nature of these findings in a recent interview with this reporter. The more than \$3 billion by which the USSR outspends the US, he said, "buys an awful lot in terms of military technology and would support about half a dozen new major weapon systems, including their allocable share of the technological base." Because the intelligence community's estimate of the two countries' levels of technological effort suggested such a stupendous difference and because of its crucial impact on the long-term security of the United States, "we felt we needed to run an independent check," to satisfy the Department of Defense and others that the intelligence/economics experts were indeed accurate to within ten to twenty percent, as claimed.

This reexamination was instituted last year at the behest of the defense R&D community. In the main, it hinged on a systematic "calibration" of past, and therefore presumably measurable, developments and trends in the areas of funding, manpower, and facilities on the one hand, and observable hardware and achievements on the other.

Double-Checking Intelligence

The period from 1960 to 1968 was selected because it is recent enough to be relevant to the present yet allows sufficient time for technological progress to have "surfaced" during the intervening three years since 1968. The "inputs" that could be deduced from the Soviet

All Union Science Budget and other economic indicators were correlated with the "outputs," *i.e.*, the technological products of that period. The published Soviet budget provides only indirect clues regarding military and space technology. Nevertheless, US analysts found that over a period of many years the trends with regard to the size of the unexplained portion of the Soviet budget are generally consistent with the observable combined levels of effort in space, nuclear weapons, and military technology.

In addition, intelligence analysts recently found a way to break out Soviet space activities from the unexplained budget portion, Dr. Foster said. This led to the conclusion that, coinciding roughly with the announcement of the US moon-landing program, the Soviet Union began allocating the lion's share of its annual technological growth to the Russian space program while holding the military/nuclear energy technology effort relatively level.

This trend continued until the Soviet space effort peaked at about \$5 billion annually around 1968. In that year the Soviet Union leveled off its space activities and began allocating its annual growth to the military side. The space effort appears to have been kept constant "at the equivalent of about \$5 billion since then," Dr. Foster said.

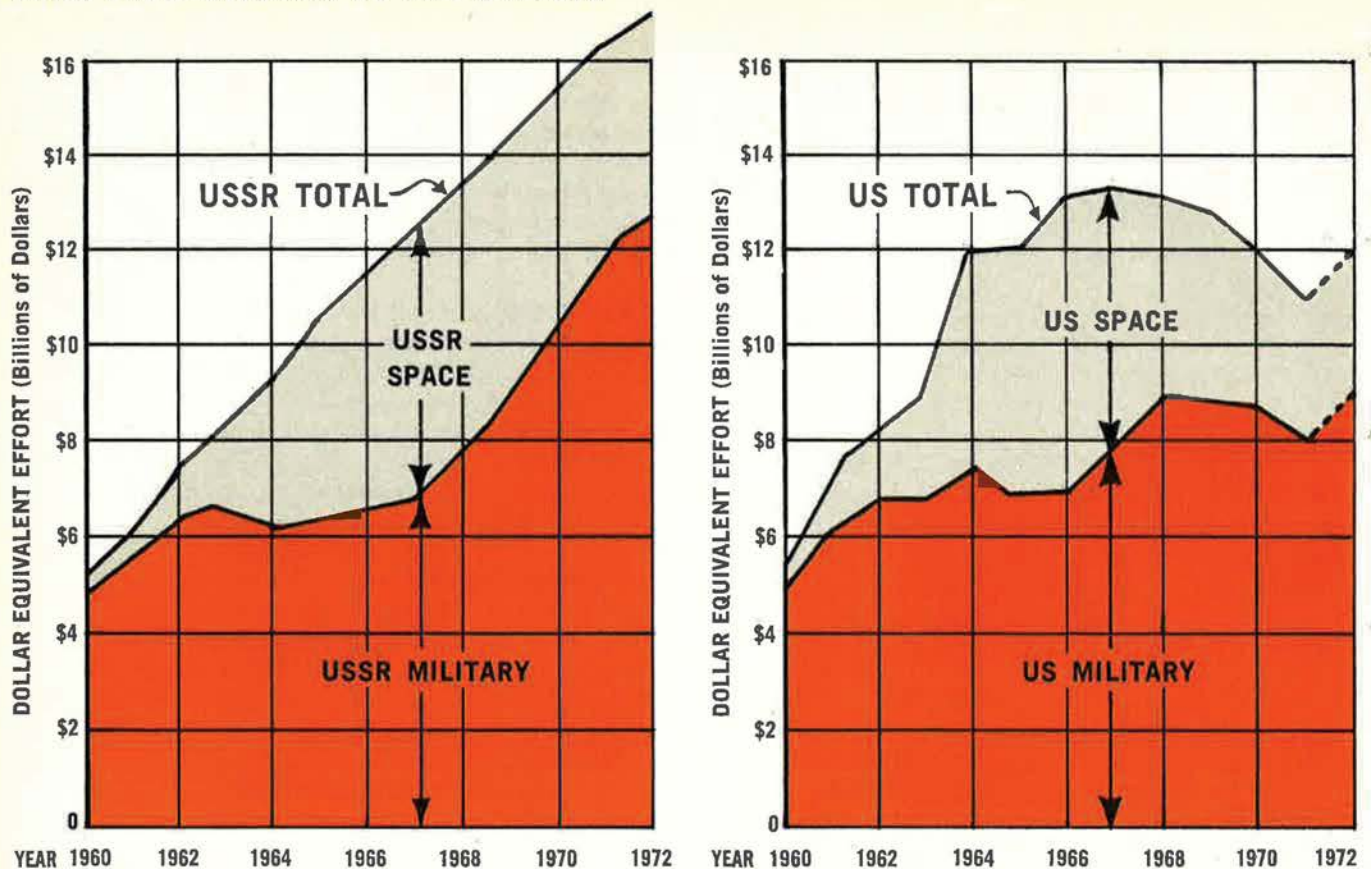
By segregating Soviet space and military activities, intelligence analysts have been able to refine their estimates of the USSR's militarily oriented technology effort. Armed with this knowledge, intelligence analysts designed a comprehensive scheme to double-check and fortify these findings. Dr. Foster described it in detail:

"We asked ourselves, how did the US compare with the Soviet Union technologically in 1960? Were we ahead or behind, and, if so, by how much and in what fields? And we wanted the answers to the same questions with regard to 1964 and 1968. Because we were looking back—in fact were measuring history—we presumably would produce quite factual information. We postulated that, if the economists assert that the overall levels of effort by the two countries were roughly flat and even, then at the end of the eight-year period, things would be in rough equilibrium and there should not be any violent changes in their relative positions.

"What we wanted to know was which country was ahead in equivalent effort and, if possible, in what areas. So we examined the areas of intelligence, strategic weapons, tactical weapons, and civil space activity. We examined more than 100 individual programs in order to achieve a meaningful average."

The analysts covered a number of programs in each area in order to establish differences in objectives that must be taken into account in order to "obtain valid state-of-the-art readings,"

HOW US SPENDING IN TECHNOLOGICAL EFFORTS COMPARES WITH EXPENDITURES BY THE SOVIETS



Comparison of US and USSR technological efforts in the nonconsumer fields are broken down into military and space fields and are expressed in dollar equivalent terms. Chart at left shows Soviet lead beginning in 1968 in military as well as space programs and, of course, in the combined total. Comparable US figures are on the right. Military effort includes nuclear weapons program.

Dr. Foster said. In the case of aircraft engines, for example, US designers appear to place greater emphasis on thrust-to-weight and fuel economy while their Soviet counterparts seemingly stress minimizing maintenance and maximizing total thrust. Similar slight differences in objectives were recognized in other technological areas.

Soviet Momentum Verified

By plotting and comparing the respective standings of the two countries at the three measuring points—and in many areas—and by taking into account all intelligence data, Dr. Foster said, it was possible to reach some basic conclusions that, while not startling, could not previously be drawn with any degree of certainty. The study ascertained that whenever one country pulled ahead of the other in any given area, it did so because it had increased its level of effort by a ratio roughly equal to the ratio by which it gained over the other.

Dr. Foster cited ICBM technology as an example. The US and the Soviet Union were approximately even in 1960. But by 1968, the US had moved ahead somewhat in missile

technology simply because it tried harder. Similarly, a greater effort propelled the US from second best in space in 1960 to a three-year lead over the Soviet Union by 1968.

Across the board, Dr. Foster said, the United States was found to have been between two and three years ahead of the Soviet Union in military technology in 1960 and held that lead throughout the eight-year period studied. The pivotal conclusion from this intelligence study—and the one considered paramount for reliable future intelligence assessments—was “our firm belief that in 1968 the effective level of technological efforts in the defense field by the two countries was about equal [within a plus or minus ten to twenty percent range],” Dr. Foster emphasized, adding, “We have this high confidence because we ‘averaged’ over such a long period.”

The Decline of US Technology

By dint of the carefully plotted technological positions and capabilities of the two countries as of 1968, it is now possible to measure more precisely the present level of activities in the Soviet Union, relate them more meaningfully

to our own effort, and project more accurately the future trends, Dr. Foster believes. There is, of course, absolute certainty that the United States in the three years since 1968 has reduced its technological efforts in the defense and space sector by about \$3 billion—DoD's R&D dropped by about \$1 billion and NASA's cut has been almost \$2 billion in 1968 dollars.

So far as the Soviet Union is concerned, its budgets and announced plans during the past three years indicate R&D growth.

"On the basis of what we see and don't see happening, the intelligence community's analysts and economists find evidence that this growth is in military technology. The reason is that their civilian R&D effort is so small that an extra \$1 billion a year allocated for three years would be very much in evidence by now.

"It is only in the military sector that they can absorb an increase of this size. Unfortunately, it will be another year or two before the Soviet programs started during the past three years will begin to reach a point where we can observe and analyze them. Perhaps the new missile silos that Secretary [of Defense Melvin R.] Laird recently brought to the attention of the public are the first in a series of technological advances that will result from the major growth in military R&D that is currently under way in the Soviet Union. If these trends continue, the Soviet Union could gain superiority over the United States in military technology in the mid-1970s," Dr. Foster said.

Soviets Lead in Raw Power

Regarding weapon systems in being, he said, the best estimates indicated that, "while the balance is shifting steadily, there still is rough parity. The Soviets lead in the number of strategic missiles, in payload, and in megatonnage. In short, they are ahead in raw power. The US has fielded technically superior equipment. This makes it difficult to determine the exact balance."

The combination of a Soviet military R&D effort substantially greater than that of the US superimposed on this rough parity and "the high momentum of their weapons deployment, in the judgment of the Department of Defense, will create an unacceptable imbalance in power if present trends were permitted to continue. In the second half of this decade, the Soviet Union would not only have technical superiority in a general military sense but would have accumulated leads that could not be overcome or would be so costly to overcome in a short

period that we might face some dangerous years," Dr. Foster predicted.

Manpower vs. Hardware

The dilemma of the Department of Defense stemming from this convergence of trends is made acute, Dr. Foster said, "because, obviously, we can't go to the Congress and say, 'Let's match the Soviet effort.' Also, the President, in reordering national priorities, has decided to hold the Defense budget to about seven percent of the gross national product [GNP]," compared to about ten percent in previous years. As a result, Dr. Foster stressed, "we won't have any major increases in the immediate future."

Because of inflation, a corresponding reduction in the size of the forces is automatically deemed necessary. But Secretary Laird and other DoD leaders faced another tough decision: "Should we modernize at the cost of manpower? [The decision was] that we could not afford to have a technically and qualitatively inferior force, even if that meant further manpower reductions. With this in mind, we have requested a twelve percent R&D increase in the next budget year in spite of the fact that we are cutting back in other areas," Dr. Foster said.

The justification for this increase "is based not on the fact that the Soviet level of effort exceeds ours but on the merit of the individual programs. Some ninety percent of them were authorized by the Congress last year. The current funding rate of some is to be decreased, and others increased, with the increases exceeding the decreases by about \$400 million. There is also provision for new 'initiatives' at a cost of about \$300 million.

"These are programs," he said, "that either substantially increase the rate with which we go after a solution to a military problem, or represent the initiation of completely new solutions to problems that have worried us for some time."

Triad Reduces Vulnerability

A key factor in preventing technological surprise from expanding into a lasting, decisive vulnerability of the US deterrence capability is, Dr. Foster believes, the triad of land-based and sea-based missiles and manned bombers. "Our deterrence capability rests on weapon systems based on technologies that can never be precisely evaluated short of actual combat. From time to time, we discover, or the enemy can discover, weaknesses in one or the other.

The text of the article continues on page 34.

How Our New R&D Policy Relies on the Extensive Use of Prototypes

To be able to cope with the momentum of the Soviet effort as well as to be able to carry out the needed modernization of the US inventory, Dr. Foster believes that one issue of overriding importance must be resolved:

"It is the level of competence which the public and the Congress attach to our management of weapons development during this period of reduced and reluctant funding of defense programs."

This is one reason why the Department of Defense and the services are extending and refining the milestone approach to R&D. It was formulated about two years ago and first used on the Air Force's F-15 air-superiority fighter program.

The new approach hinges on hardware experimentation and additional prototyping. "Prototyping is going to be a major thing, now and in the foreseeable future. It is the way industry will tend to go in working with the services; it is the way the services will go to receive DoD approval; and it is the way DoD will go to receive congressional approval. There is consensus up and down the line that this is the right thing to do," according to Dr. Foster. The emerging policies represent an amalgam of management lessons learned, here and abroad, over the past twenty years.

In a way, milestones and prototypes represent common sense. A key function of the new approach is to advance the state of the art steadily, continuously, and at low cost, while permitting the United States to retain first-class design teams that otherwise might have to be disbanded. This reformation of the R&D processes encompasses all the services and DoD, and "is being joined enthusiastically by NASA."

Inherent in the new approach is "a return to some of the practices of the 1950s, as opposed to the policies of the 1960s. In the 1950s we used a heavily empirical approach to weapon systems acquisition. In the 1960s we tried to reduce costs by more analytical 'paper studies,' an approach that was, and continues to be, useful. But we seem to have overdone it—we aren't smart enough to understand all the technical and cost possibilities ahead of time, and that increases costs. So we are 'adding back' prototypes," Dr. Foster explained. At the nub of this is prototyping and "progress that can be demonstrated by hardware at as many milestones as is reasonable," he said, adding, "We must reemphasize prototype development and test before we make major program commitments. We must fabricate and test experimental prototypes as early as possible to assure that we have an adequate base of demonstrated technology and an adequate number of alternate approaches based upon some experience with hardware.

"But at the same time the decision to go the prototype route is made," he said, "the government must establish very precisely what the prototype is needed for and guard against its becoming a mere buzz word. We must take the time to describe not only what specific advance is expected but how we will go about measuring whether or not the expected progress was indeed attained. And the government needs to communicate these criteria not only to its own people but to the contractor as well."

The reorientation toward more prototyping was catalyzed when the Department of Defense recently began to examine US entries in the European air-superiority fighter contest (including Lockheed's CL-1200/X-27, LTV's V-1000, Northrop's P-530, and others) with an eye toward their use as long-term experimental prototypes to advance the state of the art in fighter aircraft design.

In a practical sense, the milestone and prototyping policy, which is likely to be applied in all major defense

technology areas, falls into three categories, according to Dr. Foster:

- **Experimental prototypes** can be used to explore promising theories or laboratory findings, or to bridge the gap between theory and application in cases where the technology is "too green" for direct application or meaningful cost estimates. Examples include high-energy laser systems and the so-called supercritical wing that extends the limits of the subsonic flight regime.

- **Developmental prototypes** can be used when the government lacks either the confidence or the urgency to enter a system into full-scale development. The purpose may be to gain information concerning cost or schedule tradeoffs, to reduce deployment lead times without actually deploying, or to reduce technological or manufacturing uncertainties. Examples include the B-1 bomber program, the AWACS radar, and F-15 avionics.

- **Production prototypes** can be used when high-rate, volume production is planned to prove the system, tools, and production methods. This has been the most common form of prototyping and, among the three categories, the one that resembles most the eventual production system in terms of dimension, performance, and features.

Single-Source or Competitive Approaches?

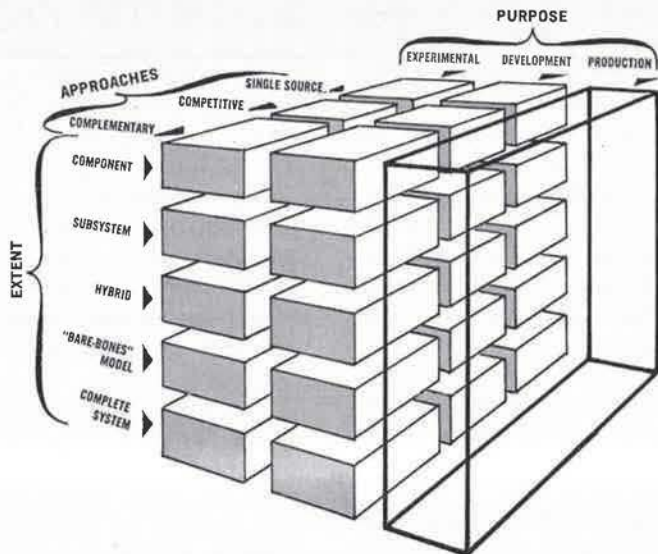
To advance the state of the art at a maximum rate and minimum cost, in DoD's view, "the government should structure several programs in each of the key areas of defense technology in order to provide [industry and government laboratories] the opportunity to pursue promising approaches on a rather continuous basis. This means, for instance, that we should put several million dollars each year into the ECM field with the expectation that every year, or two, a contractor will come forth with an advancement in the art of ECM, demonstrated on a working model," Dr. Foster explained.

"The way we expect to assure excellence in this process is through competition—by having perhaps two or three contractors working on a given problem area. At this time we don't know what constitutes the optimum number of competitors. This has to be adjusted as we gain experience over a period of time. If a contractor does not perform, obviously we will consider terminating him; conversely, if his performance is good, we will be more willing to have him continue. Since this work generally will be performed on a cost-plus basis, it will not constitute a windfall to any contractors, and we have made this clear to industry leaders at a recent meeting of the IAC [DoD's Industrial Advisory Council]," DoD's research chief said.

While no decisions have been reached, there is the apparent intent on the part of the government to pare down the number of individual companies that need to maintain a continuous research effort in a given technology area. In order to get maximum mileage out of the government-funded programs and to create additional incentives for the participating industry, Dr. Foster suggests that there be an interfacing of "similar skills, such as a company's work on commercial aircraft engines or airframe design," which are transferable between civilian and military applications.

While the new policy could be seen as more of a nationalized or arsenal-type R&D approach, it is meant to retain a basic free-enterprise character by providing for competition in most instances. This will not preclude single-source programs, however, involving either only one in-house laboratory or one outside contractor. This method is to be used, Dr. Foster explained, when it provides lower cost; when there is clear superiority of a chosen system

THE PROTOTYPE MATRIX



Dr. Foster's graphic depiction of the three categorical questions regarding prototypes points out the wide range of options in terms of purpose, approach, and extent. DoD policy regarding prototyping is to be flexible and individualized to meet specific technological needs.

alternative; when only one contractor has a given capability; or when the production investment is low, the development costs high, and the risk marginal.

Competitive prototype development involving the same technology by two or more developers could be advisable, according to Dr. Foster, when production potential exceeds development costs by a significant factor, in the order of ten percent vs. ninety percent; when the system represents a crucial national need; or when a second production source is required.

Yet a third alternative could be utilized when basically different technologies that can satisfy the same need are involved. This might be invoked when no single technology shows up as superior or when the preferred alternative is highly risky and therefore requires a backup design. This approach is already in effect, Dr. Foster pointed out, on the Harrier/Cheyenne/A-X developments, as well as the F-14/F-15 effort.

The Extent of Prototyping

To use prototypes in an economical fashion, there is to be judicious evaluation of the extent to which it is necessary. That means greater emphasis on development of new components or new subsystems for existing systems, or changing systems through systematic alteration, akin to the way the French aerospace company, Dassault, evolved an entire family of combat aircraft from one basic design (see August '70 AIR FORCE, p. 32). This could range from such items as inertial instrumentation to a new avionics package, and to such metamorphoses as the changeover from the A-11 testbed to the YF-12. (Dr. Foster rated as one of the currently most pressing component developments the need for an improved fire-control system for air-to-air combat, which "if deployed on an F-4 would lead to a mission improvement comparable under certain conditions to the step-up from that aircraft to the F-14 or F-15. Advances of this kind are less glamorous but more cost-effective and therefore must be pursued vigorously.")

In the hierarchy of prototypes, one other choice can be made—between "bare-bone models," which contain only a minimum of the essential elements and are typified by the Air Force's AWACS development, and complete systems, Dr. Foster stressed.

Potential Prototyping Fields

Principal areas of weapons technology that are being viewed as promising candidates for continuous prototype programs, Dr. Foster told AIR FORCE Magazine, include:

- Aircraft—fighters, V/STOL aircraft, and hypersonic vehicles.
- Remotely Piloted Vehicles (RPVs)—recon drones and defense suppression weapons.
- Missiles—tactical submarine-launched and antiship missiles.

Other separate areas rated as candidates for sustained programs include electronic countermeasures and high-energy laser systems aboard airborne testbeds. In the component and subsystem area, aircraft engines, missile propulsion, tactical-missile warheads, and night sights for small arms are candidates.

No price tag has been placed on efforts of this kind as yet, but several hundred million dollars annually, including about \$100 million for fighters and \$50 million for avionics, might be considered likely. Dr. Foster pointed out that the present funding level for advanced developments approaches this financial level. The three services are currently reviewing their R&D programs in order to select candidates for prototype efforts and new "initiatives."

Linked with the return to a prototype-oriented R&D philosophy, Dr. Foster said, are new management techniques, including the creation of a DoD-wide Weapon Systems Management School at Fort Belvoir, Va. In the future, Program Directors and other key SPO personnel will be selected from graduates of the Fort Belvoir school, Dr. Foster said. General management thrust will continue to deemphasize contractual commitment and focus instead on tradeoffs "throughout the life of the program. In the past, tradeoffs were considered only during the definition phase. The policy now is to permit and encourage tradeoffs in the hardware phase. It is then that our actual experience permits their use in a far more prudent and practical way.

"This concept includes cost increase situations. In such cases, we don't just want to hear from the program director that the price has gone up by X number of dollars but expect him to state some options, based on tradeoffs, that will enable us to keep the costs in line." ■

This is why we have redundancy in the form of three approaches that are complementary rather than supplementary. Each is necessary because all are different. We don't fly bombers, for instance, because we like to fly. Rather, we do so because bombers have different basing modes, they penetrate differently, and they must be defended against differently. By contrast, ICBMs and SLBMs have certain common penetration characteristics that can be exploited by the defender. However, while the Minuteman trajectories are rather fixed, having to come from the north, Polaris can come from many different directions."

In terms of basing modes, he said, "Minuteman is based on our own soil where we have control over it. Polaris is based at sea where, hopefully, it is hidden. At the same time, we can't be there to watch it."

Dr. Foster elaborated on his recent statement that the Soviets might well invest in major R&D to try to make the "sea trans-

parent": "Nobody can provide the technical assurance that in the next ten years it will not be possible to find Polaris submarines. It appears to us that the Soviets have made a rather major effort in deploying the SS-9s so as to have the capability to attack Minuteman. This effort is in the vicinity of between \$10 and \$15 billion.

"In attempting to go after submarines, it is certainly not inconceivable that a similar expenditure could produce similar results. For some reason, people who discuss ASW [anti-submarine warfare] think in terms of \$1 to \$2 billion as being an appropriate level for such a purpose."

Few allow for the possibility that the Soviets might "be willing to spend between \$10 and \$20 billion, which might well provide them with an ASW breakthrough. However, it is just because of this possibility that the US Navy is making aggressive efforts to maintain the invulnerability of our underwater-launched missile systems," Dr. Foster stressed.

The B-1's Role

Regarding the Air Force's B-1 strategic bombers, Dr. Foster said: "For about fifty years, bombers have proved to be valuable weapons to fight wars or deter wars. We know of no technology that could change this, now or in the foreseeable future." Development of the B-1 is warranted because of the age of the B-52 force and because of an array of other advantages inherent in the B-1 design, Dr. Foster said. "Also, there are problems with regard to the basing of the B-52s, their relatively slow reaction time, and their slow penetration speed." To some extent, he said, the B-52 can be improved in terms of reaction speed, and "this will be done by the Air Force as it becomes necessary. The Air Force is already correcting the basing deficiencies by moving further inland to protect the aircraft against the possibility of Soviet sea-launched ballistic missiles with depressed trajectories. But there is no way by which the B-52s can be made to penetrate to targets at high speed, which provides a several-fold advantage. There are, of course, many other advantages that accrue to the B-1, including reduced [radar] cross-section and improved ECM capability." (See June issue of AIR FORCE, p. 31.)

The 647 Warning System

US deterrence with regard to all three members of the triad is dependent on warning. A highly classified satellite system employing sophisticated sensors and computers and known only as the 647 Advanced Warning System is currently under development. It is said to be capable of providing detailed warning information about Soviet missile shots about one

F-14 and F-15 Air Battle Approaches

In his interview with AIR FORCE Magazine, Dr. Foster stressed that the intent to build experimental prototypes of future fighter aircraft did not aim at replacing, in part or in toto, either the F-15 or F-14 aircraft currently under development by the Air Force and the US Navy.

"Prototypes should not be looked upon as viable solutions of our near-term needs. At best, they could serve as backups in case catastrophic difficulties were to develop in either the F-14 or F-15 programs, something that we don't expect," Dr. Foster said. He added that the US, "a country that has such a high stake in the air-superiority capability, is indeed fortunate that two major and different approaches to the air-superiority mission are being covered by these two programs."

While both the Navy and the Air Force, in designing their respective fighters, "have backed off from the highest attainable technologies—at least so far as speed and altitude are concerned, and have chosen not to go into the Mach 3 regime, which would require a very costly titanium design—they have picked aircraft with capabilities that cover the two principal approaches to future air combat.

"If fighters with longer range acquisition and increased firepower will dominate future air battles, then we might be better off with the F-14, which carries a long-range acquisition radar and the Phoenix missile system. On the other hand, if the rules of combat, enemy identification, and the nature of engagements are such that the battle that is being fought is really a dogfight, then, obviously, the F-15 is the best approach." Dr. Foster concluded.

minute after their launch. Dr. Foster declined to discuss specifics but termed the 647 system "a very significant advance that appears to be meeting the specifications we have set for it."

He said the system is not yet fully deployed, adding that when it is, "it can give the President the option to make decisions much earlier than otherwise possible. Advanced warning is terribly important. It gives him the opportunity to contact the other side during the fifteen to thirty minutes before impact, which would be vital if misunderstandings or mistakes are involved."

Soviet capabilities in the field of advanced warning are "not fully known to us, although they are working hard in this area," he said. Dr. Foster added that the Soviets have demonstrated some capability to intercept satellites. The United States does not have "this capability, although we could develop it if we wanted to."

Dr. Foster rejected the suggestion that the 647 system would enhance the survivability of the Minuteman force. "I do not believe that we should rest the Minuteman deterrence capability on the requirement that if it is to be used, it must be fired before it is attacked. Warning is simply no substitute for survivability."

Dr. Foster also expressed opposition to efforts to develop recallable warheads as an extension of ICBMs, as proposed by some military planners. "In my opinion, recallable warheads don't make sense and provide no particular advantage. It is, of course, possible to launch rockets on warning and to have these rockets place warheads in orbit. But once they are in orbit, they are on a given trajectory, and it takes enormous amounts of energy to bring them back to earth on the right trajectory to hit a specific target. The other alternative is to wait for a week or so until they come to the right point, and then deboost them to bring them down. Because it takes a large amount of energy to maneuver them and to deboost them, the payload of such a system is reduced by a factor of three to ten. Also, they have trouble in regard to timing. In addition, I don't believe that, on the long term, the survivability of a warhead in space is any greater than it is on the ground."

ICBM Hardsite Survivability

Dr. Foster pointed out that increased survivability of the land-based ICBMs is being achieved through the development of the US Army's prototype Hardsite Missile Defense System, for which an allocation of \$65 million is being requested from the Congress. He described the interaction between the Safeguard and Hardsite systems:

"We remain convinced that the way to de-

fend Minuteman ICBMs is, first, through a high-altitude, long-range capability to knock out the incoming 'swarms' with as big a [warhead] yield as we can put on a reasonably sized missile. The Spartan missile, with its several-megaton warhead, does just that. Spartan is coupled with long-range acquisition radar and local-site radar. The latter directs the interceptor to the incoming missiles.

"In addition, we require a high-performance, short-range missile, with a few-kiloton warhead, to function in the lower atmosphere where the bulk filtering [sorting out of decoys from actual warheads] takes place. We obtain this capability with Sprint.

"If we want to provide further defensive capability against larger numbers and greater sophistication of attacking missiles, we can go to larger numbers of Sprints, as opposed to Spartans. The first step in this direction would be to add more missile-site radars, along with additional numbers of Sprint interceptors. Further intensification of the threat could be met with further increases of this type. By contrast, if a steep increase in the threat were anticipated from the outset, a different approach would be more practical. It would consist of a cheaper, less-sophisticated, missile-site radar, simpler computers, and perhaps a less-expensive version of Sprint. We call this package the Hardsite system, and the Army has already started prototype development. Further funding of this effort is being requested from the Congress. In essence, the Hardsite system components are cheaper versions of the Sprint system components optimized for deployment in large numbers. Our present prototype effort consists of setting up a module of the key elements, hooking them up, and testing them."

Dr. Foster said the system will use conventional guidance rather than a homing device, as initially recommended by an Air Force study.

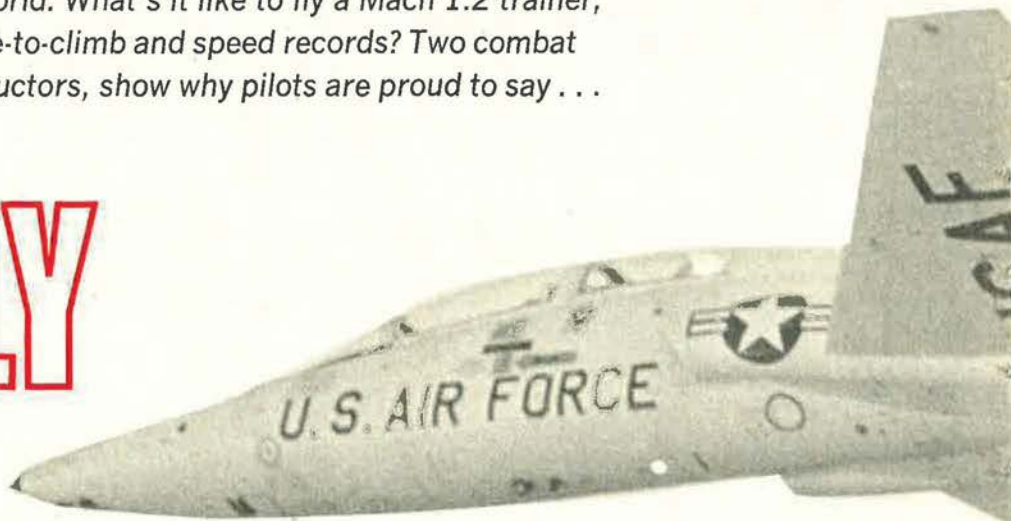
Regarding the effect of Soviet defensive systems on the credibility of US nuclear deterrence, Dr. Foster named as "a most worrisome threat the possibility that they might find a way to design weapon systems that could be used effectively for missile as well as air defense. In such an eventuality, the Soviets could have thousands upon thousands of interceptors deployable against our ballistic systems. For this reason, it is vital that we continue the ABRES [Advanced Ballistic Re-entry System, operated for all services by the Air Force], which could provide us with the means to negate such a potential Soviet technological breakthrough."

With increasing proof of the Soviet Union's accelerating technological momentum in hand, the time would seem propitious for this country to undertake adequate "technological countermeasures" to prevent a condition of "unacceptable imbalance of power" from developing. ■

The Talon—'One of the Best Airplanes in the World'

Ten years and more than three million flying hours after it entered service as USAF's supersonic trainer, the T-38—still unchanged in basic configuration—remains one of the most beautiful and efficient aircraft in the world. What's it like to fly a Mach 1.2 trainer, a long-time holder of time-to-climb and speed records? Two combat veterans, both T-38 instructors, show why pilots are proud to say . . .

I FLY



THE T-38

HACK the clock, take your feet off the brakes, and smoothly shove the twin throttles two inches forward. Feel the burners light and the immediate thrust on your spine, like someone put a foot in your back and pushed. The mind and body tingle as your nerve endings relay the sense of acceleration. You check the nozzles. Both burners are normal. A quick glance at the instruments confirms what you already know . . . the engines are good.

Twelve seconds after brake release, passing the first thousand-foot marker, the airspeed indicator sweeps past ninety knots . . . acceleration is normal. Seventeen seconds from brake release, 110 knots . . . Critical Engine Failure Speed. If one engine quits now, takeoff can be continued on the remaining engine with more safety than an attempted abort.

The airspeed indicator moves

faster . . . 125 knots . . . move the stick aft . . . it takes a conscious effort to get the nose up eight degrees to the takeoff attitude. You're off! All of this took only twenty-five seconds and 2,100 feet!

Smoothly, the familiar environment in which you were born and raised glides away beneath you. Move the gear and flaps lever up. Feel the bump as the gear stows and the doors close. The end of the runway is far below you . . . 0.9 Mach indicated. Rotate the nose to twenty-five degrees and quickly disconnect the Zero-Delay Lanyard from your parachute, check oxygen, pressurization, defog, and temperature systems, and reset the altimeter. Some things never change . . . they just happen faster.

At 0.9 Mach and twenty-five degrees of pitch attitude, you keep from exceeding the speed of sound while climbing. The vertical velocity

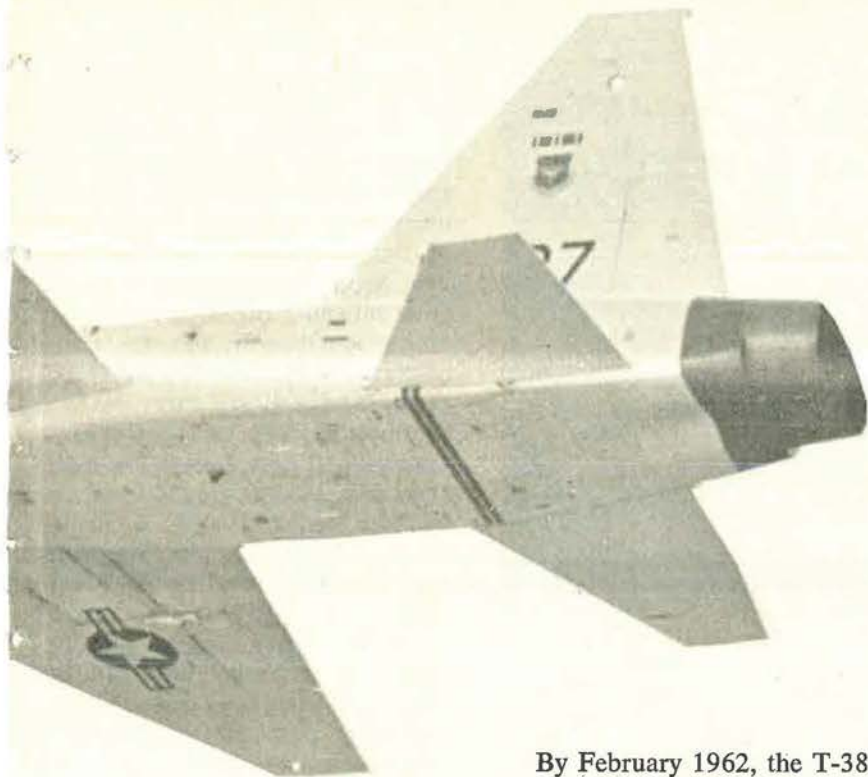
indicator pegs and you feel you're on the way to the moon.

Four minutes from brake release, at 45,000 feet, you slowly ease the nose over and glide through the Mach. The airspeed indicator and altimeter are the only indications of speed faster than sound. The altimeter shows a momentary 500-foot drop as the static ports sense the pressure change caused by exceeding the speed of sound. At this altitude, there is no sensation other than that of being suspended in the air. This far above the ground, movement over the surface of the earth is difficult to distinguish.

First Supersonic Trainer

This is not a heavily armed tactical fighter aircraft on a critical weapons delivery mission. It's an everyday occurrence at any of ten Undergraduate Pilot Training bases in the southeast and southwest United States where Air Training Command conducts its pilot training programs.

By Capt. David R. (Rich) Croft, USAF
with
Capt. Robert W. Wickman, USAF



The airplane is the Northrop T-38A Talon basic trainer, a sleek, white, sweptwing aircraft designed for one purpose: to train the best pilots in the world for the United States Air Force and allied nations.

In 1953, the Air Force saw a need for a trainer with performance characteristics more closely corresponding to those of its first-line tactical aircraft. At the time, UPT training was completed in the Lockheed T-33. The venerable old T-Bird flew and handled much differently from current and projected aircraft that pilots would transition to immediately after graduation. USAF believed the jump was too great and the time required too long. It needed an aircraft designed to improve the quality of training and at the same time reduce transition time.

Northrop received the contract for the T-38A in 1956. The research and development phase set a precedent in the field of flying safety; the entire program was conducted without a single flight accident.

By February 1962, the T-38 had set four world's records for time to climb . . . records previously held by an F-104A, then a first-line interceptor. The records were: 3,000 meters (9,843 feet)—35.624 seconds; 6,000 meters (19,686 feet)—51.429 seconds; 9,000 meters (29,529 feet)—64.760 seconds; 12,000 meters (39,372 feet)—95.740 seconds. These records have since been broken by the McDonnell Douglas F-4 Phantom, but are to this day impressive figures for an aircraft designed as a trainer.

March 17, 1961, saw delivery of the first T-38 to Air Training Command, at Randolph AFB, Tex. USAF now had the world's first supersonic trainer with all the characteristics of first-line fighters: swept wings, high-speed and high-altitude capability, high approach and landing speeds, high sink rates, high degree of maneuverability. The question now was whether a student pilot with 120* hours of flying

* Today's student receives sixteen hours of T-41 training, eighty-two hours in the T-37, and 105 hours in the T-38, at least twenty of which must be solo. Programs are under development to further decrease the time/cost of training without reducing effectiveness.

time in the subsonic T-37 could safely adapt to an aircraft like the T-38.

It was proved at Randolph that a student pilot could be taught to fly the Talon safely in a reasonable amount of time—that the T-38 was indeed a valuable training aircraft. The rest is history. March 1971 marked the tenth anniversary of the T-38 in ATC. More than 20,000 USAF, ANG, Marine, and allied students have graduated from the T-38, completing more than 3.3 million flying hours. ATC now has approximately 1,000 T-38 aircraft in its inventory.

New Dimensions in Training

The biggest problem I face as an instructor pilot in the T-38 is probably the same one evident on the first day of aviation instruction—conditioning a student pilot to think fast enough to keep up with the aircraft. This is still the most valuable lesson any pilot can learn. Things happen fast—so fast I must teach my students to think about what is



The T-38 first entered service as a trainer at Randolph AFB, Tex., on March 17, 1961. Since then, some 20,000 pilots have been trained in Talons.

going to happen next, or even five minutes from now. If they concentrate solely on what they are doing now, they're going to fall behind—fast! The student must learn to anticipate, to know what is going to happen next, before it happens.

The T-38 has added some aspects to the training program that couldn't be achieved in the T-Bird. Most of the training in the T-33 was conducted below 20,000 feet. Because of the T-38's inherent altitude capability, it is most important for the student to be completely knowledgeable in the physiological aspects of high-altitude flight. The time of useful consciousness at 40,000 feet, a regularly flown altitude, without oxygen, is a bare few seconds. The student must learn that his survival depends on instant recognition of malfunctions in the cockpit pressurization and oxygen systems. The very first flight calls attention to these two items.

With the advent of the T-38 program, UPT training has gone to near-total radar control of all but pattern flying. This is absolutely necessary to ensure aircraft separation to as large a degree as is hu-

manly possible. But an additional spin-off is the student's increased exposure to the IFR (Instrument Flight Rules) environment. We graduate a better instrument pilot today. And we're an all-weather Air Force.

Since the T-38 was designed from the ground up as a trainer, it has a very important advantage—the rear cockpit is elevated, providing

increased visibility for the rear-seat occupant, normally the instructor. There are times when I wished it had been built even higher, but it is certainly an improvement over other aircraft—for instance, the T-Bird, a trainer version of the Lockheed F-80 fighter.

The Talon was built for fast and efficient servicing and maintenance. Our aircraft fly an average of four sorties each per day. We can't afford much down time, considering most of our flying is done during the daylight hours. For example, its single-point refueling system cuts refueling time to less than five minutes. If one of the bird's systems goes out (UHF radio, TACAN, IFF/SIF, etc.), it can most likely be back in service in minutes. All components are easily accessible, most at ground level, and can be replaced with a simple "black-box" replacement. The faulty item is then repaired on the bench.

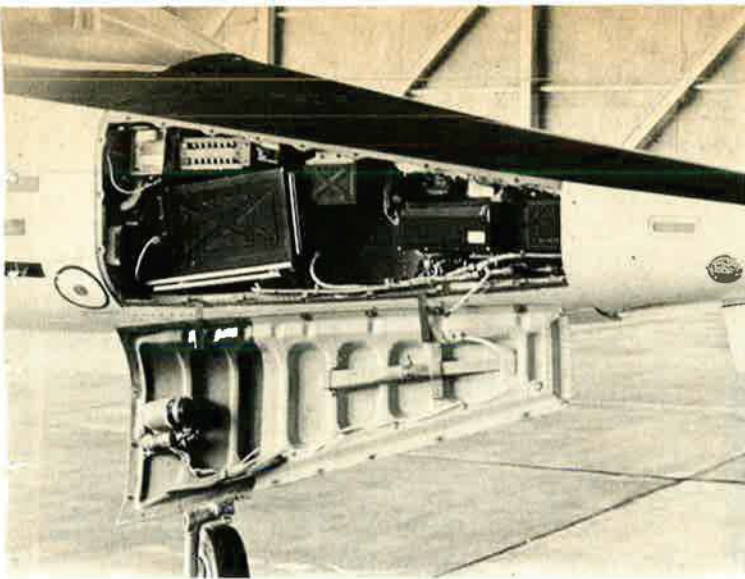
An entire engine can be replaced within thirty minutes, not only because of its accessibility, but because the accessory-drive box is separately mounted and does not require removal with the engine. All this adds up to an exceptionally reliable but sophisticated airframe with excellent sortie usefulness.

Swift But Safe

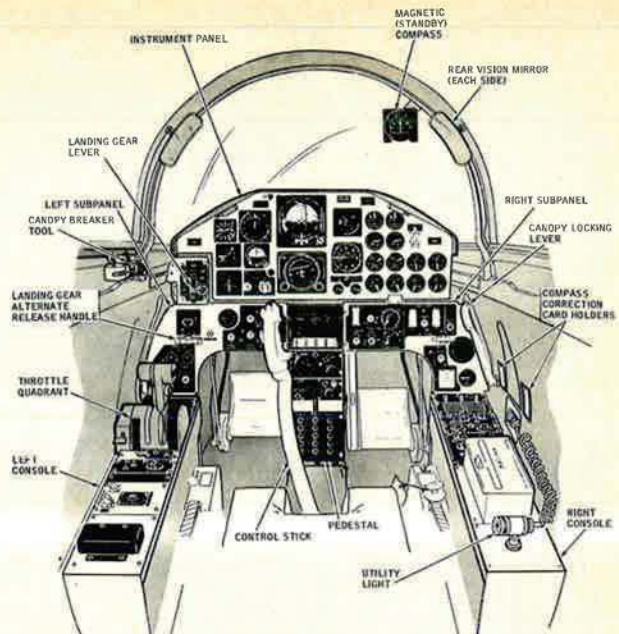
An important aspect to me, as a pilot: Is the aircraft safe to fly? Since 1966, the T-38 accident rate has averaged 2.6 accidents per 100,000 hours flying time, as compared to the USAF average of 4.9.

Fast maintenance is one of the T-38's strong points. One of the Talon's General Electric J85 engines, weighing only 575 pounds, can be replaced in thirty minutes.





Ease of maintenance is a major factor contributing to the T-38's utilization rate of forty-five hours per month. Most components can be reached from the ground.



A typical T-38 cockpit arrangement—everything where it should be, reducing the danger of spatial disorientation.

Part of this can undoubtedly be attributed to the fact that the majority of flying is done during daylight and in decent weather. However, ATC is among the leaders in total hours flown, and no other command has young students flying their aircraft solo. I believe the safety record of the T-38 is due to the inherent reliability and honesty of the aircraft, and, of course, to ATC's requirements for strict compliance with stringent regulations.

Probably the biggest safety factor built into the T-38 is its two-engine design. Single-engine performance in the T-38 is excellent, even on a hot day. It's no problem whatever to land the bird on one engine.

The cockpit and instrument displays are other outstanding aspects of the aircraft. The massive attitude indicator dominates the clean, uncluttered panel, nearly identical in both cockpits. Directly below the Attitude-Director Indicator (ADI) is the HSI, or Horizontal Situation Indicator. This massive instrument displays at a glance all needed heading-bearing-course-distance information. These and other components make up the Flight Director System, a fantastic advancement over former days, and, no doubt, contribute to the safety and instructional quality of the bird.

Just to the left of the ADI is the

T-38—Biography of a Beautiful Bird

Historical Highlights:

Preliminary design study	June 1955
Prototype authorization	December 1956
Rollout of the first YT-38	August 1958
First flight of the YT-38	April 1959
First T-38 delivered to the Air Training Command	March 1961

Specifications:

Takeoff weight (with full fuel load)	11,650 pounds
Landing weight (with twenty-minute loiter reserve)	8,450 pounds
Wing area	170 square feet
Wingspan	25 feet, 3 inches
Wing sweepback	24 degrees
Aircraft length	46 feet, 4½ inches
Aircraft height	12 feet, 10½ inches

Powerplant:

Two General Electric J85-GE-5 engines, weighing 575 pounds each, with maximum thrust of 3,850 pounds each, and a thrust-to-weight ratio of 6.6.

Performance Summary:

Takeoff ground run	2,350 feet
Rate of climb, at sea level	30,000 feet per minute
Rate of climb, at sea level (with one engine)	6,800 feet per minute
Maximum speed	Mach 1.24
Maximum speed (with one engine)	Mach 0.95
Service ceiling	54,000 feet
Service ceiling (with one engine)	45,000 feet
Stall speed	116 knots
Landing roll	3,050 feet

Designed Load Limit:

7.33 G

Extrapolated Service Life:

16,000 flight hours

31,250 landings

45 hours per month

Average Utilization Rate:

Number of T-38s:

Total number delivered, as of July 1, 1971

1,131

Safety Record:

Cumulative major accident rate since 1961 (3,362,015 flying hours and more than 7,500,000 landings) is 2.6 per 100,000 flying hours. During the first four months of 1971, the major accident rate was 1.0 per 100,000 flying hours.



The T-38's two J85 engines, each with 3,850 pounds of thrust, give it supersonic performance and a phenomenal rate of climb. These engines now have logged some four million flight hours.

airspeed/Mach indicator and a standby (backup) attitude indicator, which operates off a separate gyro. To the right of the ADI is the counter-drum-pointer altimeter and vertical velocity indicator. The clean, uncluttered appearance adds up to a better airplane for teaching instruments. The radios and IFF are located on a pedestal below the HSI,

requiring only a glance for operation. Spatial disorientation and vertigo possibilities have been engineered to a minimum.

Redundant systems are evident everywhere. The T-38 has a dual hydraulic flight control system, each separate system fully capable of meeting all demands if one fails. Only one system supplies pressure

to the gear, but a manual release system provides backup.

The bird has two fuel systems, one for each engine. Like the hydraulics, each fuel system can feed either or both engines, and should both fuel pumps fail, gravity will continue to supply fuel.

Dual electrical systems with two AC generators and two transformer-rectifiers to convert AC to DC, as well as a DC battery, provide the juice. All of these systems make a reliable, safe aircraft. Something will undoubtedly fail sometime, but chances are the aircraft will return without difficulty.

The Engines—Mighty Mites

An additional strong point to me as a pilot is the fantastic acceleration of the two General Electric J85-GE-5 engines. These eight-stage, axial-flow turbojets with variable afterburners have maximum thrust of 3,850 pounds each. The J85's acceleration time from idle to 100 percent is approximately 4.5 seconds. Even more important, acceleration from eighty-five percent (normal-weight final approach setting) to 100 percent is about *one-half* second. During the critical landing phase, you have virtually instantaneous power.

The engines weigh only 575 pounds each. Their 7,700 pounds of thrust may not sound like much, but takeoff weight is only 11,650 pounds, so the power-to-weight ratio is excellent. Additionally—and this contributes not only to safety but to enjoyment—the bird is always flown clean.

And maneuverable? The roll rate is impossible to imagine. With a short, dry wing and barn doors for ailerons, the rate is so great that you

ABOUT THE AUTHORS

Capt. David R. (Rich) Croft, in the foreground in this photo, is a 1967 graduate of the USAF Academy. He flew 257 missions in Southeast Asia as an A-1E and O-2A pilot. He has been a T-38 instructor pilot with the 3651st Pilot Training Squadron at Columbus AFB, Miss., since February 1970. Behind him in the photo is Capt. Robert W. Wickman, a 1963 graduate of the University of Washington who served in SEA as an F-4C pilot. After duty as a T-37 instructor at Reese AFB, Tex., he became Wing Information Officer at Columbus AFB, where he continued to fly as an instructor pilot until his recent transfer to Williams AFB, Ariz.





Four students and their instructors hold perfect formation in the demanding, but beautiful, T-38.

have to limit the number of consecutive rolls to prevent inertial-roll coupling and resultant tumbling. Pitch control is equally remarkable.

The ejection system is a good one. You could, if necessary, eject on the ground at any speed above 120 knots indicated airspeed (KIAS). Almost all known fatalities have occurred because ejection was initiated outside the design envelope. You always hope you won't have to use it, but it is comforting to know it is available if needed.

The one big disadvantage of the T-38 is its inability to tolerate even moderate icing conditions. It has no structural anti-ice capability, and the engines are very susceptible to ice

damage. This hinders us to some degree during the winter months and in thunderstorm seasons. It's a constant concern to flight planning.

Never-Ending Challenge

Teaching students to fly is demanding and taxing; but it has its rewards. Since you know that the caliber of pilot a student is when he graduates depends to a great extent on your instruction, you take pride in your work. Knowing you are teaching him things that someday may save his life, and the lives of others; knowing you are training him to be a pilot in an air force with the best pilots in the world—these

are the rewards of teaching a student to fly the T-38.

It never ceases to be a challenge, because there is never an end to what you can teach. It never ceases to be a challenge for you to fly an airplane like the T-38. With the T-38, there is no trimming it up for sustained hands-off flight; no switching to autopilot and letting "George" do it. It has to be flown all the time.

It's a matter of pride to know you are flying one of the best airplanes in the world—a bird that's beautiful, clean, white, sleek, aesthetically pleasing. It's an airplane that demands respect and instills pride. You don't mind telling people, "I fly the T-38." ■

AN EYEFUL IN ICELAND

Iceland is among the less choice overseas assignments. With the bad weather, treeless landscape, and virtual lack of sunlight in the winter, it's the sort of bleak place that sets military people to griping. Back in 1952, when I was stationed there at Keflavik Air Base as an Army infantryman and worried about the effects of the place on my already poor eyesight, an old hernia, and worsening flat feet, I confided my concerns, during a long tour of outpost guard duty, to a worldly wise Air Force master sergeant. After hearing me out, he sat up, looked me not quite squarely in the eye, and said: "Son, you think you've got troubles? You're just a draftee—I'm Regular Air Force!" Then, with a quick movement, he popped out into his hand a set of false teeth and one glass eye. It was the greatest put-down of my life.

—CONTRIBUTED BY BILL LEAVITT, SENIOR EDITOR, AIR FORCE MAGAZINE

(AIR FORCE Magazine will pay \$10 for each anecdote published.)



Boeing P-26



Curtiss P-40



Republic P-47s



North American P-51



North American F-86

The Air Force Vice Chief of Staff, one of America's top-ranking fighter aces, talks about some improvements that could make the F-4E "an almost new airplane for combat at subsonic and transonic speeds" in the immediate future, and takes a pilot's look at the F-15 and some of its subsystems that should assure the USAF. . .

Air Superiority Int

By Gen. John C. Meyer, USAF

VICE CHIEF OF STAFF, UNITED STATES AIR FORCE

IT ALL started back in World War I. That was when air superiority took on real meaning. The skill and daring of resolute fighter pilots, together with their wood and fabric airplanes, gave us what could be called the romantic era of air-to-air combat. But, of course, the tools were crude and the capabilities were quite limited. Yet, they did presage a new dimension of warfare that would demand the most of man and machine.

Fighter developments proceeded at a rather leisurely pace between the World Wars. While United States fighter developments were spared the imperative of conflict, they did proceed with occasional flares of brilliance. The Boeing

P-26, and later the Lockheed P-38 and Curtiss P-40, represented high points of our peacetime fighter designs. In Europe, fighter development was viewed more urgently as the Germans pressed forward with their Messerschmitts and the British refined their Spitfires and Hurricanes.

At the outbreak of World War II, the British and Germans were probably pretty close to parity in fighter technology, but the Germans were much better prepared in numbers of fighters. At the same time, the United States was trailing in both numbers and technology. Fortunately, we had the time to catch up—a circumstance that we could hardly expect to see again.

Those of us who flew in World War II know only too well how vital it is to have the right airplanes at the right time. We knew our P-40s could not stand up against the Messerschmitts. We knew that we could not get an advantage in speed, altitude, or position. We had to have the P-51 and the P-47 to do the job.

Now that is something that has not changed over the past thirty years. We still need airplanes that measure up to the task at hand.

Since World War II, we have had several very good fighters. The F-86 of the 1950s probably stands alone as a world-renowned symbol of air superiority. The F-4s enjoy a somewhat similar reputation for the decade of

Gen. John C. Meyer, one of the leading American aces in Europe during World War II and an F-86 group commander in Korea, is credited with thirty-nine and a half enemy aircraft destroyed in the air and on the ground. In the postwar years, he has led air defense units, commanded SAC bomber divisions, and headed TAC's Twelfth Air Force. Prior to becoming Vice Chief of Staff in August 1969, General Meyer was Director for Operations, the Joint Staff. As a combat pilot, he was decorated thirty times, and is a three-time recipient of the Distinguished Service Cross.





the 1980s

The F-15: low wing loading, high thrust-to-weight ratio, unrivaled acceleration, diversified weapons.

the '60s. But the question we face now is, "What will be the fighter for the '70s and beyond?"

For the immediate future, the answer is the newest version of the F-4—the F-4E. For the next few years we will be modernizing our air-superiority aircraft with additional procurements of this battle-proved fighter.

But in terms of capabilities, we know we have to find ways to make the F-4s even better. One improvement that we are actively investigating—and that shows great promise—is the installation of "in-or-out" leading-edge wing slats. With such a modification, the F-4E would be an almost new airplane for combat at subsonic and transonic speeds.

In flight tests, the slats have worked extremely well. They have permitted vigorous maneuvering at high angles of attack—well beyond the stall condition for unmodified F-4Es. This kind of maneuvering has been accomplished without adverse yaw characteristics or "out of control" tendencies.

But the flight tests have also confirmed the practical value of increased Gs. Experienced fighter pilots, pulling about one extra G over the current F-4E—and with less power and little or no buffet—have consistently won rat races over unmodified F-4Es.

But there is a limit. We know that we can only go so far in improving the F-4—just as

we could only go so far with the P-51 and the F-86. At some time in the future, the F-4 will be unable to cope with new threats to air superiority. New technology in propulsion, structures, and armament will push the F-4 into obsolescence.

This new technology could be ours, or it could be an enemy's. We hope it is ours, but the Soviets hardly stand short in the development and production of fighter aircraft. They turn out a new model or prototype every year or so. And the record shows that some of them are very fine machines. For that reason, we must pursue the development of an all-new fighter—the F-15.

From the very beginning, we have been designing the F-15 to be a fighter pilot's fighter—a modern-day version of the F-86 MIG-killer. Of course there are many uncertainties in our view of the progress the Soviets will make on new fighters in this decade. But I believe I am safe in saying that the F-15 will provide significant advantages in maneuverability and acceleration over any future enemy fighter into the 1980s. That is its primary design objective.

In order to meet that objective, we are concentrating on the technology that has a high payoff in the ability to maneuver and change speed. Wing loading on the F-15—without any slats—will be down about twenty-five percent from the F-4E with slats. And, as far as I



Experimental leading-edge slats give this F-4E the ability to maneuver at angles of attack well beyond the stalling point of an unmodified F-4E—with less power and with little buffet.

know, that will be less than any enemy fighter.

The acceleration will come from a pair of engines that give this 40,000-pound fighter a thrust-to-weight ratio that exceeds "one" by a comfortable margin at takeoff gross weights. More important, the engine response time will be quicker to give you acceleration when you really need it. As an example, the F-15's engines can go from "mil" power to "max" power in half the time of the J79-17 engines in the F-4E.

We have also insisted on the F-15 having a high probability of kill in air-to-air combat. The avionics and armament are to be keyed to the pilot and the air-superiority role. The system will blend a lightweight, high-reliability radar with visual target detection and identification. The radar is being built with the knowledge that not only must it be operated by one man, but also that the one man has a few other things to do.

For the close-in dogfight situation, the radar will acquire the target and display the attack geometry on the windscreen. Then, with the aid of the central computer, the pilot will complete the attack, firing whichever armament has the highest probability of kill.

Of course armament is a key consideration with any fighter, particularly air-to-air armament. In Southeast Asia, we found the Sidewinders, Falcons, and Sparrows to be less than ideal weapons for attacking hard-maneuvering fighters—especially close-in. That was not really surprising since all of those missiles were developed to strike large, slow-maneuvering bombers in an air defense environment. Al-

though some modifications were made—particularly in the Falcons—none of those missiles had the maneuverability they needed, and all of them suffered from launch zone limitations.

We plan to eliminate that problem in the F-15 by using two kinds of missiles and a gun—each with some overlapping capability.

- We will use an improved variant of the Sparrow for medium- to long-range attacks under all weather conditions. But we are not fooling ourselves about the Sparrow being able to outmaneuver a fighter.

- For the shorter range situations, we will need a small, highly maneuverable missile, which the pilot can launch at any target he can see and identify. We expect the new L-model Sidewinder will satisfy that need—at least on an interim basis—and we are watching it very closely to make sure that it does.

- Then, for the really close-in situation, the F-15 pilot will be able to use his cannon. The earlier models will have the 20-mm gun; but if all goes well, we will have a new cannon using a 25-mm caseless round now in development. It offers high rate of fire, short time of flight, and the advantage of high-mass killing power—and with savings in both weight and volume.

Taken altogether, the F-15 fighter pilot will truly have a matched set of clubs to use from tee to green, on any course.

But as anybody in the flying business knows, no matter how good a fighter is, it has to get into the air to do its job. For that reason, the F-15 will have easy accessibility to reduce maintenance time and increase utilization time.

Almost everything that has to be done can be done simply. Mechanics and technicians will be able to reach their work while standing on the ground. The work stand will be virtually a thing of the past. According to some estimates, turnaround time could come close to twelve minutes. And, overall, maintenance should be achieved with something like fifteen percent fewer people than now used on the F-4s.

Of course, all of this is still in the future and subject to the uncertainties that the future always holds. Just how much of an improvement will be achieved is certainly subject to some question. But the question is really one of how much of an improvement will be made. By all indications it will be substantial and significant.

Maintaining what should be the world's greatest fighter is also important. We certainly do not want to end up with a new breed of thoroughbred "hangar queens." With that point in mind, the development objectives call for a great improvement in the maintenance picture. Where the F-4s now require thirty, forty, or fifty maintenance man-hours per flying hour, the F-15s could get down to only twelve.

There are several very good reasons for this reduction in maintenance man-hours. For one thing, reliability is stressed as are standard and interchangeable parts. This seems to be paying off in a variety of ways. As examples, the left and right vertical tails, the left and right stabilizers, and all the missile racks are interchangeable, as are the two engines. And, those engines back straight out so that an engine change can be accomplished in thirty minutes.

For another thing, advanced technology is used to minimize the maintenance workload. Here, little things can make a big difference. A good example of this is a new hydraulic circuit breaker developed to stop the loss of hydraulic fluid from battle damage or mechanical failure. The cost to develop this device was



A partial listing of General Meyer's credentials as an active student of air superiority, displayed on his World War II fighter in late 1944.

\$100,000, but it looks like it could have prevented at least eleven noncombat F-4 losses and a much larger number of combat losses. Although it is unfortunate that this device will not be in the F-4s, it will be in the F-15s.

Speaking as a fighter pilot, the F-15 looks like it will be the kind of airplane I would really like to get my hands on. It gives every indication of becoming the standard of the world in air-superiority fighters in the post-1975 time period. And, while I may not have that chance, many of today's airmen will. For if we continue at our present development pace, the first F-15 should be flying in about fifteen months. And the first F-15 fighter squadrons will be coming along just as fast as we can build the airplanes. And, with that, the future of air superiority should be assured into the next decade. ■

A ROSE BY ANY OTHER NAME

Robert Charles, a former Assistant Secretary of the Air Force, tells this story about his first encounter with Security Review, the office that checks the speeches and articles of defense officials for security or policy aberrations:

Shortly after he took office, Mr. Charles was invited to address a meeting of aerospace industrialists. Since he had recently been a vice president of one of the larger aerospace companies and knew most of the audience, and since he intended to say nothing classified or sensitive, Mr. Charles saw no need to submit his speech for clearance.

The Charles remarks opened with this salutation: "Fellow wallowers at the public trough." After the speech had been delivered, the Assistant Secretary's secretary insisted that he send it, pro forma, to Security Review for clearance. That was done, and in due course the speech came back from the bowels of the Pentagon with only one alteration. Some anonymous hand had changed the opening line to read: "Fellow participants in lush government contracts."

(AIR FORCE Magazine will pay \$10 for each anecdote published.)

Not infrequently, opponents of military preparedness discount, as self-serving, official analyses of the growing threat to this nation and its vital interests. Here are excerpts from an analysis made by seven highly qualified observers—none of them connected with the government—who spent a year studying US security organization. Concerned by what they had learned, these men submitted a report to the President, pointing out . . .

The Ominous Danger of

ANOTHER VIEW OF THE THREAT

On July 1, 1970, the President's Blue Ribbon Defense Panel (the Fitzhugh Committee) submitted its report on Department of Defense organization. On September 30, 1970, seven members of the Panel submitted a Supplemental Statement entitled "The Shifting Balance of Military Power," (Government Printing Office, 30¢), which was released by DoD on March 12, 1971. The thirty-five-page statement reflects its authors' concern over the shift in the balance of strategic power, which threatens to leave the US in a position of clear military inferiority to the USSR.

Panel members who signed the report are: William Blackie, Chairman of the Board, Caterpillar Tractor Co.; George Champion, President, Economic Development Board of New York; William P. Clements, Jr., President, Southeastern Drilling, Inc.; John M. Fluke, President, John Fluke Manufacturing Co.; Hobart D. Lewis, President, Reader's Digest Association, Inc.; Wilfred J. McNeil, Director, Fairchild Hiller Corp.; and Lewis F. Powell, Jr., a Richmond, Va., lawyer.

AIR FORCE Magazine shares the concern of these seven Panel members. We believe their Statement is, as they intended it to be, a valuable contribution to public discussion of the gravest and most misunderstood of today's national issues. The following excerpts from the Statement are presented in that belief.

—THE EDITORS

Being Second

WE ENTER the 1970s confronted by (i) a superior Soviet offensive missile capability, (ii) a marked Soviet advantage in defensive missile capability, (iii) a menacing Soviet fleet, and (iv) with respect to all of these, a Soviet commitment and momentum which is quite unmatched in this country. We are also confronted, as Red China orbits its first satellite, with the certainty of a new and growing ICBM capability from that irrationally hostile nation.

Within a span of less than two decades we have moved from complete security to perilous insecurity.

Yet the response of the public generally, much of the media and many political leaders ranges from apathy and complacency to affirmative hostility . . . toward our own military establishment and the very concept of providing defense capabilities adequate to protect this country and its vital interests. . . . This paradox in response to possible national peril is without precedent in the history of this country.

It should be made clear at this point that no thoughtful person suggests that the military, or any aspect of national defense, is above criticism. The role of responsible criticism and dissent is vital to the health of a democracy. . . . But it is one thing to exercise responsibly these attributes of democracy. It is quite something else—by resort to irrational abuse and indiscriminate criticism—to destroy the effectiveness of the only instrumentality which protects from foreign aggression the freedoms we all cherish.

It is in this mixed climate of euphoria and retreat that a major retrenchment in America's defense effort has been deemed necessary. . . . There has been no comparable restraint exercised by the Soviet Union either with respect to overall defense spending or the funding of its strategic programs. [See "The Strategic Threat," July '71 AIR FORCE, p. 51.]

There are three disturbing trends in defense funding: (i) the magnitude of the overall US reduction, (ii) the unfavorable balance between Soviet spending on strategic forces as compared to our effort, and (iii) a similar unfavorable balance in the critical area of research and development (R&D). Of these, perhaps the last is the cause for greatest concern. . . . It is precisely here that recent trends create serious doubts as to the future security of this country. . . . Our only hope of survival is to maintain clear weapons superiority. This simply cannot be achieved by permitting our industrial and technological manpower bases to erode and by inadequate emphasis on R&D. No subject in the entire spectrum of defense problems deserves a higher priority of thoughtful and urgent attention. . . .

Since the end of World War II, repeated attempts have been made by the US to negotiate limitations on the "arms race." Negotiations for sound enforceable limitations should be continued, and hopes are now high for the success of the current SALT talks. But the total experience of negotiating with Communist nations suggests the utmost caution and the need for the most critical analysis of the possible consequences of any proposed terms. Not only is the security of this country at stake, but it is possible that a limitations agreement as to strategic weapons could have the effect of neutralizing the US as a strategic power, leaving the Soviet Union and Red China relatively free to employ their superior tactical capabilities wherever this seems advantageous. . . .

As our country ponders its future course, drifting as we are into a position of inferiority or possibly even freezing that status by agreement, our people—as well as responsible officials—should consider the capability of the US to respond in the types of situations which are likely to arise in the 1970s and beyond. . . . It is difficult to believe that the proud and responsible people of this country would knowingly tolerate a national strategy which could [leave] us virtually helpless to respond effectively.

The most ominous danger of being second rate in the nuclear age is that it multiplies the chances—not of peace—but of nuclear war. . . . The road to peace has never been through appeasement, unilateral disarmament, or negotiation from weakness. The entire recorded history of mankind is precisely to the contrary. Among the great nations, only the strong survive. ■

Longer hair, civilian KPs, less austere barracks. These relaxations of once-sacrosanct rules are indicative of the sweeping—and controversial—changes that military personnel procedures are undergoing of late. This article by the head of the Air Force personnel team contains the philosophical foundation upon which will be built USAF's "people" structure of the future . . .

The People Get a Plan

By Lt. Gen. Robert J. Dixon, USAF
DEPUTY CHIEF OF STAFF/PERSONNEL, HQ, USAF

Drawing by Cliff Prine



IN THE May issue of AIR FORCE Magazine, the Air Force Chief of Staff, Gen. John D. Ryan, described the kind of optimum personnel force we are building for the future. Such a force, he said, would have to be *balanced* in its composition and *flexible* in response to changing requirements. The optimum force would also have to be *structured* in detail, with individuals of high *quality* identified by grade and skill. Finally, these individuals would have to be *motivated* toward accomplishment of the Air Force mission with a high sense of *professionalism*.

General Ryan further stated that achievement of these six conceptual goals poses a challenge that must be met. He suggested that a direct, personal approach, which emphasizes two-way communications and open management, offers the best hope of keeping the six concepts alive and not "mere words in a planning document."

Challenge to Personnel Managers

The "planning document" to which General Ryan referred is the USAF Personnel Plan.



USAF Chief of Staff Gen. John D. Ryan: ". . . the Air Force personnel force of the future must be motivated to willingly participate in achievement of the Air Force mission."



The challenge to personnel managers—and I include in this category all commanders and supervisors—is to achieve a total force that meets the characteristics embodied in the six concepts described.

To get there we must have a personnel management system that meets the following criteria:

- First, *credible*. It must be visible, clearly defined, communicated, and understood by those who use it and those it affects.

- Second, *comprehensive*. It must completely cover the entire personnel process.

- Third, *consistent*. The system must be internally consistent and in harmony with published personnel policy, and with AF requirements.

- Fourth, *responsive*. It must be readily adaptable to changing conditions, and to the needs of the “constituency”—the people affected.

- Finally, *controlled*. Only through tight control can senior management find mistakes, identify items for special management atten-

tion, set standards, and measure progress toward objectives.

The Dilemma

Like most successful shifts in direction and purpose, the evolution of the present Personnel Plan is the result of tough, time-consuming, and grueling work by many people, not the result of a flash of brilliant intuition by one or two individuals. However, while we set strong conceptual goals and implementation criteria, enunciation of these alone does not provide an integrated framework for getting the job done. Several approaches were likely candidates because the “pie” can be sliced several ways.

The classical approach was through the widely accepted and time-honored management functions of planning, coordinating, directing, communicating, and controlling. This framework has the clear advantage of familiarity. It also has the not-so-clear disadvantage of clumsiness and loss of poise when faced with change. It is slow on its feet and tends



Lt. Gen. Robert J. Dixon, USAF Deputy Chief of Staff, Personnel, is a key figure in the Air Force's effort to formulate an up-to-date policy regarding personnel matters.

to develop a high degree of defensiveness—"business as before."

An obvious approach would have been to use the functions of the personnel life cycle—procurement, training, utilization, sustainment, and separation—a sort of cradle to the grave pattern. The most useful aspect of this framework is that it groups homogeneous functions. One of the serious disadvantages is that many of these functions are entirely different for the military and civilian elements, and different for officers and airmen within the military element. Moreover, personnel life-cycle functions are distributed throughout the total personnel management organization. Carving each out as a distinct entity would create organizational havoc.

In contrast to the personnel life cycle, we could manage by personnel-force element: officer, airman, civilian; active, and reserve. Homogeneity is an advantage of this system, as in the life-cycle method. But any advantages are more than offset by the way in which such a pattern would violate the greater homogeneity resulting from the total force planning method.

None of the foregoing approaches was selected—and none was totally abandoned. What was selected was a much more futuristic and sophisticated framework; management by objective—specifically, management by personnel objective.

A little over a year ago, the Chief of Staff approved the USAF Personnel Plan, which sets forth the Air Force personnel objectives. These objectives are arrived at through a logical development process. While we admit to an inability to predict future *events*, we do believe

that we can generally predict future *conditions*. From these future conditions we can conclude that the future force must possess specific characteristics. These characteristics form the basis for the aforementioned concepts of balance, flexibility, structuring, quality, motivation, and professionalism. Each of these concepts then suggests several broad goals.

When the personnel life-cycle functions of procurement, training, utilization, sustainment, and separation are meshed with the goals for each personnel-force element (officer, airman, civilian, reserve) some 300 specific objectives are the result.

Some examples of these objectives are:

For officers:

Objective #352: Compensate Reserve officers serving on contractual agreements through an incentive pay program. (Officers will lose vested interest if they accept Regular status or retire.)

Objective #237: Concurrently provide officers being assigned to oversea areas, where the tour length is less than eighteen months, with their follow-on assignments.

For airmen:

Objective #1322: Establish enlisted grade authorizations on the basis of providing equitable promotion opportunity for all airmen.

Objective #1178: Provide voluntary opportunity to at least the baccalaureate level in support of retention and career growth of career enlisted members.

Each of these objectives is designed to be an attainable end, but as a group they are as varied as the system they support. Some of them are conceptual, some of them qualitative, and some are quantitative.

Total Force Planning

One of the most important aspects of the USAF Personnel Plan is that it is a positive way of achieving total personnel force planning. In the past we have tended to manage the officer, airman, civilian, and reserve elements of the personnel force almost as though they were parts of separate services. Some of the reasons are obvious. The conditions and tenure of service differ. Military and civilian personnel are paid from different budget appropriations. Most of the laws affecting personnel in the military departments have different provisions for the several elements. This has led to some bad management habits. The trend to systematized resource management, so splendidly used to expedite development of weapon systems, has only slowly been adopted in personnel management.

In a Minuteman missile, the guidance mechanism, rocket engine, and airframe, along with the other components, make up an individual weapon system. All Minuteman missiles to-

gether with the launch systems, control systems, and personnel to man them constitute the entire Minuteman weapon system. Cannot the same logic be applied to personnel?

If pilots and supply officers, regulars and reserves, line and nonline officers all are within the officer personnel system, should not officers, airmen, civilians, and reserve components all be considered elements of the total Air Force personnel system?

Yes, and we are compelled to follow this logic—and the disciplines it produces—if we are to take full advantage of total force planning.

We still have the constraints of different laws and different appropriations processes. In viewing the process and the personnel *system* as a total entity, the main difference is that we can more effectively overcome apparent obstacles and manage the whole as a whole.

Management by Personnel Objective

With the publication of the basic framework of concepts, goals, and objectives in the USAF Personnel Plan, we took a quantum leap into the vanguard of personnel management practice. A big step, but something was still lacking: a means of tracking progress toward the objectives and ensuring that the criteria I outlined earlier in this article were met.

About six months ago we implemented an arrangement designed to enable Air Staff personnel managers to get their fingers wrapped around the reins of all 300-odd personnel objectives. The central figure in this arrangement is the Personnel Objective Monitoring Officer (POMO). Each personnel objective has an Air Staff officer, civilian, or NCO assigned by name to monitor the progress toward its attainment. The names and telephone numbers are published in a directory of POMOs, and this directory constitutes the list of "regular crew chiefs" for Air Force personnel objectives.

The POMO is responsible for maintaining the current status of his objective. Status books on all objectives are available for the use of senior personnel managers. The POMO is also responsible for ensuring that the objective for which he is responsible truly reflects the desired goal and properly fits the personnel structure it supports.

The system also requires the POMO to outline time-phased milestones toward objective attainment. These milestones include such things as preparing and submitting legislative proposals if a change in law is required, ensuring that necessary funds are budgeted and available to support the objectives, dates, and times when things should happen, dates and times when some measurable (hopefully reasonably fast) degree of progress should be made.

Because objectives often cut across func-

tional and organizational lines, cross-pollination is effected in the process of coordination and tracking toward a specific objective. Families of objectives are also created, thereby forming long- and short-term association between POMOs. Downstream we are experimenting with the feasibility of a management-by-exception reporting and task-force action that will focus on objectives for which little or no progress is being achieved or forecast.

In a single document called the Objective Status Report, the POMO system surfaces—for all managers to see—all of the activities of individual action officers throughout the personnel staff, and relates these activities to the big picture—the objective. In a small but vital section of personnel management it is a straightforward application of what General Ryan meant by "ensuring each man knows he has a piece of the action and feels responsible for it." It also fits the criteria captured in the words "credible, comprehensive, consistent, responsive, and controlled."

While the personnel managers are the most evident beneficiaries of the POMO system, the principal beneficiaries are actually individual Air Force members. The reason—**knowledge** of our problems. Searching for and finding ways to fix them enables accelerated progress toward attainment of our objectives. Each search-and-find project has a crew chief: he knows it, his boss knows it, and the USAF knows it.

Other Components of the Plan

Follow-on components of the USAF Personnel Plan describe in detail the officer and



Helping to implement the revolutionary changes in personnel procedures that will shape the Air Force of the future is General Dixon's second in command, Maj. Gen. John L. Locke.

airman personnel force structures needed to attain the objectives. These structures can delineate the precise numbers of people required in each year of service for each Air Force specialty. Force structures for the civilian and reserve force components are currently under development. These structures are elastic and can be quantitatively described for any given force size or configuration. Special expansion and contraction logic is designed into each to accommodate change—always a structural constant.

The structures can enable us to determine the number of people we are going to bring on board each year for each of the categories noted above, the number of pilots and navigators we need to train, and the number of support-skill officers we will be able to accommodate in the career force. These are just a few examples. Again, I am talking about exact numbers of people, knowledge of which is key to being able to prepare to meet, greet, train, promote, and utilize *each individual*.

Other elements of the USAF Personnel Plan describe in detail the personnel management programs that will be used to attain the structures. One example now in operation is the Rated Officer Management Program. This program gives personnel managers firm and workable short- and long-term guidance on how to distribute rated officers among the various Air Force specialties so that, in the event of their withdrawal during emergencies, no one specialty will have more or less than its predetermined share of rated expertise.



Air Force people and their problems are the chief concerns of Brig. Gen. (Major General selectee) Rene G. Dupont, head of the USAF Military Personnel Center, Randolph AFB, Tex.

Still other elements of the USAF Personnel Plan define the personnel management and data systems needed to support the aforementioned programs. The entire plan is an integrated library of personnel management philosophy and practice. It is adaptable to change, but change made with a broad understanding of how it will affect the plan as a *whole*.

Results—Not Gimmicks

The USAF Personnel Plan, which I have just outlined, is only one—albeit the most fundamental—of the innovative personnel actions taken in the last few years. Some others are:

- **Career Development**—For officers, we have designated career monitors who have the same specialties as the individual members they monitor, and who provide a direct link between the individual and the personnel assignment system. Several special programs have been established to recognize and develop extraordinary or unique talent through appropriate schooling and assignments. In the airman area—a vastly more complex problem by virtue of sheer numbers alone—we have established centralized career control for our senior and chief master sergeants, and will expand this system further. We've opened the door for more enlisted members to reach officer status through various airmen commissioning programs and—commencing this year—the OTS program as well.

- **Assignment Control**—Time on station minimums, prior to eligibility for PCS moves, have been increased. Voluntary extension of tour rules, both in CONUS and overseas, have been liberalized. Action has been taken to more equitably distribute the desirable and undesirable tours at overseas locations. Last May we inaugurated the "SWAP" program whereby an airman who is unhappy with his CONUS assignment can request a "SWAP" with another airman. This process is computerized so that quick resolutions can be made. An ability to put more teeth in the airman base of choice program is being developed and will be in full operation later this year.

- **Promotion Opportunity**—Officers are now assured of reasonable opportunity for promotion, and action is under way to obtain the legislation necessary to keep it that way and make it better. Implementation of the Weighted Airman Promotion System (WAPS) has given each eligible airman the ability to see precisely where he stands with respect to promotion, and why. We are moving forward with plans to ensure greater promotion equity for all airmen by removing the restrictions that have historically been placed on many career fields and career field subdivisions.

- **Pay and Allowances**—Our people have earned their five pay raises since January

1967. The military and civilian pay appropriations have increased more than fifty percent since 1960, while our total budget has increased only twenty percent. Nevertheless, we still have not achieved parity with our civilian counterparts and will continue to press for equity, both in base pay and through special incentive pays.

• **Improved Communication**—Full use is now being made of the Officer Career Preference Statement at all levels of command. No assignment, be it for schooling or against a normal manpower requirement, is made without consideration of the man's desires. Improved computer techniques now make it possible to extend similar consideration to airmen. Airmen and NCO advisory councils are now required at each of our installations and their recommendations, like the proposals of our junior officer councils, are a major factor in the decisions of senior commanders at all levels. Much can and will be done in this area.

• **Removal of Irritants**—The Air Force has never allowed excessive preoccupation with military tradition to inhibit mission accomplishment. This has been true since we became a separate service in 1947. While we cannot relax the standards of discipline that are necessary for immediate, efficient, and controlled response to mission requirements, additional actions can and are being taken to enhance the quality of everyday life for our people.

Last December, the Chief of Staff directed that several activities, such as the number of inspections of personnel and facilities, overtime work without compensatory time off, and certain details and formations be either eliminated or reduced. We have done away with the requirement for the junior airman to carry a pass, ceased Air Force inspection of private vehicles where state inspections will suffice, and expanded our programs for helping newly assigned personnel get settled while affording them adequate time to do this.

We liberalized the rules on haircuts and sideburns over a year ago, eliminated KP except at training bases and remote locations where we cannot hire civilian personnel to do it, and are making inroads in our efforts to provide both officers and airmen greater privacy in their living quarters.

We need to educate all levels of management on what we are doing now as well as what the Personnel Plan means for the future. By doing this, the commander and the supervisor, along with personnel managers at the Consolidated Base Personnel Office (CBPO) level can assume their vital role of guiding, counseling, and communicating with the troops.

On the Horizon

The thrust of all I have discussed here is to individualize the personnel process while exploiting all the advantages of modern computer and management technology—to make the management tools work for us, rather than drive us. But the advances I have described will not provide a panacea, not even if successful and aggregated.

The problems attendant to management of the civilian and reserve elements of the force are just now being addressed in the kind of depth needed. We must focus on the real cause of our problems in recruiting and retention—be they in the active or inactive elements.

We cannot and will not rest on laurels we may think we deserve. The criterion of success will be the degree to which we can achieve our objectives for the total force without allowing old mistakes to recur or new ones to go unattended.

With the USAF Personnel Plan and the Objective Status Reports, we now have the tools and a better day-to-day vision of what needs to be done. We must get the job done. ■

STRAIGHT TALK

At a Fifth Air Force staff meeting late in 1969, a member of the staff conveyed to Lt. Gen. Thomas McGehee, then Fifth Air Force Commander, the regards of Col. Willis Helmantoler, an old friend of the General's. This prompted General McGehee to reminisce on the days when he and Colonel Helmantoler had been stationed together at Nagoya, Japan. They were headquartered in a three-story building with an elevator, operated by Japanese girls.

Shortly after his arrival at Nagoya, Colonel Helmantoler decided to go up to the snack bar on the roof. There were two girl operators on the elevator, and, being a friendly man, the Colonel tried to engage them in conversation.

"How do you operate this elevator?" he asked. "Do you take turns?"

The girls chattered excitedly in Japanese for a few moments. Then one of them turned to the Colonel.

"Oh, no, Sir," she said. "We do not take turns. All day long we just go straight—up and down, up and down."

—WALTER K. MILES (former Assistant Historian, Fifth Air Force)

(AIR FORCE Magazine will pay \$10 for each anecdote published.)

At a recent University of Cincinnati President's Review, AIR FORCE Magazine Senior Editor Claude Witze presented a USAF ROTC Citation to Dr. Walter C. Langsam—retiring President of the University, staunch defender of ROTC, friend and former teacher of Mr. Witze. Dr. Langsam's address to the ROTC cadets and Mr. Witze's tribute to this outstanding educator are presented here in honor . . .

Of Arms and the Man

TRIBUTE TO A GREAT TEACHER . . .

It is my intent to pay tribute to a great American teacher. His name is Walter C. Langsam, who will retire on August 31 after sixteen years as President of the University of Cincinnati.

So far as AIR FORCE Magazine is concerned, Dr. Langsam's claim to fame is the courage he displayed a few years ago when campus dissenters at Cincinnati exercised their methods of militancy in an effort to destroy the Army and Air Force ROTC programs on campus. They were frustrated, in the long run, by Dr. Langsam's intelligent approach to the problem, one that resulted in student endorsement of ROTC. The story was told in the April 1970 issue of this magazine, by Col. D. P. Jones, USAF, Professor of Aerospace Studies at the university.

My own recollection of Walter Langsam, heavy with nostalgia, goes back more than forty years, to the time when he was a young professor on the faculty of Columbia College, in New York. I sat in his lecture hall—it was a course in modern European history—not fully appreciating, at the moment, that this was an extraordinary classroom experience. He was tall, dark, and handsome, witty, and young—not more than four or five years older than most of the men in his class. There was a conviviality, a camaraderie of mentor and student that made this part of getting an education unforgettable. There were even some practical jokes that I can remember but will not recount.

The Columbia College faculty, in 1930, was rich with great intellects. Our teachers included Irwin Edman, Mark Van Doren, Harry Carmen, Joseph Wood Krutch, and a score of other men still remembered for the liberal at-

mosphere they gave our academic community. Against this competition, it was Walter Langsam who, year after year, was voted most popular member of the faculty.

Since then, he has taught at Union College in Schenectady, N. Y., and been president of Wagner Lutheran College on Staten Island and Gettysburg College in Pennsylvania. He has worked for the Office of Strategic Services in this country and abroad, as well as for the State Department. He is the author of thirteen books and holds ten honorary degrees. In 1961 he was appointed by the Secretary of the Army to his advisory panel on ROTC.

Himself a product of the ROTC program, Dr. Langsam's retirement ceremonies at Cincinnati included a banquet and an ROTC Presidential review on May 27. His USAF ROTC Citation paid homage to the contributions he made in recent years, his "diligent and often courageous support," and his service as an "inspirational force" to Air Force ROTC cadets. The award was presented by this former student, who was proud of the opportunity to join in the USAF tribute.

Herewith, AIR FORCE Magazine prints the text of Dr. Langsam's farewell to the assembled ROTC cadets on that occasion. In the opinion of our editors, it is an outstanding declaration of the ROTC creed.

It is an example of real liberalism, as practiced and taught for more than two score years by Walter Langsam. His approach stands in sharp contrast to the reactionary stance of ROTC's militant critics, who need a liberal education, the kind that Walter Langsam helped give me so many years ago.

—CLAUDE WITZE

By Dr. Walter C. Langsam

PRESIDENT, UNIVERSITY OF CINCINNATI

AT THIS, my last President's Review, I am moved by the fact of the occasion itself, by the generous recognition accorded me as an individual, and by the parallel of my own cadet days with those of the outstanding young citizens here in uniform this evening.

A few months less than fifty years ago, I myself became a cadet in the ROTC. At the time, I was sixteen years old—sure and yet unsure of myself; eager to be a patriot, without knowing exactly what that concept meant; a little annoyed at having to obey orders, but quite ready to give them.

And then, the years that I spent as a student and a cadet provided an experience that made a man of me, and showed me how to become a patriotic citizen throughout all the years since then. Wholly aside from what I gained technically, the ROTC opportunity made of me a more responsible and constructive civilian than otherwise I could have been.

Today, with the whole world in turmoil, we witness once again—and I mean once again, for the same thing has happened many times in previous decades—we witness once again a widespread and often bitter attack on the ROTC program. Yet this is the only program so far developed by anyone that enables the people of the United States to be prepared against foreign aggression without, in the process, themselves becoming militaristic. It is the ROTC plan that makes it unnecessary for our country to maintain a large professional military establishment, and that preserves the wise and traditional civilian base of our defense system.

Those who clamor for the abolition of the program can be taking this position, I think, for only one of two reasons: either they do not know the philosophy and procedures of the ROTC, or they wish to weaken the United States. In either case, such individuals are pursuing a course whose only end can be the eventual triumph of a serious threat to the security of the United States.

Certainly it is proper to discuss the principles and rationale and procedures of the ROTC. Certainly it is proper to study its history, its role, and its objectives. But such discussion and such study, particularly on the part of individuals who claim to be intelligent, must be based on *facts*, not on hysteria, guesswork, or calculated propaganda.

The ROTC program has provided, and hopefully will continue to provide, the major part of the schooled leadership needed to enable our citizen soldiers to keep us free from



—Cincinnati Enquirer photo by Fred Staub

University of Cincinnati President Walter C. Langsam walks beneath a canopy of crossed sabers at the ROTC review on the campus on May 27.

domination by the authoritarians of the Left and the Right. Indeed, if, in the event of another major war, the United States were unprepared to defend itself properly, many of today's chief critics of the ROTC probably would shout that the national government had not taken the necessary measures to protect the freedom of the critics to criticize.

And so I want to repeat my deep appreciation of what the ROTC has meant to our country, while congratulating the cadets who stand before us. Without wishing to kill anyone, they are determined to resist any enemy who wants to destroy their country or their spirit. May God bless and preserve the outstanding young men and women who proudly wear the uniform of the country they call their own. ■

Why Ploesti?

By Gen. Leon W. Johnson, USAF (Ret.)



Why Ploesti? Retired Air Force Gen. Leon W. Johnson, who commanded the 44th Bomb Group and who was awarded the Medal of Honor for his part in the Ploesti mission, answers that question in this introductory note. After the war, General Johnson's distinguished career included command of the Third Air Force and the Continental Air Command. He also served as Senior Air Force Member of the United Nations Military Staff Committee, and was US Representative to NATO's Military Committee and Standing Group. General Johnson now lives in McLean, Va.

—THE EDITORS

The city of Ploesti lies on the Romanian plains fifty miles north of Bucharest. In 1943 it was surrounded by six oil refineries, all working at maximum capacity, making their contribution to the war machine of the German occupiers. In 1941 they refined a large portion of the 2.1 million tons of Romanian oil supplied to the Germans. By 1943 the refineries had become even more critical to the German war effort because of German reversals in Russia, with the loss of the hoped-for Russian oil supplies from the Baku area on the Caspian Sea.

Our military planners estimated that the destruction of these refineries would cripple the German war machine and possibly bring it to a grinding halt. The question was how to go about it. A small, high-altitude, night attack had been ineffective in 1942. High-altitude daylight attacks would be expected to require repeated missions by planes that were vitally needed to decrease the Nazi submarine menace, to slow down the German aircraft factories that were busy producing interceptors, or to support the Army as it moved into Sicily and Italy.

It was decided that a single treetop-level mission of approximately 150 planes best fitted the

existing conditions. This laid a premium on range at low level, and it was decided that the B-24 Liberators would have to be used. The B-17 Fortresses would not have the required low-level range. The force requirement of more than 150 Liberators, or five groups, could not be met in Africa. There were only two groups operating there; three groups normally operating from England were borrowed to complete the force.

In late May, the three groups in England stood down from bombing operations over Germany, and were set to practicing low-level formation flying over England. The low-level practice in England was to determine the time required to send five successive waves of aircraft flying at treetop level over the same point. The fuzing of the bombs needed to be such that the first explosion would not occur until the last wave had crossed the target.

In mid-June, the groups moved to the North African desert near Bengasi, Libya. The units were quickly engaged in attacks against targets in Southern Europe, to familiarize them with the theater, as well as to provide support for the Army, which was preparing for the invasion of Sicily. The primary mission, for which they repeatedly practiced, continued to be the attack upon the Ploesti refineries, and was set for noon on Sunday, August 1, 1943. The time was deliberately chosen in order to minimize casualties among the impressed laborers.

In the accompanying article, Bill Cameron effectively describes the mission, which we apparently saw in much the same light.

The results of the attack were good, and the Germans were deprived of much oil and major refinery capacity. Lack of a follow-on allied bombing capability enabled the Germans to rebuild. The high-altitude air campaign from Italy, mounted almost a year later, was required to totally deprive the Germans of this vital resource.

Winston Churchill once observed that "in war, nothing ever goes according to plan except occasionally and then by accident." That was the story of one of the most daring bomber operations of World War II—the treetop-level attack on Romanian oil refineries, recounted here by the pilot of the Buzzin' Bear, one of the B-24s that came home from that heroic and costly mission to . . .

PLOESTI!

By Col. William R. Cameron, USAF (Ret.)

THE WHOLE Ploesti episode began on a high note as far as I was concerned. After six months of combat operations in very cold and hostile winter skies over Europe, we were shifted, without explanation, to low-level formation practice over the green fields of England.

We were told that for the time being, at least, there would be no combat—and it was springtime. There were new crews and new B-24s to replace those that had been lost, and losses had been severe for our group—the 44th.

We didn't understand then that this relatively pleasant interval was designed to prepare us for an exceptional mission—one that would put it on the line for all of us.

After those few weeks of prepara-

tion, we took off singly early one dark morning and flew, at very low altitude, to an airfield in the southern part of England. The next day, we crossed the Bay of Biscay, again low enough to escape German radar, and passed through the Straits of Gibraltar to Oran in Algeria. After a brief but interesting stay, we proceeded to Benina Main, near the coastal city of Bengasi in Libya. It was nearly dark when we climbed down from the *Buzzin' Bear* and waited to be directed to our billet. As we waited—and waited—Sgt. Gerald Sparks, our radio operator from Meridian, Miss., entertained us with his guitar. Eventually, someone came by in a truck and threw off a large canvas bundle, which we were informed *was* our billet. We knew

then that we were not destined to feel at home in this strange new environment—and we never did.

After missions over such targets as Messina, Catania, Foggia, and Naples, I completed my required twenty-five in a borrowed ship, the *Suzy-Q*, over Rome on July 19. We then plunged into low-level formation practice once again, but this time it was over the dry Libyan desert. It occurred to me at the same time that I was not really expected to fly this low-level mission, whatever the target was, but I was swept up in the preparation for it primarily out of loyalty to my crew, and perhaps some curiosity that caused me to want to see it through.

For almost two weeks, B-24s in small groups were crisscrossing the



More than 170 B-24s started out on this route from airfields near Bengasi, Libya, to their targets—oil refineries around Ploesti, Romania—in the unprecedented 2,700-mile, low-level assault of August 1, 1943. Only ninety-two returned to base that night.

desert in all directions, practicing low-level formation flying. Eventually, the groups became larger as the training progressed toward a full-dress rehearsal involving the total force of B-24 Liberator bombers.

Five bomb groups were to be involved in our still-undisclosed mission—three groups in their dull green-hued aircraft from England and two units stationed in Africa. The airplanes of the latter groups were dust colored, almost pink, and were easily distinguished from the England-based B-24s. All of these were B-24Ds—lighter and faster than the models that came later with the nose turrets and other modifications.

Target models had been set up in the desert. When we were considered ready, the entire force of 175 bombers took off, assembled in group formation, and lined up one group behind the other. Proceeding just as we would against the actual

targets in Romania, we arrived at the practice IP (initial point), and each unit then swung approximately ninety degrees to the right. This maneuver put five units of aircraft flying side by side at very low level and racing toward our simulated target. In this manner, all our aircraft were streaking over their small targets at nearly the same moment. The units were then to turn to the right, which meant that once again the five groups would be lined up one behind the other, as they left the target area (see p. 61).

A day or two before the mission, we were brought into the briefing room, and the great secret was unveiled. The presentation was quite elaborate, and included movies of models of each of the several refineries we were to attack. The movies simulated the view of the target as a pilot would see it approaching at very low altitude. Everything would depend on surprise and exact timing. It was ex-

plained that the defenses were relatively light, and we would not have to concern ourselves too much about Romanian antiaircraft because Sunday was a day of rest for Romanians—even in time of war.

Some of the edge was removed from this optimism by Maj. Gen. Lewis E. Brereton, who addressed us all at an open-air meeting in the African sunshine, where he stressed the importance of our target by saying that our success would justify the loss of every aircraft! He did not mean, of course, that such losses were expected, but it gave us something to think about.

The day finally arrived—August 1, 1943. There were to be fifteen bombers in our particular formation—first, a three-plane element led by Col. Leon Johnson, our group CO, with Bill Brandon as his pilot, flying the venerable B-24 named *Suzy-Q*. Next would come six bombers trailing to the right, which we were leading in the *Buzzin' Bear*. Off to our left would be the remaining six aircraft, led by Dexter Hodge. Trailing behind would be a spare aircraft, piloted by Bob Felber. It was arranged that we would move into the lead should *Suzy-Q* falter for mechanical reasons en route to Ploesti. As it turned out, only one of the thirty-six aircraft of our 44th failed to reach the target area, a tribute to our maintenance men. I think it was also due in some measure to our dedication to Leon Johnson.

After approximately a minute at the end of our dirt runway, we followed three giant clouds of dust left by the lead element and climbed into the pink-gray morning skies over Bengasi. I was confident about the condition of the *Bear*. As we headed out now to join the lead element climbing just ahead of us, those engines never sounded better.

As we circled to take our place in formation, a large column of black smoke and orange flame blossomed up from an airfield just below us. We knew someone had not made the takeoff. It was a tragic end for one crew, and it did nothing to relieve our tensions.

Shortly afterward, we settled down and began the long, silent ride across the Mediterranean, barely visible in the hazy skies below and around us. Ahead of us were the

376th, 93d, and 98th Bomb Groups, in that order. Behind us flew the 389th Bomb Group, only recently arrived in England and almost immediately sent off to Africa to join us.

The intercom cut into my concentration. Jim DeVinney, our bombardier, called attention to a column of smoke rising from the sparkling sea below us. Although we hadn't seen it, the lead aircraft of the 376th had suddenly gone down, and with it the lead navigator. That crash has never been explained, to my knowledge.

Had I known at the time that the alternate leader had followed the leader down to look for survivors, I would have been even more concerned. At the time, however, I did not realize that we had lost the two crews that had been especially briefed and trained to lead the entire formation to Ploesti.

What a moment that must have been for Brig. Gen. Uzal G. Ent and **Col. Keith K. Compton**—flying in the third and remaining aircraft of that lead element—to suddenly find that command of this vital mission had been so unexpectedly thrust on them.

We were still puzzling over the smoke rising from the sea below when a bomber well in front of us swung out of formation and turned back toward us. As he passed under our flight, we could see that he had two engines feathered on the port side. All in all, these beginning omens were not good, but in general the mission appeared to be going very much as planned.

In order to clear the mountains of Albania and Yugoslavia, we had to make a long slow climb to 15,000 feet. At that point, I felt a foreboding of trouble for the first time. As far as the eye could see across our flight path, but still well ahead of us, there appeared to be a solid wall of towering cumulus clouds—beginning about where we judged the coastline to be.

The skies were clearer now, less hazy, and we could see the aircraft of the 98th Group very clearly, and beyond, numerous specks that would be the B-24s of the 93d, and perhaps the 376th as well. At any rate, the latter two groups were some distance ahead, not quite the way we had flown it in practice.

As we approached the clouds, they grew more menacing. It was vital that one group follow the other into the target area. Our success and our salvation depended not only on surprise, but also on a simultaneous sweep across our various targets. We must arrive together, attack together, and depart together. How would this be possible, we began to ask ourselves, if we were now to be separated penetrating the clouds? Would the mission now be abandoned? Would radio silence be broken to announce our recall?

Then one of the leading groups disappeared in the clouds, and we had our answer. The only question now was could we find that same hole and follow through it?

As the 98th, leading us, came closer to that solid wall, we searched for the opening until it became obvious we couldn't find it. The formation veered off to look for another opening and, at that moment, I knew that it was to be a new ball game.

The lead groups continued on course to Ploesti, while we lost time searching for a route through the clouds. It would not be a coordinated attack, and from that time on we would be alone with the pink-colored airplanes of the 98th.

Adding to our concern was flight engineer Sergeant Gibby's announcement that a fighter was approaching our formation. A fighter? Had we been spotted so soon? We were miles from the target.

"Hey, look!" someone yelled. "It's a biplane."

Strangely enough, that's what it was, and I agreed with copilot Bill Dabney's opinion that the pilot was a lot more startled to see us than we had been to see him! Nevertheless, we had been spotted.

Some minutes later we were clearing the clouds with only the aircraft of the 98th in sight ahead of us. Our own 44th was coming along in good shape. Even with this combined force of some seventy bombers, it felt very lonely.

Frank Maruszewski, our tail gunner, looked in vain for the 389th behind us. Nothing. I think we must have all felt threatened now, and the formation began to tighten up. We began our slow descent that would eventually take us below the treetops in the vicinity of a city named Ploesti.

We had now descended the Balkan east slope. It was almost peaceful as we droned on a straight course, mile after mile. Because of the relatively few bombers we could see, the skies seemed strangely empty, and nothing appeared to be moving on the green hills below.

Tom Clifford, our navigator, said we were fairly well on course, but I didn't know how our timing was, and it couldn't matter much now since we were obviously separated from the two groups in the lead. The 98th formation was still stretched out in front of us, and the 389th now appeared behind us and very high.

We were down to about 3,000 feet as we crossed the Danube and had a very clear view of the Ro-

THE AUTHOR

The author, Col. William R. Cameron, recently retired from the Air Force and now is living in Carmel, Calif. He was awarded the DSC for his part in the low-level Ploesti mission of August 1, 1943—the story he tells on these pages. Described by Gen. Leon Johnson as "one of the best combat leaders we had in World War II," Colonel Cameron served in postwar assignments at the Air University, on the Air Staff, in SAC bomb wings, and as Chief of the Military Assistance Advisory Group in Ecuador. He has written extensively about the Spanish missions of California. The photo was taken shortly after Ploesti.



manian countryside. Ploesti was still more than 160 miles away.

Pitesti, the first of three checkpoints before we began the turn on our bomb run, was now less than 100 miles ahead. We didn't know it then, but the two lead groups were some sixty miles ahead of us. They had reached the first checkpoint on time, but turned on the second checkpoint, and streaked on a correct course for Bucharest. It was a correct course, but for the wrong target!

The reader should understand now what we did not know then. It was obvious that the groups were very widely separated. As far as I knew, the 98th and the 44th were alone, although the 389th was actually nearby and behind us.

The 376th and 93d Bomb Groups were some twenty minutes ahead of us. After mistakenly turning east at the town of Targoviste, which closely resembled the correct checkpoint at the town of Floresti, the two lead groups realized their error and turned back to the north.

As a result, the 93d laid their bombs on the Astra Romana, Phoenix Orion, and Columbia Aguila refineries, which were the intended targets of the 98th and the 44th Bomb Groups.

The 376th had continued eastward somewhat further and then turned northward behind the attacking 93d. Observing the heavy losses suffered by the 93d as it attacked targets intended for the other groups, the 376th swung wide and abandoned the attempt to strike its targets. Considering that a successful attack against such a small target required precise navigation on the

bomb run, this was not surprising.

It was obvious that the vital elements of surprise and precise timing had by now been lost. All I can say, in hindsight, is that I am glad we didn't know what had happened. We were keenly aware of the smoke and the flame that was now becoming visible in the target area. We could begin to guess what was happening, but we did not know that those huge fires came from the very targets we had been assigned to attack at near ground level!

With the aircraft of the 98th stretched out before us, we had passed Pitesti and Targoviste and were nearing the turning point at Floresti. As Floresti came in view, with our altitude approximately 1,500 feet, things began to get very busy. By now, it was clear that our target had already been bombed and was in flames. What followed was probably the most action-packed thirty minutes of my life.

The long gaggle of pink-colored 98th B-24s began a wide descending turn to the right, and there we were, turning on the bomb run to the target labeled "White Five," the Columbia Aguila refinery. Colonel Johnson and Bill Brandon in the *Suzy-Q* turned their three-ship element inside the 98th, and all together some fifty bombers began to drop rapidly to their assigned bombing altitudes, flying parallel to a railroad on our right, which led directly toward our target.

As we made the turn, we pulled our six-ship flight into position directly behind *Suzy-Q*, and the remaining seven bombers fell in line behind us—sixteen 44th bombers in all. The last element numbered four

Liberators instead of three, because Bob Felber, in the spare B-24, refused to go home and stayed with us all the way.

The remaining twenty-one bombers from our group, led by Col. Jim Posey, split off at this point to attack the Brazi refinery, "Blue" target, five miles to the south of Ploesti.

In the meantime, the 389th had proceeded on alone from the first checkpoint, Pitesti, to attack the relatively isolated Steaua Romana refinery at Campina, eighteen miles northwest of Ploesti. It was called "Red" target.

Later reconnaissance showed that they did an outstanding job of precise bombing—equaling the performance of Jim Posey's formation against the Brazi refinery far to the south. Although the most destruction was inflicted on the White Five target by our formation, together with the earlier bombs left there by the 93d, the most precise work was done by the two groups assigned to the "outside" targets.

The 389th Group and Jim Posey's formation were the only two units with clear shots at their objectives, flying on their briefed routes. The 93d did have a clear shot, but attacked the wrong target on a course some ninety degrees off the assigned axis of attack.

As we approached the target area, several B-24s were coming in straight for us from our left, but there was no time then to try to figure that one out! It was just one of several unexpected happenings that had to be accepted. Later, we learned that these were Liberators from the 93d and 376th. Some of these aircraft had unfortunately dropped their bombs a few minutes earlier on the very target we were now rapidly approaching.

As we raced toward Columbia Aguila, leveling off at our bombing altitude of 250 feet, my eyes were glued on the *Suzy-Q*. Her target would be almost exactly in line with the spot where our own bombs were programmed to go. We were expected to place our load into a low profile building some 210 feet wide and 600 feet long. I was conscious of three specific situations.

First, we were edging in toward a train rolling side by side with us along the tracks on our right. It appeared to be exceptionally well



B-24s practicing low-level formation flying against simulated targets in the Libyan desert. Three Eighth Air Force groups from England joined two B-24 groups from the Mediterranean area for the Ploesti mission.

THE PLAN FOR THE PLOESTI ATTACK



As planned by Col. (later General) Jacob E. Smart, four groups would turn at Floresti to attack Ploesti targets line-abreast, with one group going to Campina.

HOW THE ATTACK WAS CARRIED OUT



Weather, navigation errors, and necessary improvisation resulted in this attack pattern. Maps are adapted from *The AAF in World War II (Vol. II)*, Univ. of Chicago Press, 1949.

equipped with anti-aircraft weapons of all calibers. By this time it seemed that almost all our own .50-caliber machine guns were in action, and judging by the excited chatter on our intercom, they were directed toward the train.

Second, the sky was becoming unusually crowded with pink aircraft sliding in on us from our left. Perhaps no moment of the entire episode worried me more than did the chilling knowledge that we were suddenly sandwiched between two bombers, one directly above us and one below!

I could not have lifted either wing during those few seconds without bringing sure destruction to the three of us. Even now, I can visual-

ize the rivets of the bomber above us, which I could see all too clearly. I could occasionally glimpse the bomber below, but could only concern myself with the one above. Miraculously, both of our large neighbors slid away from us. We were now heading toward a point where the railroad disappeared into a great mass of smoke and flame—the Columbia Aguila refinery.

By this time, I am quite sure that green and pink B-24s were mixed together as we neared our targets. I will always believe that a few pink bombers crossed through our formation just about the time we penetrated the smoke over the target area!

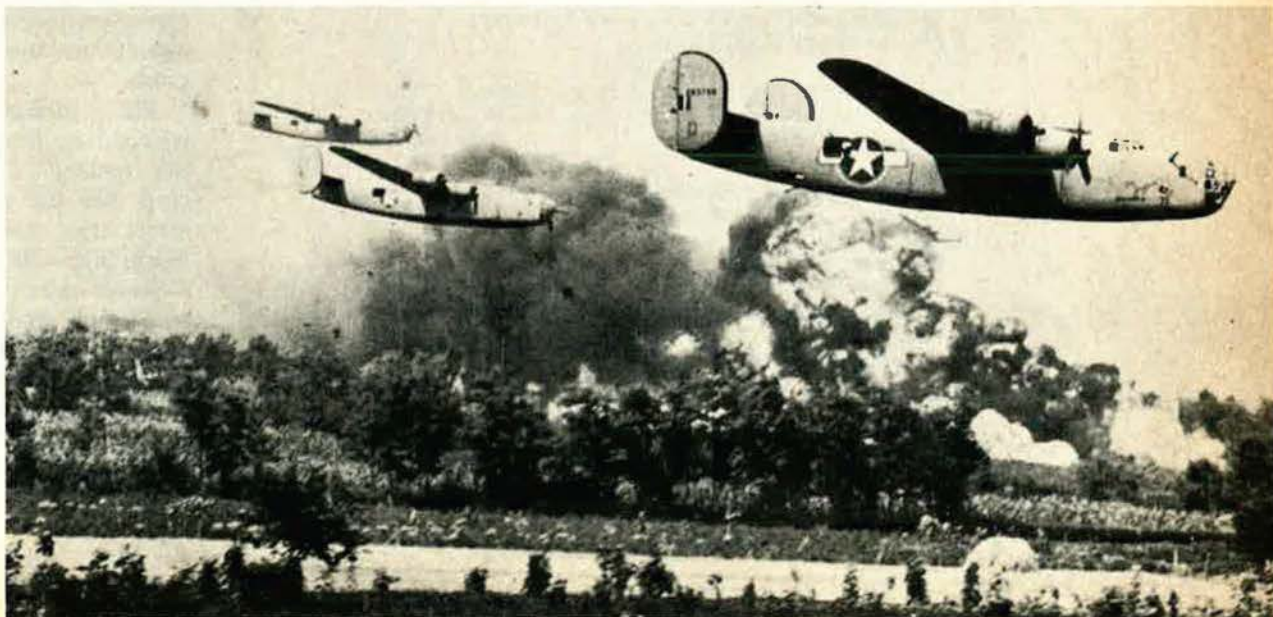
The third thing I became increas-

ingly aware of was the flame and huge columns of smoke just ahead of us. There were two raging areas of destruction. These were close together with a narrow tunnel of light in between. The wind was from our left, and the smoke from the towering flame on the left stretched high and over toward the fires on the right side, forming a top to the tunnel I have described.

It seemed to me that bombers were converging toward that one small area that was free of flame and explosions. And then the *Suzy-Q* disappeared in that smoke, and we were right behind.

Below me in the nose section I could hear DeVinney and Clifford frantically trying to pinpoint our

Liberators leaving the target at low altitude. After dropping his bombs, the author hit the deck—at one point pulling up to avoid a farmer who was working in the fields.



target. Then we were in the smoke—and then out of it. To this day, Bill Dabney maintains that our outside air temperature gauge reached its most extreme temperature reading as we sailed through the awful heat of those great fires that seemed to surround us!

If you have ever flown an airplane through a lone, fleecy white cloud, you will remember how suddenly you pop out on the far side. It was just like that, and just as abruptly I pushed hard on the control column and headed for the ground, all in a split second, and I am sure this near spontaneous action saved our lives. Staring up at us were numerous shirtless anti-aircraft gunners in gun emplacements with long, black gun barrels pointing directly at us.

We leveled and began a flat turn to the right. By flat I mean that I pushed hard on the right rudder but kept our wings from banking with opposite aileron control. It may be

that the skidding turn threw the gunners off, but whatever the reason, we escaped destruction.

Unable to find our building in the smoke (augmented by smoke pots), flame, exploding tanks, and the general confusion of that instant, our bombs were held too long. I can only hope that they fell in an area that contributed to the general destruction in the target complex.

Few if any aircraft came off that target lower than we did—at least at that moment. Every Liberator I saw was above us. The abrupt pitchdown from 250 feet dislodged the gunners in the rear, Sgts. Jerry Grett and Ernie "Mac" McCabe, but they were on their feet again in an instant.

Everything was happening awfully fast now. The *Suzy-Q* and her two wingmen, Reg Carpenter and Ed Mitchell, were in their turn just ahead. My own two wingmen, Charlie "Punchy" Henderson and Jim Hill, had dropped down with us

and were doggedly hanging on in formation as we skidded around that turn.

A B-24 ahead pulled straight up and then fell out of the sky. Two doll-like figures popped out of the waist windows, barely two or three hundred feet above the ground. I learned later that both men survived that fantastic jump.

As this was going on, and we were still in our turn, a V-formation of five to seven ME-109s swung headlong into us, going from our left to our right. I didn't know it but both Charlie Henderson and Jim Hill had received damage by this time. I have always assumed that Henderson was hit by those oncoming ME-109s, because the damage was in his nose section where both his navigator and bombardier were wounded. However, more official records give credit to a JU-88.

Jim Hill hit a barrage balloon cable that put a rip in his wing, but otherwise came through okay.

We took a hit somewhere along the line, ripping out hydraulic lines and putting our tail turret out of operation. There was a pretty fair-sized hole in the *Bear's* tail, but no one was hurt. The loss of the tail gun turned out to be a great disadvantage during the next few minutes. In the meantime, there was a rather wild mixture of bombers and fighters, and then we were leveling out and heading on the long road home. But we were not out of it yet.

The way things were developing, it had become almost a matter of individual survival, with little time to account for our companions. In fact, because of the personal nature of our targets, the three-ship elements were separated to enable each aircraft to attack its own aiming point.

The formation was further widened by the smoke, flame, and the tremendous barrage of anti-aircraft fire we encountered in the target area. And because we were using high—though not maximum—power settings, ships to the rear could not readily close up, especially if they were damaged. Nevertheless, the formation was beginning to assemble when all the fighters in Romania seemed to descend on us. From all directions came ME-109s, '110s, and '210s. All this took place

The Ploesti Raid—A Statistical Summary

The following data have been compiled from several sources, not always in agreement. They include: "The Army Air Forces in World War II" (Vol. II), edited by W. F. Craven and J. L. Cate, University of Chicago Press, 1949; "The Mighty Eighth," by Roger A. Freeman, Doubleday, 1970; and Col. W. R. Cameron, USAF (Ret.), author of the accompanying article.

Distance to target	1,350 miles
Aircraft actually attacking	167 B-24s
Axis defenses:	
Fighter aircraft	400
Heavy AA guns	237
B-24 losses:	
At target area	54
Crashed at sea	3
Interned in Turkey	7
B-24s returned to Bengasi	92
(55 returning bombers were badly damaged)	
B-24s landed at Allied bases	19
Total aircrew members participating	1,763
Personnel losses (killed, POW, missing, interned)	532
Personnel wounded	130
Bombs delivered	311 tons
Results:	
Refining capacity destroyed	42%
Cracking capacity destroyed	40%
Medals of Honor awarded:	
Col. Leon W. Johnson	
Col. John R. Kane	
Lt. Col. Addison E. Baker (posthumously)	
Maj. John L. Jerstad (posthumously)	
Lt. Lloyd H. Hughes (posthumously)	

Total losses for the entire campaign against the Ploesti oil resources, including Fifteenth Air Force missions of 1944-45: 286 USAAF bombers; thirty-eight RAF bombers; 2,829 aircrew members killed or captured.

not more than three to five minutes after leaving the target area.

The chatter on the intercom was pretty frantic by now, but in all the excitement I understood that a Liberator off to our right was fighting for its life against repeated fighter attacks. Then in a cloud of dust it was on the ground and skidding to a stop. The war was over, apparently safely, for that crew. Nearby, an ME-110 went down and exploded, joined almost immediately by an ME-109, which crashed, leaving a fiery trail through a field of wheat.

I was pulling about thirty-two inches of manifold pressure and indicating 220 to 225 mph as we closed in toward the lead element, when I noticed a twin-engine Dornier 217 just above and to our right. I usually left such matters to my eagle-eyed crew, who had scored five confirmed fighters over Naples not long before, but I yelled to Gibby on the intercom to bring this one to his attention. He called back that we could quit worrying about that one if we were to do anything about the several other fighters on our tail!

With the tail turret out, both Gibby and the waist gunners were busy warding off a number of single and twin-engine fighters that were to stay with us for the next fifteen to twenty minutes.

In the meantime, we saw other fighters overshoot us in their pursuit of bombers ahead. It was what could accurately be described as a running fight!

We were flying at about 100 feet now, because I intended to pull into close formation directly behind and under Colonel Johnson and Brandon. To elude the fighters, if we could, we went back down below the level of the scattered treetops. We followed the terrain, once lifting slightly to rise up over

a man plowing a field directly in our path. He never left his plow and acted as though American bombers flew over those fields every day.

I especially recall two well-spaced trees that I deliberately flew between, thinking to myself under circumstances that seemed very unreal, that I might never have the chance to do that again, legally.

Now the fighters appeared to have turned off, and we could begin to look around cautiously and take stock of our situation. As it turned out, the battle was over for us, but we learned later that the fighting went on for many of the other crews. Some were still being attacked by fighters after they had reached the Mediterranean.

By now, we had lost track of Henderson and Hill, who had taken up a direct route for Malta. It was a long, lonely trip, but they made it. Ed Mitchell, who had been flying on *Suzy-Q's* left wing, peeled off to land in Turkey. Worden Weaver, who was leading the flight behind, was hit very badly over the target and crashed about forty miles away—about the time we passed over the man plowing the field. Hit severely, with gaping holes in the fuselage and a missing vertical stabilizer, was the airplane flown by Bob Miller and Dexter Hodge, leading the fourth flight. Luckily, three of their engines were spared, and miraculously they made it safely 1,100 miles back to Bengasi. Both of their wingmen were lost.

Some distance away, Col. Jim Posey had led the other half of the 44th, twenty-one B-24s, on a very accurate strike against their separate target. They made it safely over their target, the Creditul Minier refinery at Brazi, five miles south of Ploesti, but lost Elmer Reinhart a short distance from the target. Reinhart was able to gain some altitude,

permitting his crew to bail out successfully.

Rowland Houston, an outstanding flyer, was shot down by a fighter moments later and was lost with his entire crew. Despite the two losses, the performance of those twenty-one bombers was one of the few success stories that can be told about the attack on Ploesti.

Eventually, we were well out over the Mediterranean and headed home. Where was everybody? I had taken a position on *Suzy-Q's* right wing, and Reg Carpenter was trailing somewhat behind us. We were throttled back, maintaining about 145 mph at minimum airspeed to conserve fuel, but primarily to permit Carpenter to keep up with us.

"P for Peter—R for Robert," he had called, "keep it slow. We've got some problems."

Dabney told me later that Carpenter's airplane looked like a battered wreck even in the twilight. We didn't hear anything more from Reg, and he continued to drop behind.

I could see wounds in *Suzy-Q's* tail and wingtip, but otherwise it was in good shape and so were we. However, Reg Carpenter and his crew failed to make it that night. They had slowly dropped back and below us. Eventually, they had to ditch. After twenty-nine very difficult and painful hours in a dinghy, they were picked up by an RAF launch in a rare night rescue operation.

It was dark now and at last we could see scattered points of light below, as trucks and jeeps and bombers maneuvered into their parking positions on our home field. Colonel Johnson and Brandon wasted little time; we could see their wing lights peeling off into the traffic pattern.

We were right behind, as we had been for the past thirteen hours and twenty minutes. As we pulled into our parking area and cut those four great engines, we were extravagantly greeted by Howard Moore and a number of our flight-line people—Sgts. Gilbert Hester, Ed Hanley, Marion Bagley, and others.

And so it ended up that only two of us were back out of the formation of sixteen assigned to attack White Five. It had been a long day. ■



Best bombing of the day was done by twenty-one B-24s of the 44th Bomb Group. Led by Col. Jim Posey, they had a clear shot at the Creditul Minier refinery at Brazi, five miles south of Ploesti. The lead element had just dropped its bombs when this picture was taken.

Levy's

**Laws
of
the
Disillusionment
of
the
True
Liberal**

1 Large numbers of things are determined, and therefore not subject to change.

2 Anticipated events never live up to expectations.

3 That segment of the community with which one has the greatest sympathy as a liberal inevitably turns out to be one of the most narrow-minded and bigoted segments of the community.

(Marion Stanley Kelley, Jr.'s Reformulation: Last guys don't finish nice.)

4 Always pray that your opposition be wicked. In wickedness there is a strong strain toward rationality. Therefore, there is always the possibility, in theory, of handling the wicked by outthinking them.

COROLLARY ONE: Good intentions randomize behavior.

SUBCOROLLARY ONE: Good intentions are far more difficult to cope with than malicious behavior.

COROLLARY TWO: If good intentions are combined with stupidity, it is impossible to outthink them.

5 In unanimity there is cowardice and uncritical thinking.

6 To have a sense of humor is to be a tragic figure. **7** To know thyself is the ultimate form of aggression.

8 No amount of genius can overcome a preoccupation with detail. **9** Only God can make a random selection.

Marion Levy is a sociologist at Princeton University.

JANIE'S

ALL THE WORLD'S AIRCRAFT SUPPLEMENT



Head-on view of Mil V-12 (Mi-12) heavy-duty transport helicopter (four 6,500 shp Soloviev D-25VF turboshaft engines) (Tass)

MIL **MIKHAIL L. MIL, USSR**

Following the death of Mikhail L. Mil, on 31 January 1970, leadership of his design bureau has been taken over by Marat N. Tischenko. Among the types for which he is responsible is the V-12 (Mi-12), by far the largest helicopter in the world, which made its first public appearance outside Russia at the recent Paris Air Show.

MIL V-12 (Mi-12) **NATO Code Name: "Homer"**

First confirmation of the existence of this aircraft was given in a statement in March

1969 that it had set a number of payload-to-height records which exceeded by some 20 per cent the records established previously by the Mi-6 and Mi-10K.

Flying from the airfield at Podmoskovnoie on 22 February 1969, the V-12 climbed at a rate of more than 600 ft (180 m)/min to an altitude of 9,682 ft (2,951 m) carrying a payload of 68,410 lb (31,030 kg). This represented new records for maximum load lifted to a height of 2,000 m, and for height attained with payloads of 20,000, 25,000 and 30,000 kg. The pilot was Vasily Kolochenko who, on 6 August 1969, far exceeded his own record for payload raised to 2,000 m by lifting 88,636 lb (40,204.5 kg)

to a height of 7,398 ft (2,255 m) in the V-12, which carried a full crew of six. This flight also qualified for new payload-to-height records with 35,000 kg and 40,000 kg.

Work on the V-12 had started in 1965, the basic requirement being for a VTOL aircraft that could accommodate missiles and other payloads compatible with those carried by the An-22 fixed-wing transport. The original specification called for a tandem-rotor configuration, using existing dynamic components. Instead, the Mil design bureau obtained approval for a side-by-side rotor layout, claimed to offer better stability, reliability and fatigue life. Thus, the V-12 utilises two power plant/rotor packages



Mil V-12 (Mi-12) heavy-duty transport helicopter in flight (four 6,500 shp Soloviev D-25VF turboshaft engines) (Tass)

similar to those of the Mi-6/Mi-10 series, mounted at the tips of its fixed wings.

The D-25VF engines are uprated by comparison with the D-25Vs fitted to the earlier helicopters, by the addition of a zero stage on the compressor and by acceptance of higher operating temperatures.

The prototype V-12 is reported to have crashed in 1969, largely as a result of engine failure, without fatalities. Two prototypes were flying in mid-1971, and production of several hundred V-12s was expected to begin before the end of the year. They are expected to embody a number of modifications. In particular the fixed wings will probably have increased camber in place of the present trailing-edge flaps, which have been fixed since their original function to improve autorotation performance was proved unnecessary.

In addition to its military applications, the V-12 will be operated by Aeroflot, notably for supporting oil and natural gas production and for hauling geophysical survey equipment, vehicles and heavy freight in remote regions of the Soviet Union. It is claimed to be easy to fly by average pilots with experience of handling other types of helicopters and to have an extremely low vibration level, particularly on the flight deck. No special ground equipment is needed for servicing.

TYPE: Heavy general-purpose helicopter.

ROTOR SYSTEM: Two five-blade opposite-rotating rotors, mounted side-by-side at the tips of fixed wings. Port rotor turns in clockwise direction, starboard rotor anti-clockwise, viewed from below. All-metal blades, similar to those of Mi-6/Mi-10, with trailing-edge tabs. Rotors are cross-shafted to ensure synchronisation and to maintain rotation following the failure of engines on either side. Rotor rpm 112.

WINGS: High-mounted strut-braced wings, with considerable dihedral and inverse taper to give increasing chord from root to tip. All-metal construction. Long-span two-section fixed (originally three-position) trailing-edge flaps on each wing.

FUSELAGE: Conventional all-metal semi-monocoque structure, with clam-shell rear loading doors and ramp. Two side-by-side "bumpers" under ramp.

TAIL UNIT: Cantilever all-metal structure comprising central main fin and rudder, small dorsal fin, tailplane, elevators and end-plate auxiliary fins. Tailplane has considerable dihedral. Auxiliary fins are toed

inward at leading-edges. Tabs on rudder and elevators.

LANDING GEAR: Non-retractable tricycle type, with twin wheels on each unit. Steerable nose-wheels. Main wheel tyres size 1750 x 730; nose-wheel tyres size 1200 x 450.

POWER PLANT: Four 6,500 shp Soloviev D-25VF turboshaft engines, mounted in side-by-side pairs under tips of fixed wings. Each pair is coupled to drive one rotor, with cross-shafting. Lower part of cowling under each pair of engines can be lowered about 6 ft (1.8 m) by hand-crank to form working platform for up to three men and to provide access for servicing of power plant and rotor head. Cowling side panels hinge downward for same purpose. Cylindrical external fuel tank mounted on each side of main cabin.

ACCOMMODATION: Main flight deck in nose has side-by-side seats for pilot (port) and co-pilot in front. Flight engineer's station behind pilot; electrician seated behind co-pilot. Upper cockpit seats navigator and

radio operator in tandem. Windscreen panels forward of pilot, co-pilot and navigator fitted with wipers. Rubber-bladed fans for cooling crew accommodation. Unobstructed main cargo hold has rails in roof for electrically-operated platform-mounted travelling crane with four loading points each capable of lifting 5,500 lb (2,500 kg) and max capacity of 22,000 lb (10,000 kg) for a single item. About 50 upward-folding seats along side walls for work crews or troops accompanying freight loads. Primary access to hold between rear clam-shell doors which hinge outward and upward, via downward-hinged ramp. Rearward-sliding door forward of fuel tank on port side. Emergency exit door on each side at rear of hold. Downward-hinged emergency exits on starboard side of main flight deck and upper cockpit.

SYSTEMS AND EQUIPMENT: Electrical system has 480kW capacity. Ground mapping radar in under-nose blister fairing. Fail-safe powered control system and automatic stabilisation system standard, but aircraft can be landed manually. Ivchenko AI-8V APU for independent engine starting.

DIMENSIONS, EXTERNAL:

Diameter of main rotors (each)	114 ft 10 in (35.00 m)
Span over rotor tips	219 ft 10 in (67.00 m)
Length of fuselage	121 ft 4½ in (37.00 m)
Height overall	41 ft 0 in (12.50 m)

DIMENSIONS, INTERNAL:

Freight compartment:	
Length	92 ft 4 in (28.15 m)
Max width	14 ft 5 in (4.40 m)
Max height	14 ft 5 in (4.40 m)

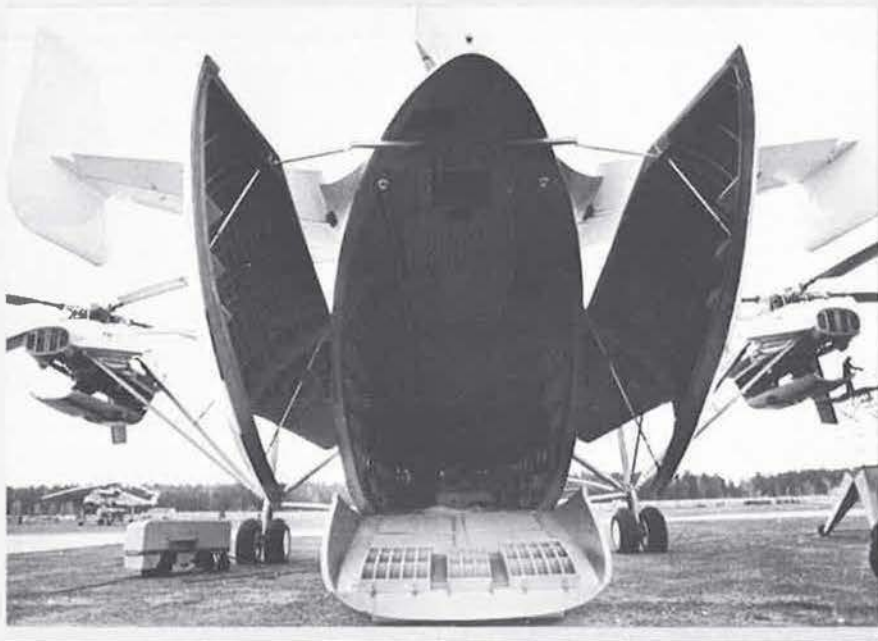
WEIGHTS:

Normal payload:	
VTOL	55,000 lb (25,000 kg)
STOL	66,000 lb (30,000 kg)
Normal T-O weight	213,850 lb (97,000 kg)
Max T-O weight	231,500 lb (105,000 kg)

PERFORMANCE:

Max level speed	140 knots (161 mph; 260 km/h)
Max cruising speed	130 knots (150 mph; 240 km/h)
Service ceiling	11,500 ft (3,500 m)
Range with 78,000 lb (35,400 kg) payload	270 nm (310 miles; 500 km)

Rear view of Mil V-12 (Mi-12) heavy-duty helicopter with clam-shell loading doors open and ramp lowered (Tass)



BELL AEROSPACE COMPANY
 USA: BELL AEROSPACE COMPANY
 DIVISION OF TEXTRON INC; Head Of-
 fice and Works: Buffalo, New York 14240

BELL PILOT SELF-RESCUE SYSTEM

Bell Aerospace Company has completed successfully the initial flight test and evaluation programme of an experimental aircrew self-rescue system that was designed to investigate the feasibility of using a jet-powered parawing to carry an ejection seat and its occupant clear of hostile territory. The provision of such a self-rescue system for the crews of aircraft operating in non-combat zones would enable them to avoid hazards such as mountains, forests, large bodies of water, buildings and power lines if forced to eject from their aircraft. Following ejection, the parawing would be deployed and the jet engine ignited automatically. After escaping from the danger area at a speed of 87 knots (100 mph; 161 km/h) or more, the occupant would jettison the seat and parachute to the ground. An operating range of 43 nm (50 miles; 80.4 km) is envisaged.

This research was carried out under contract to the USAF's Flight Dynamics Laboratory, as part of its Integrated Air Crew Escape/Rescue Systems Capability (AERCAB) programme.

The Bell design for a feasibility model to evaluate the concept stemmed from a company-funded programme initiated in 1967. This, designated the Discretionary Descent Device, was made up of a 170-lb (77-kg) st Bell Rocket Belt, an aircraft ejection seat and a non-rigid parawing with a gross area of 800 sq ft (74.3 m²), the entire system being mounted on a four-wheeled frame.

A series of 24 unmanned/manned, unpowered/powered drop tests was made during 1968 from a helicopter flying at altitudes ranging from 3,500 to 9,000 ft (1,070-2,745 m) and Bell claims to have achieved the first manned free flight of a powered non-rigid parawing in this period.

Under the contract awarded in March 1969, Bell Aerospace constructed four feasibility models, the first three of which were fully instrumented and equipped with impact attenuation gear, plus provision for installation of a 200 lb (91 kg) st Continental M327-1X turbojet engine. Designed primarily for re-use and to acquire quantitative in-flight aerodynamic data, their configuration was such as to represent the approximate volume, shape and weights of ejection seat/man/engine combinations. The weights of these three vehicles varied from 490 to 590 lb (222-268 kg).

The fourth feasibility model was a full-scale Simulated Operational Vehicle (SOV) that weighed 401 lb (182 kg) and was equipped with a roll stabilisation system, and an F-106 ejection seat occupied by an anthropomorphic dummy.

Flight tests were carried out at the US Defense Department's Joint Parachute Test Facility, the unmanned remotely-controlled test vehicles being towed by helicopter to altitudes of 3,500 to 11,000 ft (1,070-3,350 m), and released to investigate free-flight characteristics in gliding and powered flight. A total of 23 test flights were made, of which 18 were unpowered. During the five powered flights, speeds of up to 120 knots (138 mph; 222 km/h) were recorded and free-flight manoeuvres including "figure-eights" and 180° turns were demonstrated. The SOV's unpowered drop tests included a sequence in which the dummy separated successfully from the ejection seat and made a landing by a personnel parachute. Between them, the test vehicles accumulated a total of about 6 hours' flight time.

The flight test programme has demonstrated the airworthiness of the jet-powered



Pilot seated on Bell's parawing self-rescue system

parawing, with excellent controllability at wing loadings of up to 19 lb/sq ft (92.7 kg/m²). This latter figure is nearly 11 lb/sq ft (53.7 kg/m²) higher than any previously recorded loading for this type of wing and represents a wing area of 28.2 sq ft (2.62 m²).

For all of the above tests the parawing was pre-deployed and coupled rigidly to its module assemblies. After release at altitude the vehicles were controlled remotely from a radio command ground station, the final stage of descent being made by means of a large parachute that was deployed at a prescribed altitude. At the time of writing tests were being made with the parawing in the stowed condition, requiring it to be deployed automatically to put the test vehicle in flight configuration.

AERMACCHI

AERONAUTICA MACCHI SpA; Head Office: Corso Vittorio Emanuele 15, Milan, Italy

AERMACCHI M.B. 326K

The M.B. 326K is a single-seat operational trainer and light ground attack aircraft developed from, and based upon the airframe

of, the M.B. 326G, retaining most of the structure and systems of the latter aircraft. Logistic problems, and the transition of pilots to the new type, are thus simplified for air forces already using the basic M.B. 326 for training purposes.

Major differences in the M.B. 326K, compared with the M.B. 326G, include the installation of a more powerful Rolls-Royce Bristol Viper 600 series turbojet engine; deletion of the rear pilot's station; single-seat front cockpit, which is pressurised and has provision for armour protection from small-arms fire; and additional fuel tanks in the fuselage. Offensive capabilities are enhanced by the installation of two 30-mm cannon in the fuselage, and by increasing to six the number of underwing stations for bombs, rockets or additional fuel tanks.

Provision is made for complete instrumentation for navigation and armament delivery systems, and for self-sealing fuel tanks and armour protection for the pilot and vital engine and fuel system areas.

A prototype of the M.B. 326K flew for the first time on 22 August 1970.

TYPE: Single-seat operational trainer and light ground attack aircraft, stressed for flight load factors of +7.33 g and -3.5 g and for fatigue life of 5,000 hr.

WINGS: Cantilever low-wing monoplane. Wing section NACA 6A series. All-metal stressed-skin structure, with single main spar and auxiliary rear spar. All-metal ailerons, with internal seal compensation and balance-tabs; electrically-operated trim-tab in port aileron. Hydraulically-operated single-slotted flaps, with automatic retraction above 160 knots (185 mph; 297 km/h).

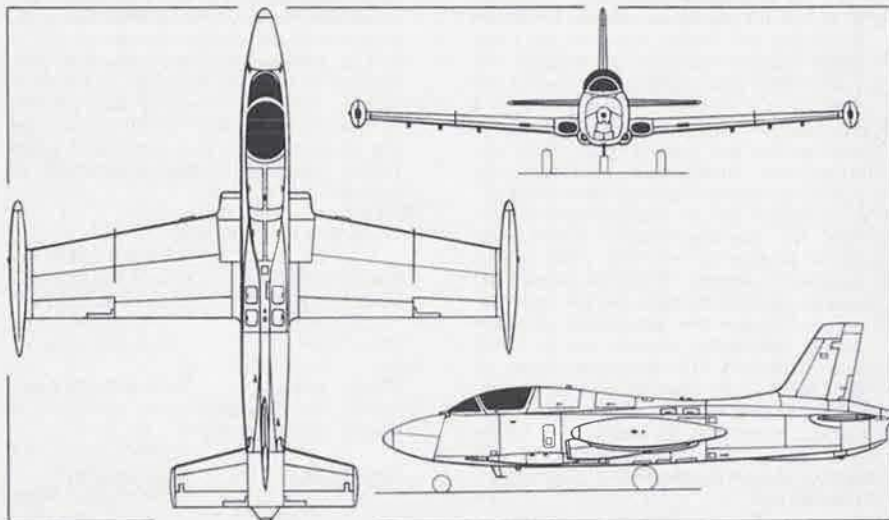
FUSELAGE: All-metal semi-monocoque stressed-skin structure, built in four main sections. Aft section detachable, by undoing four bolts, for engine removal. Hydraulically-operated air-brake under centre fuselage.

TAIL UNIT: Cantilever all-metal structure. Manually-operated elevators, with balance-tabs and electrically-operated trim-tabs. Detachable vertical fin. Electrically-operated trim-tab in rudder.

LANDING GEAR: Hydraulically-retractable tricycle type, with single wheel and low-pressure tyre on each unit. Oleo-pneumatic shock-absorbers. Nose-wheel retracts forward, main units outward into wings. Separate emergency extension system. Tyre pressure at max T-O weight 100 lb/sq in (7 kg/cm²). High-capacity hydraulic disc brakes.

POWER PLANT: One 4,000 lb (1,814 kg) st

Aermacchi M.B. 326K (Rolls-Royce Bristol Viper Mk 632-43 turbojet engine)





Prototype Aermacchi M.B. 326K single-seat operational trainer and light ground attack aircraft

Rolls-Royce Bristol Viper Mk 632-43 turbojet engine; air inlet screens (for protection from stones or grass) retract into inlet fairings when not in use. Fuel in three rubber fuselage tanks and two permanent wingtip tanks, total usable capacity 366 Imp gallons (440 US gallons; 1,660 litres). Provision for installing self-sealing fuselage tanks and reticulated foam anti-explosive filling in all tanks, including those at wingtips. Two underwing stations equipped normally to carry jettisonable auxiliary tanks of up to 75 Imp gallons (90 US gallons; 340 litres) capacity each. Optionally, for ferry missions, four underwing tanks may be carried. Single-point pressure refuelling receptacle and auxiliary gravity refuelling points.

ACCOMMODATION: Pilot on Martin-Baker WY-6A zero-zero rocket ejection seat in pressurised, heated and air-conditioned cockpit. Separately-controlled canopy jettison system provided, but seat is fitted with breakers to permit ejection through canopy in an extreme emergency. Canopy hinges sideways to starboard.

SYSTEMS: Pressurisation system maintains cabin differential of 3.5 lb/sq in (0.25 kg/cm²) to give cabin equivalent of 22,000 ft (6,700 m) up to an altitude of 40,000 ft (12,200 m). Water separator for regulating cockpit humidity in tropical climates. Hydraulic system, pressure 2,500 lb/sq in (175 kg/cm²), operates through a constant-flow engine-driven pump to provide power for landing gear, flap, air-brake and wheel-brake actuation. No pneumatic system. Primary electrical power provided by an engine-mounted 30V 9kW DC starter-generator. Autonomous engine starting by two 24V 22Ah nickel-cadmium batteries. Fixed-frequency AC system powered by two 600VA static inverters. Battery for emergency electrical power. Optionally, aircraft can be fitted with a second DC generator, rated at 6kW, or with an engine-driven frequency-wild alternator rated at 6kVA, which can provide power for an optional air intake anti-icing system or, in an emergency, can provide DC power through a transformer-rectifier unit.

ELECTRONICS AND EQUIPMENT: Variety of navigational and tactical equipment, to customer's specification, which can include main (3,500-channel) and standby (5-channel) UHF transceivers or two 680-channel VHF transceivers, TACAN, VOR/ILS and marker beacon, flight director computer with integrated instrumentation, ADF, UHF/DF, navigation computer and Doppler radar. Weapon-sighting equipment may range from a fixed reflector gun-sight to a gyroscopic lead-computing sight, with provision to install a laser rangefinder and a bombing computer.

ARMAMENT AND OPERATIONAL EQUIPMENT: Standard fixed armament of two 30-mm Aden or DEFA electrically-operated cannon in lower front fuselage, with 150 rpg. Six underwing pylons, the inboard four stressed to carry up to 1,000 lb (454 kg) each and the outboard pair up to 750 lb (340 kg) each. Max external military load (with reduced fuel) is 4,000 lb (1,814 kg). Each pylon fitted with standard NATO 14-in (35.5-cm) MA-4A stores rack. Typical loads may include two 750-lb and four 500-lb bombs, four napalm containers, two AS.11 or AS.12 air-to-surface missiles, two machine-gun pods, thirty-six 80-mm SURA rockets, six SUU-11A/A 7.62-mm Minigun pods, and various Matra or other launchers for 37-mm, 68-mm, 100-mm, 2.75-in or 5-in rockets. A four-camera tactical reconnaissance pod can be carried on the port inner pylon without affecting the weapon capability of the other five stations.

DIMENSIONS, EXTERNAL:

Wing span over tip-tanks	35 ft 7 in (10.85 m)
Length overall	34 ft 11 in (10.64 m)
Height overall	12 ft 2 in (3.71 m)
Wheel track	7 ft 7 in (2.31 m)
Wheelbase	13 ft 7 in (4.14 m)

AREA:

Wings, gross	208.3 sq ft (19.4 m ²)
--------------	------------------------------------

WEIGHTS AND LOADINGS:

Weight empty, equipped	6,240 lb (2,830 kg)
Manufacturer's basic weight empty	6,300 lb (2,857 kg)

Operational weight empty

	6,500 lb (2,948 kg)
T-O weight (clean)	9,680 lb (4,390 kg)
Typical operational T-O weights:	
patrol and visual reconnaissance	11,130 lb (5,048 kg)
photographic reconnaissance	11,270 lb (5,111 kg)
Max T-O and landing weight	12,000 lb (5,443 kg)
Normal design landing weight	10,000 lb (4,535 kg)
Max wing loading	57.3 lb/sq ft (280 kg/m ²)
Max power loading	3.0 lb/lb st (3.0 kg/kg st)

PERFORMANCE (A = aircraft clean, at AUW of 9,680 lb; 4,390 kg. B = armed aircraft at max AUW):

Max design limit speed at S/L

A 500 knots (576 mph; 927 km/h) EAS

Max limiting Mach number 0.82

Max level speed at 5,000 ft (1,525 m):

A 480 knots (553 mph; 890 km/h) TAS

Max level speed at 30,000 ft (9,145 m):

B 370 knots (426 mph; 686 km/h) TAS

Stalling speed, flaps up:

A 102 knots (118 mph; 190 km/h) CAS

B 113 knots (130 mph; 210 km/h) CAS

Stalling speed, flaps down:

A 91 knots (105 mph; 169 km/h) CAS

B 102 knots (118 mph; 190 km/h) CAS

Rate of climb at S/L:

A 6,500 ft (1,980 m)/min

B 3,750 ft (1,143 m)/min

Time to 35,000 ft (10,670 m):

A 9 min 30 sec

B 23 min 0 sec

Runway LCN at max T-O weight

5

T-O run, ISA:

A 1,350 ft (411 m)

B 2,200 ft (670 m)

T-O run, ISA + 20°C:

A 1,700 ft (518 m)

B 2,675 ft (815 m)

T-O to 50 ft (15 m), ISA:

A 1,875 ft (572 m)

B 3,000 ft (914 m)

T-O to 50 ft (15 m), ISA + 20°C:

A 2,325 ft (709 m)

B 3,800 ft (1,158 m)

Max rate of descent at impact:
 at 10,000 lb (4,535 kg) AUW
 10 ft (3.05 m)/sec
 at 12,000 lb (5,443 kg) AUW
 7 ft (2.13 m)/sec

Typical combat radius:

B (max internal fuel and 2,320 lb;
 1,052 kg external weapons), low altitude
 throughout
 145 nm (167 miles; 268 km)
 B (reduced fuel and 4,000 lb; 1,814 kg
 external weapons), low altitude
 throughout 50 nm (57 miles; 91 km)
 visual reconnaissance with max internal
 fuel and two external tanks
 400 nm (460 miles; 740 km)
 photo-reconnaissance with two auxiliary
 tanks and camera pod, hi-lo-hi
 560 nm (644 miles; 1,036 km)

Max ferry range (four underwing tanks)
 more than 1,800 nm (2,072 miles; 3,334
 km)

ILYUSHIN

SERGEI VLADIMIROVICH ILYUSHIN,
 USSR

Further information on the Il-38 ASW
 aircraft, now available, has permitted pre-
 paration of the most accurate three-view
 drawing yet reproduced in any journal. De-
 tails of the aircraft are as follows:

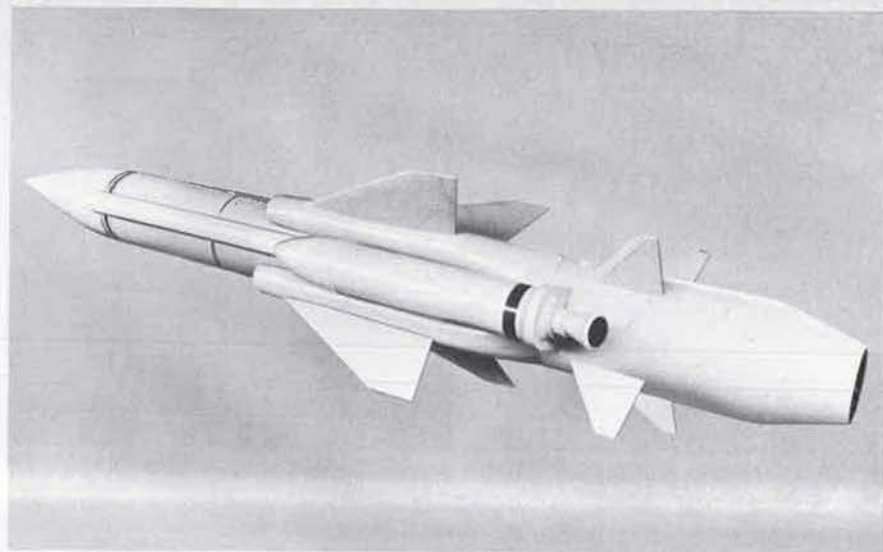
ILYUSHIN Il-38

NATO Code Name: "May"

Growing numbers of anti-submarine/
 maritime patrol aircraft based on the Il-18
 transport are in service with the Soviet naval
 air force under the designation Il-38, and
 have been given the NATO code name
 "May." No photographs are yet available,
 but the general appearance of the aircraft
 is shown in the accompanying three-view
 drawing.

The Il-38 represents a conversion similar
 to that by which the US Navy's P-3 Orion
 was evolved from the Lockheed Electra
 transport. It has a lengthened fuselage fitted
 with an under-nose radome similar in shape
 to that of the Ka-25 ASW helicopter but
 housing a different radar, an MAD tail
 "sting," other specialised electronic equip-
 ment and a weapon-carrying capability.

The main cabin of the Il-38 has few
 windows. The complete wing assembly is
 further forward than on the Il-18, pre-
 sumably to cater for the effect of internal



Mock-up of the Matra/Oto Melara Otomat ship-to-ship missile

equipment and stores on the CG position.

Il-38s have been reported in service with
 Soviet units based in Egypt, and have also
 been encountered during NATO naval ex-
 ercises in more northern waters.

MATRA/OTO MELARA

SA ENGINS MATRA; Head Office: 4 rue
 de Presbourg, 75-Paris XVIe, France
 OTO MELARA SpA; Head Office: Via
 Valdicocchi 15, 19100 La Spezia, Italy

Following the destruction of the Israeli
 destroyer *Eilat* by Soviet "Styx" missiles
 launched from Egyptian fast patrol boats in
 1967, much effort has been put into devel-
 opment of countermeasures against such
 weapons. The French Exocet and Israeli
 Gabriel ship-to-ship missiles offer a defence
 against "Styx" by attacking enemy launch
 vessels before they can fire the weapon,
 rather than by trying to intercept it after
 launch. The new Otomat missile, being devel-
 oped jointly by Matra of France and
 Oto Melara of Italy, is similar to the rocket-
 propelled Exocet in basic layout and pur-

pose but is powered by a turbojet engine
 which gives it a much greater range. Its
 name is a contraction of *Oto Melara* and
Matra.

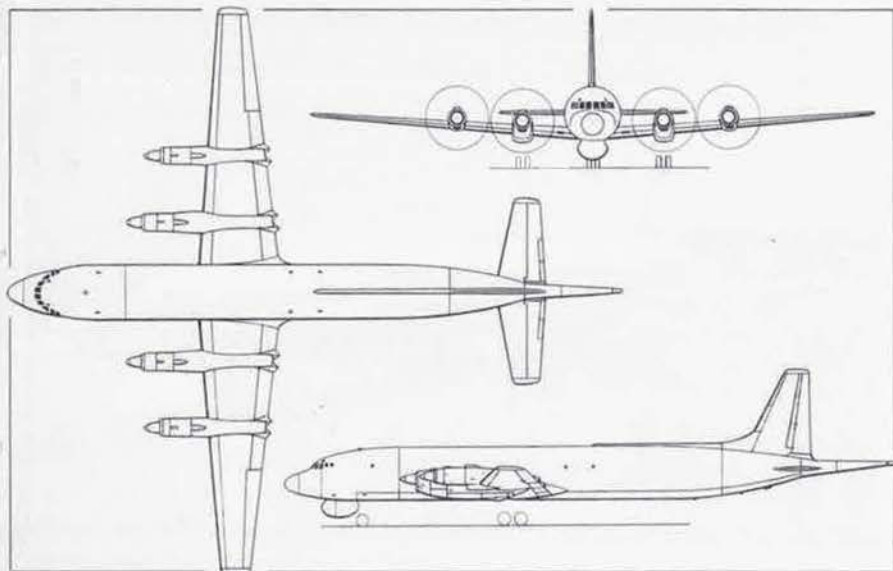
MATRA/OTO MELARA OTOMAT

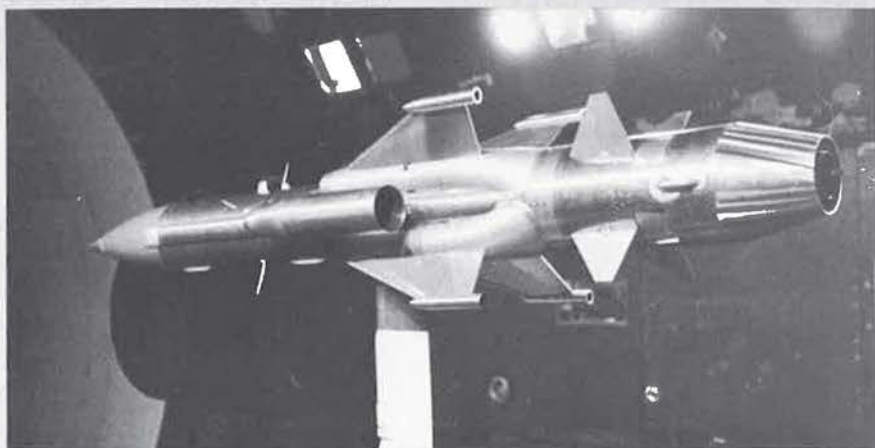
Matra and Oto Melara began joint devel-
 opment of Otomat in 1969 after several
 years of independent work on missiles of
 this type. First details of the programme
 were released at the *Salon de l'Armement
 Naval* held at le Bourget in September 1970.
 Firing trials are scheduled to begin this
 year, followed by final trials in 1972 and
 delivery of the first operational missiles in
 1973. Initial deliveries of Otomat will be
 made to the Italian Navy, to arm the new
 fast patrol boats of the *Freccia* class, each
 of which will be fitted with four launchers.
 The missile will be equally suitable for use
 from land bases or for air-to-surface use
 from fixed-wing aircraft and helicopters.

The general appearance of Otomat is
 shown in the photograph on page 70 of a
 full-scale model that has been tested in
 ONERA's S-1 wind tunnel at Modane-
 Avrieux. Its cylindrical body houses, from
 nose to tail: a Thomson-CSF active radar
 homing head inside an ogival nose-cone, a
 semi-armour-piercing warhead weighing
 more than 440 lb (200 kg), inertial plat-
 form, control package, computer and radio
 altimeter, kerosene tank, oil tank, tail
 control surface actuators, and Turboméca Arbi-
 zon III turbojet. This power plant is based on
 the Turmo III free-turbine turboshaft and
 has a rating of 882 lb (400 kg) st. It is sup-
 plied with air through four semi-circular
 ducts equi-spaced around the body of the
 missile, with their intakes at about the mid-
 point from nose to tail. Each duct carries
 one of the cruciform swept wings, with
 which the tail control surfaces are indexed
 in line.

Missiles will be delivered in containers
 which will serve also as launchers, mounted
 in fixed positions on the ship. This is made
 possible by Otomat's ability to change di-
 rection up to 180° port or starboard after
 launch to put itself on course for the target.
 The launch-ship does not, therefore, need
 to change course when launching the weap-
 on, even if the target is to its rear. Firing
 is possible in all weathers, or at night, and
 the presently-planned range is 32-43 nm
 (37-50 miles; 60-80 km). Fuel capacity is
 sufficient for much longer ranges, if required,
 and Otomat is capable of operation over

Provisional three-view drawing of Ilyushin Il-38 anti-submarine/maritime patrol aircraft





Full-scale test version of the Matra/Oto Melara Otomat ship-to-ship missile in the ONERA wind tunnel at Modane-Avrieux

distances far beyond the conventional radar horizon of a ship. The incendiary effect of fuel remaining in its tank at the time of impact is added to the destructive force of the warhead.

Before the missile is fired, its basic course to target is calculated by the launch-vessel's radar and fire control system, which can be of any existing type such as the Thomson-CSF Triton. Reaction time after target identification is 30 seconds.

Otomat is launched at an inclination of 20° with the aid of two side-mounted jet-tisonable boosters. After climbing to a height of 500 ft (150 m) it descends within a distance of about 2 nm (2.5 miles; 4 km) to its cruising height of 50 ft (15 m), which is maintained by a TRT type AHV-7 radio altimeter and makes it difficult for the target to detect the approaching missile by radar. The inertial platform takes care of navigation until the missile is about 6.5 nm (7.5 miles; 12 km) from the target, where its active homing head locks on to the enemy ship. The final stage of attack could be made at low level if the sea state permitted. Normally, Otomat will begin climbing at a distance of about 3.75 nm (4.35 miles; 7 km) from the target, in order to make its impact at the end of a steep terminal dive.

The following data apply to the standard Otomat for operation from ships, shore bases or helicopters. The version carried by fixed-wing aircraft would have a much lower launching weight, as it could dispense with the usual booster rockets.

DIMENSIONS:

Length overall 15 ft 9¼ in (4.82 m)
 Body diameter:
 Forward of air intakes 15.75 in (40 cm)
 Over turbojet housing 18.11 in (46 cm)
 Wing span 3 ft 10¾ in (1.19 m)

WEIGHT:

Launching weight 1,543 lb (700 kg)

PERFORMANCE (estimated):

Cruising speed Mach 0.82
 Range 32-43 nm (37-50 miles; 60-80 km)

DASSAULT

AVIONS MARCEL DASSAULT; Head Office: 27 Avenue du Professeur Pauchet, 92 - Vaucresson, France

DASSAULT MERCURE

The Mercure is a 124/155-seat twin-engined short-haul transport aircraft, optimised for very short ranges of 108-810 nm (125-1,000 miles; 200-1,500 km); development was started in 1967.

The first of two prototypes (F-WTCC), powered by 15,000 lb (6,804 kg) st Pratt & Whitney JT8D-11 turbofan engines, was flown for the first time on 28 May 1971. The second prototype, which is due to fly in July 1972, will have more powerful JT8D-15 engines, which will also be fitted to production Mercures. Two additional airframes are being completed for static and fatigue testing.

Certification of the Mercure is anticipated during the first quarter of 1973, with the first airline deliveries taking place in the Spring of 1973. Air Inter has an option on 12 Mercures for delivery in 1973-74. The Mercure is intended primarily for operation beneath the airbus level but with greater capacity than is available in the present generation of short-haul twin-jets.

The launching programme for the Mercure is estimated to cost 800m Fr (£64m), covering the cost of the two prototypes, two static test airframes, certification and production tooling. Of this sum, the French contribution represents 70 per cent. The remaining amount is shared principally between Aeritalia (Fiat) in Italy (10 per cent), who will manufacture the tail unit and fuselage tail-cone; CASA in Spain (10 per cent), who will manufacture the first

and second fuselage sections; SABCA in Belgium (6 per cent), who will build the flaps, ailerons, spoilers and air-brakes; and F + W (Emmen) in Switzerland (2 per cent), who will be responsible for the engine air intakes and cowling panels.

The description below applies to the production version, except where otherwise indicated.

TYPE: Twin-turbofan short-range large-capacity transport.

WINGS: Cantilever low-wing monoplane.

Special Dassault wing sections, having thickness/chord ratio of 12½ per cent at root, 8 per cent at tip. Dihedral 5°. Incidence 3° 15' at root. Sweepback 25° at quarter-chord. Two-spar fail-safe torsion-box structure, each wing being made up of one-piece spars and eight skin panels with built-in stiffeners and cells and machined ribs. On to this torsion box is built a slotted leading-edge with a three-element slat (five-element on first prototype). Two triple-slotted Dassault flaps and single plain aileron on each trailing-edge, forward of which are five additional movable surfaces: three spoilers and two air-brakes. Spoilers are for lateral control (coupled with ailerons) and lift dumping. All movable surfaces are operated hydraulically by dual actuators fed by three independent circuits. Engine bleed-air for anti-icing of wing leading-edges.

FUSELAGE: Circular-section all-metal semi-monocoque structure, built in five main sections and utilising fail-safe frames, machined stress frames, integral structure panels and a chemically-machined skin stiffened by stringers and frames.

TAIL UNIT: Cantilever multi-spar structure (three-spar fin and two-spar tailplane), of basically similar construction to wings. Variable-incidence tailplane for trim and pitch emergency control. Rudder divided into two independent parts. No tabs. All control surfaces operated by hydraulic dual actuators fed by three independent circuits. No de-icing of tail surfaces.

LANDING GEAR: Retractable tricycle type, of Messier design, with twin wheels and oleopneumatic shock-absorbers on each unit. Hydraulic retraction, with manual back-up. Forward-retracting nose-wheel unit steerable through 70° to left or right. Main units retract inwards into wing/fuselage centre-section fairing. SNECMA (Hispano) wheels and Kléber-Colombes

Dassault Mercure prototype high-capacity short-haul transport (two Pratt & Whitney JT8D-11 turbofan engines)



tyres, size 46 × 16 on main units, 30 × 8.8 on nose unit. Tyre pressure 138 lb/sq in (9.7 kg/cm²) on main units. 128 lb/sq in (9.0 kg/cm²) on nose unit. SNECMA (Hispano) brakes and anti-skid units.

POWER PLANT: Two 15,500 lb (7,030 kg) st Pratt & Whitney JT8D-15 turbofan engines (JT8D-11 in first prototype: see introductory copy) in underwing pods, fitted with thrust reversers and Dassault-developed noise absorbers. Total fuel capacity of 2,860 Imp gallons (3,434 US gallons; 13,000 litres), with optional wing centre-section tank containing an additional 1,430 Imp gallons (1,717 US gallons; 6,500 litres). Refuelling point on outer leading-edge of starboard wing. Auxiliary over-wing fuelling points. Total oil capacity 9.9 Imp gallons (11.9 US gallons; 45 litres). Engine bleed-air for nose cowl de-icing.

ACCOMMODATION: Crew of two side-by-side on flight deck, with two extra optional seats. Typical mixed-class accommodation provides 12 seats four-abreast at 38 in (96 cm) pitch and 112 seats six-abreast at 34 in (86 cm) pitch. Basic tourist-class accommodation provides 134 seats at 34 in (86 cm) pitch. High-density layout for up to 155 seats six-abreast at 30 in (76 cm) pitch. Six possible locations of toilets and galleys at front and rear, according to layout. Flight deck windows can be de-iced electrically. Passenger cabin windows are polarised, to reduce glare without the need for separate screens or curtains. Two passenger entrance doors, at front and rear on port side. Aérazur retractable integral stairway built into fuselage below forward passenger door; provision for similar stairway below rear passenger door. Individual lockable baggage compartments above seats in passenger cabin, with total volume of 247 cu ft (7.0 m³). Two service doors, at front and rear on starboard side, and two emergency exits over each wing. Cargo/baggage holds beneath cabin floor, one forward and two aft of wings. Forward



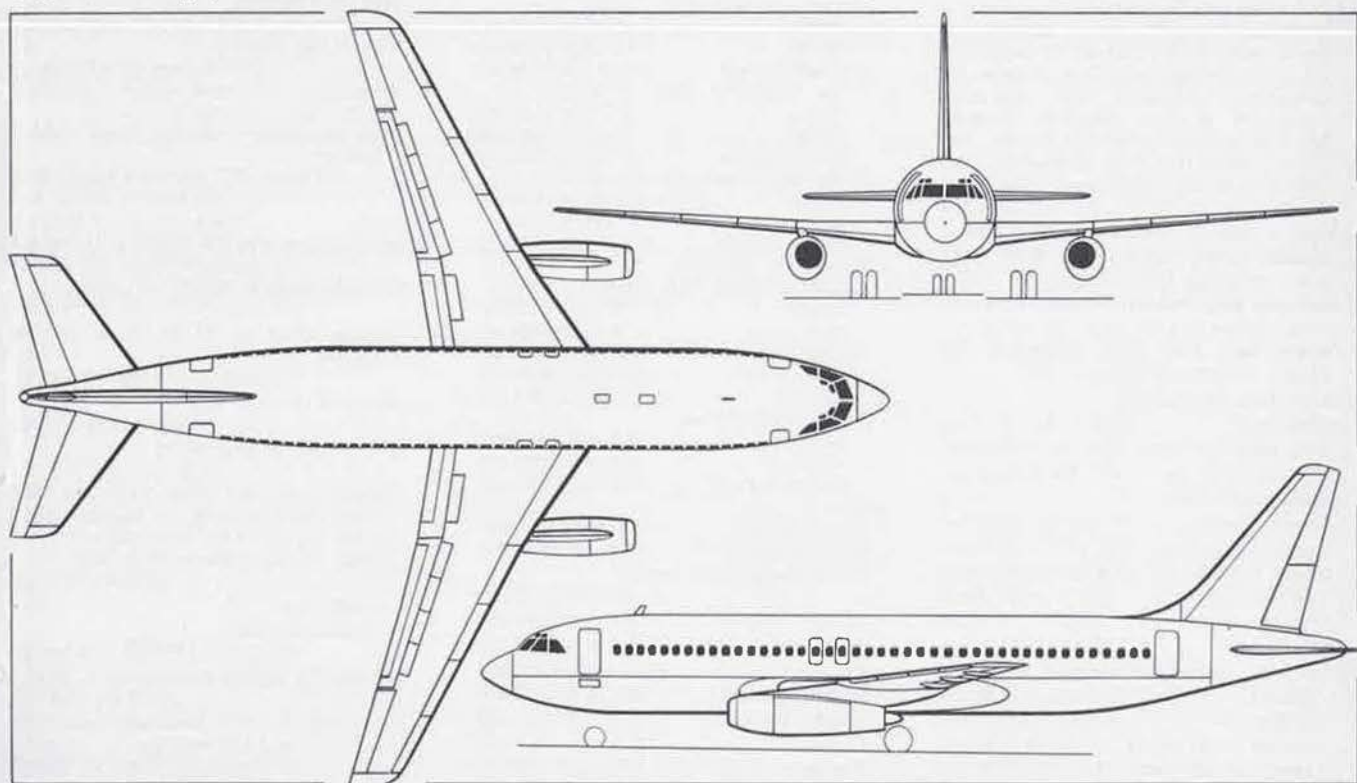
First production Saab AJ 37 Viggen supersonic multi-purpose STOL combat aircraft makes its first flight 23 February 1971 at Linköping, Sweden

hold can accommodate 7,715 lb (3,500 kg) or five standard Boeing 727 freight containers; aft hold No 1 can accommodate 6,170 lb (2,800 kg) or four Boeing 727 containers; aft hold No 2 can accommodate 3,965 lb (1,800 kg) of baggage.

SYSTEMS: Garrett air-conditioning system and Hamilton Standard pressurisation system, using engine bleed-air through duplicated circuits, with automatic regulation. Max cabin differential 8.5 lb/sq in (0.6

kg/cm²). Three independent hydraulic systems, each of 3,000 lb/sq in (210 kg/cm²). Two Abex engine-driven systems for flying controls, flaps, slats, spoilers, tailplane, landing gear, nose-wheel steering and brakes; one Vickers electrically-driven system providing back-up for ailerons, elevators and rudder. Two 60kVA Plessey engine-driven alternators provide 120/208V 400Hz three-phase AC power. Additional 55/110kVA alternator powered by APU.

Three-view drawing of Dassault Mercure





Aerial view of Dassault Mercure prototype high-capacity short-haul transport (two Pratt & Whitney JT8D-11 turbofan engines)

28V 150A DC power provided by three Bronzavia transformer-rectifiers and SAFT 24V 23Ah battery. Eros/Inter technique oxygen system for pilots and passengers. Garrett AiResearch GTCP-85-163C APU, installed in fuselage tail-cone, provides emergency electrical power and air for ground conditioning and engine starting.

ELECTRONICS AND EQUIPMENT: Equipment in production aircraft, which includes optional VOR/DME, will be to customer's specification. Basic aircraft is designed for all-weather (Category III) operation. Equipment in first prototype includes SAGEM inertial navigation system, two Collins VOR/ILS with glide-slope, two Collins or Bendix ADF, two Collins VHF, Bendix or Collins ATC transponder, marker beacon, Bendix autopilot, Bendix weather radar, Omera-Segid KDF 8000 radio compass, SFENA angle of attack indicator and artificial horizon, SFIM gyro units, Thomson-CSF angle of attack detector, two TRT radio altimeters and TEAM interphone system.

DIMENSIONS, EXTERNAL:

Wing span 100 ft 3 in (30.55 m)
 Wing chord at root 19 ft 8 1/4 in (6.00 m)
 Wing chord at tip 5 ft 8 1/2 in (1.74 m)
 Wing aspect ratio 8
 Length overall 111 ft 6 in (34.00 m)
 Length of fuselage 110 ft 3 in (33.60 m)
 Height overall 37 ft 3 1/4 in (11.36 m)
 Tailplane span 36 ft 1 in (11.00 m)
 Wheel track 20 ft 4 in (6.20 m)
 Wheelbase 39 ft 1 in (11.91 m)
Passenger doors (port, fwd and rear):
 Height 5 ft 11 in (1.80 m)
 Width 2 ft 10 in (0.865 m)
 Height to sill (fwd) 9 ft 6 in (2.90 m)
 Height to sill (rear) 9 ft 10 in (3.00 m)

Service door (stbd, fwd):

Height 5 ft 11 in (1.80 m)
 Width 2 ft 10 in (0.865 m)
 Height to sill 9 ft 6 in (2.90 m)

Service door (stbd, rear):

Height 5 ft 0 1/2 in (1.53 m)
 Width 2 ft 0 in (0.61 m)
 Height to sill 9 ft 10 in (3.00 m)

Cargo hold door (stbd, fwd):

Height 3 ft 7 1/4 in (1.10 m)
 Width 4 ft 11 in (1.50 m)
 Height to sill 5 ft 4 1/2 in (1.64 m)

Cargo hold door (stbd, aft No 1):

Height 3 ft 7 1/4 in (1.10 m)
 Width 4 ft 11 in (1.50 m)
 Height to sill 5 ft 6 in (1.68 m)

Cargo hold door (stbd, aft No 2):

Height 1 ft 11 1/4 in (0.60 m)
 Width 2 ft 11 1/2 in (0.90 m)
 Height to sill 6 ft 0 1/2 in (1.84 m)

DIMENSIONS, INTERNAL:

Cabin, excluding flight deck:

Length 82 ft 0 1/4 in (25.00 m)
 Max width 11 ft 11 in (3.66 m)
 Max height 7 ft 2 3/4 in (2.20 m)
 Floor area 864 sq ft (80.30 m²)
 Volume 5,590 cu ft (158.3 m³)

Freight hold volume:

forward 510 cu ft (14.5 m³)
 aft No 1 670 cu ft (19.0 m³)
 aft No 2 265 cu ft (7.5 m³)

AREAS:

Wings, gross 1,250 sq ft (116.0 m²)
 Ailerons (total) 45.2 sq ft (4.20 m²)
 Trailing-edge flaps (total) 261.6 sq ft (24.30 m²)
 Spoilers (total) 49.5 sq ft (4.60 m²)
 Air-brakes (total) 36.6 sq ft (3.40 m²)
 Fin 166.3 sq ft (15.45 m²)
 Rudder (upper) 29.1 sq ft (2.70 m²)
 Rudder (lower) 35.0 sq ft (3.25 m²)
 Tailplane 257.3 sq ft (23.9 m²)
 Elevators (total) 86.1 sq ft (8.0 m²)

WEIGHTS AND LOADINGS:

Operating weight, empty

63,713 lb (28,900 kg)
 Max payload 35,494 lb (16,100 kg)
 Max ramp weight 115,743 lb (52,500 kg)
 Max T-O weight 114,640 lb (52,000 kg)
 Max landing weight 108,027 lb (49,000 kg)
 Max zero-fuel weight 99,208 lb (45,000 kg)
 Max wing loading 91.7 lb/sq ft (448 kg/m²)

Max power loading

3.70 lb/lb st (3.70 kg/kg st)

PERFORMANCE (estimated, at max T-O weight except where indicated):

Max permitted operating speed (V_{MO}/M_{MO})

379 knots (437 mph; 704 km/h) EAS up to 20,000 ft (6,100 m) and Mach 0.85 above 20,000 ft

Max cruising speed at 20,000 ft (6,100 m)

510 knots (587 mph; 945 km/h)

Cruising speed at 25,000 ft (7,620 m)

499 knots (575 mph; 925 km/h)

Stalling speed at AUW of 103,285 lb (46,850 kg)

124 knots (143 mph; 230 km/h)

Max rate of climb at S/L

2,940 ft (896 m)/min

Min ground turning radius

63 ft 11 1/4 in (19.50 m)

Typical short-haul stage (432 nm; 497 miles; 800 km) with 134 passengers and 6,768 lb (3,070 kg) fuel reserves:

FAR 25 T-O distance (S/L, ISA) 5,100 ft (1,555 m)

Flight time

1 hr

Approach speed

118 knots (136 mph; 219 km/h)

FAR 121 landing distance (S/L, ISA)

4,396 ft (1,340 m)

Max range with 134 passengers and 7,495 lb (3,400 kg) fuel reserves

955 nm (1,100 miles; 1,772 km)

Air Force Association

SILVER ANNIVERSARY MEDALS



struck in
Solid Palladium*
and
Solid Sterling Silver



Lt. Gen. James H. Doolittle (Ret.) examines AFA's 25th Anniversary medallion presented to him during ceremonies commemorating the Silver Anniversary event on February 9, 1971.

A limited edition commemorative medal has been commissioned to honor the Silver Anniversary of the Air Force Association and its dedication to American achievement in the aerospace field.

These serially numbered, deep relief medals and medallions will be struck in solid palladium* and in sterling silver by The International Mint whose master engravers created the personal presentation medals for each Apollo flight crew.

The obverse design of the heavy gauge, jeweler's antique finish medal depicts the Air Force Association wings as interpreted by the well-known medallic designer, Donald Struhar, whose work includes the International Mint "History of

America's Men in Space" and commemorative art for the United States Air Force Academy.

The finely detailed reverse design bearing the legend "Power for Freedom", recreates the World Congress of Flight symbol over an arc of 25 stars.

To insure the limited edition status of this medallic tribute to the Air Force Association, The International Mint will restrict the serially numbered commemorative issues to the following mintages:

SOLID PALLADIUM*	
2½" Medallion	25
39mm Medal	250
SOLID STERLING SILVER	
2½" Medallion	2,500
39mm Medal	10,000

Those wishing to subscribe to all four issues or to both sizes in either palladium or sterling will receive matched serially numbered sets. These sets and the 2½" medallion will be housed in handsome desk-top collector displays. Subscribers to the 39mm medals will receive a specially designed Clear-Vue holder which allows display of both sides of the medal without requiring its removal.

Subscription details are included in the limited edition subscription form below. Since applications will be handled in strict rotation, may we suggest you act now, so as to ensure acquisition of this unique medallic tribute to the Air Force Association.

* A rare, lustrous, silver-white metal approximately equivalent in value to 24K Gold.

© Air Force Association, 1971

8/71

Air Force Association Silver Anniversary Medal

Limited Edition Subscription Application

Please make check payable to: **Air Force Association**
and mail to: **1750 Pennsylvania Avenue, N.W.**
Washington, D.C. 20006

Please enter my order for the following AFA Silver Anniversary medallic issue(s):

QUANTITY	ITEM	PRICE	EXTENSION
_____	Complete set of four issues	\$1195.	_____
_____	Set(s) of Palladium issues	\$1150.	_____
_____	Set(s) of Sterling Silver issues	\$ 45.	_____
_____	2½" Palladium issue(s)	\$1000.	_____
_____	39mm Palladium issue(s)	\$ 150.	_____
_____	2½" Sterling Silver issue(s)	\$ 35.	_____
_____	39mm Sterling Silver issue(s)	\$ 10.	_____

Washington, D.C. residents,
please add 4% sales tax

TOTAL _____

I understand that all orders will be handled in strict rotation and that my check will be refunded promptly should this edition be over-subscribed.

NOTE: As a convenience to subscribers, The International Mint will embed your medals in clear lucite vertical wedges for use as desk ornaments. Add \$5.00 for each 39mm medal and \$8.00 for each 2½" medallion.

The International Mint, Inc. is a wholly-owned subsidiary of The Robbins Company Medallists since 1892. It is not affiliated with the U.S. Mint or any other government agency.

NAME _____

STREET _____

CITY _____

STATE _____

ZIP CODE _____

The Bulletin Board

By Patricia R. Muncy

ASSISTANT FOR MILITARY RELATIONS

The Highest Career of All

The following is an excerpt from the Commencement Address delivered to the Corps of Cadets, United States Military Academy, on May 29 by President Richard M. Nixon:

"Each of you is sworn to place the security of your country, the freedom of your countrymen, above all your own desires and even above life itself. You pay a price for this. Your duty, though supremely important, may often be thankless. Your honor, though high and true, may meet with the scorn of some. But you will have this great reward: Your country, the United States and all its people, will be deeply in your debt. Day by day through all your years in uniform, you will be rendering your country the



John A. Watts (left center), recently retired USAF Civilian Personnel Director, was honored guest at a luncheon hosted by the Air Force Association's Civilian Personnel Council. William J. Abernethy, his successor (right center), will advise the group, while Mr. Watts will serve as consultant. With them are (left) Council Chairman Robert L. Hunter and AFA National President George D. Hardy.



Gen. John C. Meyer, USAF Vice Chief, admires the Distinguished Service Medal awarded to Maj. Gen. William D. Price upon the latter's retirement from the Air Force Reserve. Mrs. Price looks on. (Too young for a commission when graduating from Virginia Polytechnic Institute in 1930, the former ROTC cadet began his long and varied military career when he was commissioned a second lieutenant in 1931.) At the time of his retirement, General Price was serving as the Chairman of the Air Reserve Forces Policy Committee.

very highest service, the protection of our liberties, the preservation of our peace.

"People you will never know, people you will never meet, children yet unborn will have better and safer lives because you took your stand for America and the world. You can always be proud of that.

"In choosing the profession of arms you have chosen wisely and well, for a career of service to your fellow man is the highest career of all."

Advisory Councils Report

Three of the Association's nine advisory councils held meetings during the month of June and forwarded their reports and recommendations to the Association President.

JOAC: The Junior Officer Advisory Council spent several days at the USAF Military Personnel Center, Randolph AFB, Tex., during the second week of June. While there, they received extensive personnel briefings to prepare themselves for hosting, as AFA representatives, the forthcoming Second Worldwide Junior Officer Conference that is to be held

in conjunction with AFA's Silver Anniversary Convention, September 19-23.

A complete array of outstanding briefings was given by Center officials, following which the Council drew up a proposed plan for the worldwide conference composed of fifty junior Air Force officers representing all the major commands and separate operating agencies.

The plan of the conference calls for the development of a blueprint for junior officer retention in an all-volunteer military force. Four panels, dealing with such topics as procurement, compensation, promotion, training and education, career development, and the impact of changing societal mores on a military force, will discuss and draft inputs to the blueprint. Following the conference, JOAC members, who will have served as panel leaders, will prepare the final blueprint for delivery to the Air Force.

Conference participants also will attend various convention functions, the overall theme of which will be "Accent on Youth and the Air Force as a National Resource."

Also at their meeting, Council members prepared a resolution calling for a change in the captain-to-major promotion system from a fully qualified to a best-qualified basis, with a ninety percent selection rate. They recommended no change in the present three-year total active federal commissioned service (TAFCS) eligibility date.

Further, the Council completed its final recommended revision to Chapter 8, Air Force Manual 35-16, which concerns administration of Junior Officer Councils within the Air Force. The Council also reaffirmed its recommendation, set forth earlier by letter to Association President George Hardy, that active-duty AFA members be given the option of voting and holding office at Chapter level.

Civilian Personnel Council: At its meeting in Washington on June 11, the Civilian Personnel Council supported OSD proposals before the Civil Service Commission with respect to possible reductions in force. Among these proposals are the greater recognition of exceptional performance, a freeze on reinstatements, longer notice of RIF actions, and a revision of "bumping" procedures.

The Council proposed several major resolutions covering such matters as increased emphasis on counseling employees about retirement benefits; continued effort to obtain authority for reassigning, with his consent, an employee eligible for retirement to a less-demanding, lower-grade position, with any resultant salary differential being

paid from the retirement annuity fund; and broader clarification of the Hatch Act. It also recommended that AFA support the proposed Federal Executive Service, which is designed "to establish executive management procedures to provide the right number of executives, with the right skills and attitudes, in the right places, at the right time, and motivated to perform in the most productive way."

Additionally, the Council proposed that the AFA staff do an in-depth review of federal employee health benefits and group life-insurance programs.

Military Manpower Council: This Council held its meeting in Washington, D. C., on June 25, at which time it reviewed and endorsed a majority of the resolutions proposed by the Association's Airmen, Junior Officer, and Medical Advisory Councils. The recommendations of the Airmen and Medical Advisory Councils were reported earlier in this column (*June and July '71 issues*).

The Council also endorsed the principle of an all-volunteer force, and requested that the Association support the concept but *only* if legislation establishing such a force carries the provision for a standby draft. Further, it recommended that any provisions for a volunteer force must also include improved incentives, such as equitable pay standards, better housing, greater provisions for mobile homes, improved transient facilities, and elimination of menial tasks. Other suggested incentives included improved off-duty educational programs, an increase in



Robert Mervick, a former Senior Master Sergeant in the Air Force, is now managing the Pittsburgh Playhouse, Pittsburgh, Pa. From this nationally recognized little theater have come such stars as Gene Kelly, Shirley Jones, and Frank Gorshin. (Photo courtesy of Bill Metzger.)

the number of scholarships (both ROTC and medical), and a flexible bonus system for recruiting and retention applying to both airmen and officers—active, Guard, and Reserve.

Above all, the Council emphasized, it must be recognized that to achieve an all-volunteer military force, pay alone is not enough. Service people need opportunity, challenge, and prestige, and an appreciation of service rendered. They should be provided job satisfaction, an opportunity to develop latent talents, and a visible means for working toward a higher order of excellence.

Among its other actions, the Council gave strong endorsement to AFA's support of the Junior AFROTC program, and its efforts in behalf of the families of American MIA/POWs. They called on AFA to take all possible action to establish plans for providing further assistance to POWs once they are released. In addition, the Council asked the Association to actively support a soon-to-be-announced program entitled "Project Aware," which seeks to provide a better public understanding and awareness of the Air Force as a national resource.

From Brass to Prima Donnas

SMSGt. Robert Mervick, USAF (Ret.), gets this month's nod for the retiree engaging in an exciting second career. Practicing what he preaches—that former military careerists should "forget the nostalgia and looking back;



Appearing before AFA's Military Manpower Council in late June, Maj. Gen. Leo E. Benade, USA, Deputy Assistant Secretary of Defense (Military Personnel Policy), assured his audience that the Interagency Committee to Study Uniformed Services Retirement and Survivor Benefits is conducting a thorough evaluation of all facets of the armed forces retirement system.

The Bulletin Board

try a brand new angle"—Sergeant Mervick has recently been appointed as manager of the Pittsburgh Playhouse, a nationally recognized little theater in affiliation with Point Park College in Pennsylvania. Maintaining that "dealing with artistic, temperamental actors and actresses is not really much different from dealing with Air Force brass," he is in charge of the three theaters within the Playhouse operation, plus its Summer Film Festival.

Following his retirement in 1964 as a superintendent in the traffic control field, Sergeant Mervick immediately enrolled in Point Park College, where later this month he will receive both a Bachelor of Arts degree in economics and a Bachelor of Science in business. A veteran of twenty-five years' service, who saw action in North Africa and the China-Burma-India Theater during World War II, Sergeant Mervick says of today's military attitudes, "I'm decidedly in the liberal camp when it comes to the military, but I don't agree with total relaxation of discipline."

Briefly Noted

- Despite widespread antimilitary sentiments among the country's youth, competition for appointment to the three service academies is as tough as ever. Total nominations for the newest class at the Air Force Academy

topped 10,900. Allowing for duplicates (some young men applied for more than one appointment category to improve their chances), 6,867 individuals actually competed for the approximately 1,400 appointments. This was an increase of 250 applicants over the previous year. The Naval Academy at West Point was off a bit applicants for its new class, nearly 300 more than last year, while the Military Academy at West Point was off a bit at 5,500, although this was the second highest yearly total of applicants trying to enroll in that institution.

- Once again the Defense Department, this time with the concurrence of the Civil Service Commission, has asked Congress to repeal the dual-compensation restriction, which requires retired Regular officers working for the federal government to forfeit part of their retired pay. A proposal to eliminate the dual-compensation law was offered as an amendment to the bill to extend the draft. While it was defeated by a vote of sixty to twenty-eight, Senate leaders maintain that the reason for this action was that they believed this matter should have been first thoroughly reviewed by the Senate Post Office and Civil Service Committee. Hearings on the DoD proposal are expected shortly. AIR FORCE Magazine readers will know that AFA long has encouraged the elimination of this restriction, which penalizes only the Regular officer.

- The Air Force has announced that in the near future it will offer airmen recruits with no prior service the option of enlisting for six years. Currently, initial enlistments are for four years. Although annual objectives have not been established at this writing, the Air Force plans to offer

incentives in order to achieve a specific number of six-year enlistments each year. The first of these will be guaranteed assignment to specific career fields. The Air Force foresees a long-range benefit from six-year enlistments by keeping trained people longer. At the same time, individuals who choose their career fields should enjoy greater job satisfaction.

- The Civil Air Patrol, official auxiliary of the Air Force, has made a major move to expand and improve its air-search capabilities by acquiring some 248 light, single-engine aircraft, recently declared excess by the US Army. A significant portion of the CAP mission revolves around search-and-rescue operations in this country, Puerto Rico, Alaska, and Hawaii. Last year, CAP volunteer flyers logged 17,922 hours on search missions for military and civilian craft, operating under the auspices of the Aerospace Rescue and Recovery Service.

The 223 Cessna O-1A Bird Dogs, similar to those flying forward air control missions in Vietnam, and twenty-five de Havilland-built U-6A Beavers, designed to carry up to six passengers including a crew of two, will be utilized in a variety of ways. Units in Wisconsin, Rhode Island, and Massachusetts are the first to get delivery of the O-1As, while at least a dozen other units and a regional headquarters are earmarked to receive the Beavers. Air Force, Army, and CAP flight crews will ferry the aircraft from established Army disposition points to designated CAP units.

- Nearly one million Reservists, National Guardsmen, and ROTC cadets had Servicemen's Group Life Insurance (SGLI) protection on June 25, the first anniversary of their



AFA President George D. Hardy presents palladium and sterling silver medallions to Lt. Gen. A. P. Clark, Air Force Academy Superintendent. The medallions, commemorating the twenty-fifth anniversary of AFA, will be a part of the AFA-sponsored Theodore von Kármán Memorial Collection in the Air Force Academy's Library.



The Fifth Cadet Squadron was this year's recipient of AFA's trophy for the Air Academy's Outstanding Squadron. At the Twelfth Annual Outstanding Squadron Dinner, the trophy is accepted by (left) Cadet First Class David L. Browder, Fall Semester Commander, and Cadet First Class Charles T. Brasher, Spring Semester Commander.

coverage under the program. The Veterans Administration also reported that payments to beneficiaries of members of these groups who died during the first year total more than \$1 million. SGLI was extended by law last year to insure members of the groups while in training, or traveling to and from training sites. The same law increased individual coverage of servicemen from \$10,000 to \$15,000.

• The 124th Fighter Group of the Idaho Air National Guard has done it again. It has the honor of being the only Air Guard unit in the country to receive the US Air Force Missile Safety Plaque twice, having been cited for its outstanding accident-free missile-safety record, first in 1963 and more recently for 1970. In 1963, it had the distinction of being the first Air Guard unit ever to receive this award.

One factor cited in awarding the USAF Missile Safety Plaque to the 124th this time was that it has six part-time Guardsmen currently certified to load weapons. The Idaho Air National Guard is one of the very few units that utilizes part-time Guardsmen in this capacity.

Senior Staff Changes

B/G Woodrow A. Abbott, from Cmdr., 42d Air Div., SAC, McCoy AFB, Fla., to IG, Hq. SAC, Offutt AFB, Neb. . . . **Maj. Gen. Joseph L. Dickman**, from DCS/Ops, Hq. ADC, Ent AFB, Colo., to Dep. Dir., Defense Atomic Support Agency, Washington, D. C. . . . **Maj. Gen. (Lt. Gen. Selectee) Gordon T. Gould, Jr.**, from Dir., Cmd. Control & Communications, Hq. USAF, to Dir., Defense Communications Agency, Arlington, Va., replacing retiring Lt. Gen. Richard P. Klocko . . . **Lt. Gen. Earl C. Hedlund**, from Dir., DSA, Washington, D. C., to US Representative to Permanent Military Deputies Group, Central Treaty Organization, Ankara, Turkey, replacing retiring Lt. Gen. John A. Heintges, USA . . . **Lt. Gen. Samuel C. Phillips**, Cmdr., SAMSO, Los Angeles, Calif., add'l duty on the Space Systems Advisory Committee, NASA, Washington, D. C. . . . **M/G Richard F. Shaefer**, from Dep. Dir., J-5, Jt. Staff, OJCS, to ACS/Ops, SHAPE, Brussels, Belgium . . . **B/G Grant R. Smith**, from Cmdr., 20th TFW, RAF, Upper Heyford, England, to Chief, Air Force Section, Joint US Military Mission for Aid to Turkey, Ankara, Turkey, replacing B/G William R. Goade.

PROMOTIONS: To be Lieutenant General: Gordon T. Gould, Jr.

RETIREMENTS: B/G Robert A. Duffy; L/G Richard P. Klocko. ■

Let's Keep it Going...



Help teachers and pupils keep informed about air transportation; It's importance to the future development of the world, passenger and cargo services, and career opportunities.

IT'S EASY—

Get your organization (PTA, Service Clubs, AFA Chapters, etc.) to donate ten-dollar-a-year memberships in the National Aerospace Education Council to your secondary and elementary school libraries. Members receive monthly NAEC newsletters, packets of a variety of timely and useful aviation education materials, and assistance with curricular problems. Materials include items developed by teachers for classroom use.

For additional details, write now:

National Aerospace Education Council
Suite 310, 806 15th St., N.W.
Washington, D.C. 20005
(202) 628-7400

A non-profit, professional educational organization

Martin Ostrow, of Los Angeles, has been nominated to head the Air Force Association during the coming year. He heads the slate of two other National Officers and nineteen Directors, which will be presented next month to Delegates at AFA's Silver Anniversary National Convention . . .

AFA Nominees for 1971-72

By Don Steele

AFA DIRECTOR OF FIELD ORGANIZATION



Ostrow



Hardy



Mazer



Gross

MEEETING in Colorado Springs, Colo., on June 5, in conjunction with a meeting of the Air Force Association's Board of Directors, the AFA Nominating Committee, which consists of the national officers of the Association, the members of the Board of Directors, and the President of each State Organization or his designee, selected a slate of three National Officers and nineteen Directors (including a nominee for Chairman of the Board). This slate will be presented to the Delegates at AFA's Silver Anniversary National Convention to be held in Washington, D. C., September 19-23.

MARTIN M. OSTROW, Los Angeles, Calif., was nominated for the office of National President. A partner in the Los Angeles law firm of Ostrow, Drucker, Nasatir, and Kuret, Mr. Ostrow also serves as President of Wilshire Associate Investments, as President of TDS Investments, and as President of World Leasing Corp.

During World War II, he served in the Pacific theater as a B-29 radar-navigator. Separated from the military in 1946, he returned to active duty in 1951 for two years' duty in the Korean conflict. Currently, he is a lieutenant colonel in the Air Force Reserve, with an M-Day assignment in SAMSO.

A member of AFA for more than thirteen years, he now serves as an elected National Director, a member of the National Constitution Committee, and a member of the Board of Trustees of the Aerospace Education Foundation. He is a Past Squadron and Wing Commander, a former Regional Vice President, and a former Chairman of the Organizational Advisory Council. He has received AFA's Medal of Merit, the Exceptional Service Plaque, and was named the California AFA's "Man of the Year" in 1962 and 1969.

AFA President GEORGE D. HARDY, Hyattsville, Md., was nominated for Chairman of AFA's Board of Directors.

Now serving his second term as AFA President, Mr. Hardy, a charter member of AFA, is Chairman of the Executive Committee, a member of the Finance Committee, a permanent member of AFA's Board of Directors, and a member of the Board of Trustees of the Aerospace Education Foundation.

He is a past Wing Commander, former Regional Vice President, former National Secretary, and served one term as Chairman of AFA's Board of Directors. Mr. Hardy received the President's Trophy as "AFA Man of the Year" in 1957, and has received AFA's Gold Life Membership Card and a Special Citation.

During World War II, he served in a medium bomb group of the Twelfth Air Force in the Mediterranean theater. In civilian life, he is President of the Harry B. Cook Co., a food brokerage firm with offices in Washington, D. C.; Baltimore, Md.; and Richmond and Norfolk, Va.

NATHAN H. MAZER, Roy, Utah, and JACK B. GROSS, Harrisburg, Pa., were nominated for reelection to their respective positions as Secretary and Treasurer.

Mr. Mazer, who retired from the United States Air Force as a colonel, is Executive Director of the Weber County, Utah, Industrial Development Bureau. He is a member of AFA's Executive Committee and a member of the Board of Trustees of the Aerospace Education Foundation. Mr. Mazer has served as an elected National Director, and is a former Regional Vice President, former Chairman of the Organizational Advisory Council, and former member of the Military Manpower Council.

Mr. Gross, a prominent Harrisburg civic

leader and businessman, is now serving his ninth term as National Treasurer. He is Chairman of the Finance Committee, a member of the Executive Committee, a permanent member of AFA's Board of Directors, and a member of the Board of Trustees of the Aerospace Education Foundation. Mr. Gross is a past Squadron and Wing Commander, and served one term as Chairman of AFA's Board of Directors. In 1958, he received the President's Trophy designating him the "AFA Man of the Year." He has also received AFA's Gold Membership Card and a Special Citation. Mr. Gross retired from the United States Air Force Reserve as a colonel.

The following are permanent members of the AFA Board of Directors, under the provisions of Article X of AFA's National Constitution:

JOHN R. ALISON, EDWARD P. CURTIS, JAMES H. DOOLITTLE, A. PAUL FONDA, JOE FOSS, JACK B. GROSS, GEORGE D. HARDY, JOHN P. HENEERY, JOSEPH L. HODGES, ROBERT S. JOHNSON, ARTHUR F. KELLY, GEORGE C. KENNEY, THOMAS G. LANPHIER, JR., JESS LARSON, CURTIS E. LEMAY, CARL J. LONG, HOWARD T. MARKEY, J. P. MCCONNELL, J. B. MONTGOMERY, JULIAN B. ROSENTHAL, PETER J. SCHENK, ROBERT W. SMART, C. R. SMITH, CARL A. SPAATZ, WILLIAM W. SPRUANCE, THOS. F. STACK, ARTHUR C. STORZ, HAROLD C. STUART, JAMES M. TRAIL, and NATHAN F. TWINING.

The eighteen men listed below and shown in the accompanying photos are nominees for elected membership on the AFA Board of Directors for the coming year. (Names marked with an asterisk are incumbent National Directors.)

WILL H. BERGSTROM, Colusa, Calif.—automobile dealer. Former Squadron, Wing Commander; former Chapter, State President. Current National Vice President; National Committee member; Aerospace Education Foundation Board of Trustees member.

*WILLIAM R. BERKELEY, Redlands, Calif.—AF civilian information officer. Former Squadron Commander; Regional Vice President. Current National Committee member.

*M. LEE CORDELL, Berwyn, Ill.—electrical engineer. Former Squadron, Wing Commander. Current State President.

GEORGE M. DOUGLAS, Denver, Colo.—telephone company executive. Former Chapter, State President; National Director. Current National Committee member.

A. H. DUDA, JR., Alexandria, Va.—inter-

national trade promotion officer, US Dept. of Commerce. Former Squadron, Wing Commander; former member of AFA Staff. Charter member.

*PAUL W. GAILLARD, Omaha, Neb.—telephone company executive. Former Regional Vice President; National Committee member. Current Chapter President; National Committee



Bergstrom



Berkeley



Cordell



Douglas



Duda



Gaillard



Gilstrap



Hackler



Harris



Keith



Kriendler



Murphy



Nedder



Palen



Shosid



Stewart



Withers



Wright

chairman; Aerospace Education Foundation Board of Trustees member.

*JACK T. GILSTRAP, Huntsville, Ala.—aerospace program analyst. Former Chapter President; State officer; Regional Vice President; National Committee member.

JAMES F. HACKLER, Myrtle Beach, S. C.—motel owner. Former Chapter President; USAF retired major general. Current State President.

*MARTIN H. HARRIS, Winter Park, Fla.—research engineer. Former Chapter, State President; Regional Vice President; National Committee member. Current member, Aerospace Education Foundation Board of Trustees.

*SAM E. KEITH, JR., Fort Worth, Tex.—traffic and maintenance engineering manager. Former Chapter, State President; Regional Vice President. Current National Committee member; Aerospace Education Foundation Board of Trustees member. "AFA Man of the Year" (1967).

*MAXWELL A. KRIENDLER, New York, N. Y.—food importer. Former Squadron Commander. Current National Committee member; Aerospace Education Foundation Board of Trustees. "AFA Man of the Year" (1964).

*WARREN B. MURPHY, Boise, Idaho—

insurance and investment executive. Former Squadron, Wing Commander; Regional Vice President. Current National Committee member; Aerospace Education Foundation Board of Trustees member.

EDWARD T. NEDDER, Hyde Park, Mass.—attorney. Former National Committee member. Current National Vice President.

*DICK PALEN, Edina, Minn.—commercial photographer. Former Chapter, State President; Regional Vice President; National Committee member.

*JOE L. SHOSID, Fort Worth, Tex.—congressional assistant and public-relations executive. Former Chapter officer; Regional Vice President, National Committee Chairman. Current National Council member; Aerospace Education Foundation Board of Trustees member. "AFA Man of the Year" (1963).

*HUGH W. STEWART, Tucson, Ariz.—attorney. Former Chapter, State President.

*JACK WITHERS, Dayton, Ohio—industry executive. Former Chapter, State President.

*JAMES W. WRIGHT, Williamsville, N. Y.—chemical engineer. Former Chapter, State President; Regional Vice President; National Committee member. ■

By Don Steele

AFA AFFAIRS EDITOR

THE SAN BERNARDINO AREA AND RIVERSIDE, CALIF., CHAPTERS . . .

cited for consistent and effective programming in support of the mission of AFA, most recently exemplified in their Third Annual Air Force Association Charity Golf Tournament.

The Third Annual Air Force Association Charity Golf Tournament, cosponsored by the San Bernardino Area and Riverside Chapters, was held May 21-22 on the March and Norton AFB golf courses.

More than 240 golfers, including leaders of the Congress, Air Force, aerospace industry, and the entertainment and sports worlds, participated in the tournament.

While the complete list of winners is too long to publish here, of partic-

ular interest are the following: **Gen. Thomas K. McGehee**, Commander of the Aerospace Defense Command, took low gross honors in the general officers' flight, and **Lt. Gen. L. C. Craigie**, USAF (Ret.), won low net in the same category. Norton AFB Sgt. **Lee Glidden** won low gross honors in the tournament. **Dr. Arthur Butler** of TRW Systems won low gross honors in the sponsors' flight, with low net honors being taken by **Bill Grier** of Boeing. **Rep. Thomas F. Railsback** (R-Ill.) posted low gross score in the congressional flight, while low net went to **Rep. Dan Rostenkowski** (D-Ill.). A special one-day trophy was awarded **Sen. Howard W. Cannon** (D-Nev.).

Celebrity entrants included actors **Richard Arlen**, **Alan Hale**, **Buddy Rogers**, and **Efrem Zimbalist, Jr.**, and pro football stars **Dennis Crane** of the New York Giants, **Deacon Jones** of the Los Angeles Rams, and **Myron Pottios** of the Washington Redskins.

The program included a Charity Golf Ball, featuring entertainment by the Hollywood Hackers, and a California Barbecue at which prizes and awards were presented.

The tournament in its first two years has raised more than \$12,000 for Air Force-oriented charities. Proceeds from this year's event will be announced shortly and will go to the Air Force Village Foundation, Air

Force Enlisted Men's Widows and Dependents Home, AFA's Aerospace Education Foundation, Welfare and Chaplain's Funds at Norton and March Air Force Bases, and the San Bernardino Armed Forces Center.

Gen. John D. Ryan, Air Force Chief of Staff, was the tournament's Honorary Chairman, and **Maj. Gen. Don Coupland**, USAF (Ret.), served as General Chairman. The Management Council included **General Coupland**, AFA National Director **William Berkeley**, **A. W. Clain**, **Lee Derrick**, **Terry Ireland**, and **Edward A. Stearn**, a member of AFA's Organizational Advisory Council.

AFA is proud of the outstanding efforts of the cosponsoring chapters and, in recognition of those efforts, we are pleased to name the San Bernardino Area and Riverside Chapters as "AFA's Units of the Month" for August.

AFA's Boston, Mass., Chapter recently sponsored a reception and dinner at the L. G. Hanscom Field Officers' Open Mess to honor Air Force Secretary **Robert C. Seamans, Jr.**



Lt. Gen. Thomas K. McGehee, right, ADC Commander, accepts trophy for low gross honors from actor Bill Mims of the Hollywood Hackers celebrity golf group in the general officers' flight of the Third Annual Air Force Association Charity Golf Tournament.



Participants in the Boston Chapter's recent dinner honoring Air Force Secretary Robert C. Seamans, Jr., included, from the left, AFA National Director Joseph E. Assaf; Dr. Seamans; Edward T. Nedder, National Vice President for AFA's New England Region; and AFA National President George D. Hardy, the Master of Ceremonies. The dinner was at L. G. Hanscom Field, Mass.

ular interest are the following: **Gen. Thomas K. McGehee**, Commander of the Aerospace Defense Command, took low gross honors in the general officers' flight, and **Lt. Gen. L. C. Craigie**, USAF (Ret.), won low net in the same category. Norton AFB Sgt.

AFA's 25TH ANNIVERSARY

CONVENTION AND AEROSPACE BRIEFINGS AND DISPLAYS

Washington, D.C.—September 19-20-21-22-23

1946



1971

AFA's 1971 Annual National Convention and Aerospace Briefings and Displays, highlighting AFA's Silver Anniversary, will be held at the Sheraton-Park and Shoreham Hotels, Washington, D.C., September 19-23. All reservation requests for rooms and suites should be sent directly to the Sheraton-Park Hotel or Shoreham Hotel Reservation Office. Be sure to refer to AFA's Annual Convention when making your reservation requests, otherwise your request will not be accepted by the Sheraton-Park or Shoreham Hotels. The Sheraton-Park Hotel's address is: 2600 Woodley Road, N.W., Washington, D.C. 20008; and the Shoreham's address is: 2500 Calvert St., N.W., Washington, D.C. 20008. AFA's National Convention activities will include luncheons for the Secretary of the Air Force and the Air Force Chief of Staff, a Silver Anniversary Reception, and the Air Force Anniversary Reception and Dinner Dance. The National Convention will also feature AFA's Business Sessions, Seminars, and several other activities, including a reception in honor of AFA's Chapter Officers and Official Convention Delegates, the Annual Outstanding Airmen Dinner, and the Chief Executives Buffet Reception.

SCHEDULE OF EVENTS

Sunday, September 19

12:00 NN Registration Desk Open
6:00 PM AFA Opening Ceremonies and Awards

11:30 AM Briefing Participants Buffet Luncheon
11:45 AM AF Secretary's Reception
12:30 PM AF Secretary's Luncheon
4:00 PM Briefing Participants' Reception
7:00 PM AF Anniversary Reception
8:00 PM AF Anniversary Dinner Dance

Monday, September 20

8:00 AM Registration Desk Open
8:15 AM USAF Memorial Service
9:00 AM 1st AFA Business Session
1:30 PM 2d AFA Business Session
6:30 PM AFA President's Reception for Chapter Officers and Convention Delegates

Thursday, September 23

9:00 AM Briefings and Displays Open
11:30 AM Briefing Participants Buffet Luncheon
4:00 PM Briefing Participants Reception

Tuesday, September 21

8:00 AM Registration Desk Open
9:00 AM AFA Workshop
9:00 AM Briefings and Displays Open
11:30 AM Briefing Participants Buffet Luncheon
11:45 AM AF Chief of Staff Reception
12:30 PM AF Chief of Staff Luncheon
2:30 PM Air Force Symposium
6:00 PM AFA's Silver Anniversary Reception

Wednesday, September 22

8:00 AM Registration Desk Open
9:00 AM Briefings and Displays Open
9:30 AM Reserve Seminar

ADVANCE REGISTRATION FORM	
25th ANNUAL AIR FORCE ASSOCIATION CONVENTION & AEROSPACE BRIEFINGS & DISPLAYS	
SEPTEMBER 19-23, 1971 • SHERATON-PARK HOTEL • WASHINGTON, D.C.	
1946 AFA SILVER ANNIVERSARY 1971	
Type or print	Reserve the following for me:
NAME _____	<input type="checkbox"/> Advance Registrations @ \$50.00 per person
TITLE _____	<input type="checkbox"/> Current Registrations @ \$60.00 per person
AFFILIATION _____	<input type="checkbox"/> AF Anniversary Reception & Dinner Dance Tickets @ \$30.00 per person
ADDRESS _____	<input type="checkbox"/> Amount Enclosed
CITY, STATE _____	

*Current Registration fee (after Sept. 10): \$60.00

AFA News

Dr. Seaman's address focused on the contribution of Air Force research and development efforts; the dividends derived from such support programs as housing construction; contributions in the field of education and training; and benefits received from Air Force space programs.

In closing, he said, "I hardly need to convince this audience of the need for the United States to maintain national security and at the same time achieve progress on the domestic front. There is little point to programs that enhance the quality of life unless we also provide a defense posture that can safeguard our freedom. But we must have both national security and domestic progress, and military programs must contribute to our nation's progress in other ways whenever possible—giving double dividends to our citizens.

"The efforts of the Air Force Association are important in stimulating constructive public understanding of all Air Force programs. We cannot relax, but must continue to improve our efforts to better serve America's needs."

Chapter President **Joseph Letorney** introduced AFA National President **George D. Hardy**, who made brief remarks and was Master of Ceremonies.

Special guests included **Maj. Gen. Joseph J. Cody**, Commander, Electronics Systems Division, AFSC; **Maj. Gen. Charles W. Sweeney**, Chief of the Air Staff, Massachusetts Air National Guard; **Brig. Gen. Charles D. Briggs, Jr.**, Commander, 94th Military Airlift Wing (AFR); **Brig. Gen. Timothy Reagan**, Adjutant General for the State of Massachusetts; **Col. Dale J. Flinders**, Commander, Air Force Cambridge Research Laboratory; **Col. Julius Goldman**, Commander, Massachusetts Civil Air Patrol; **Edward T. Nedder**, National Vice President for AFA's New England Region; AFA National Director **Joseph E. Assaf**; Massachusetts AFA President **James O. Fiske, Jr.**; and Massachusetts AFA Chaplain **Msgr. R. L. Montcalm**.

Mr. Letorney was the General Chairman of the program, with former State Sen. **Leslie B. Cutler** the Honorary Chairman. Heading up the working committees were **Alfred Eldridge**, **Arthur Snow**, **Hugh Simms**, and **Michael Votta**. They are all to be congratulated on an outstanding program.



Among the more than 900 leaders of Congress, the aerospace industry, and the community who attended the Nation's Capital Chapter's luncheon honoring Defense Secretary Melvin Laird, right, were, from left, Sen. Strom Thurmond (R-S. C.), Chapter President Robert J. Schissell, and Gen. Jimmy Doolittle, the event's Master of Ceremonies.

The Idaho AFA's recent convention in Boise was held in conjunction with a **National Defense Forum** cosponsored by the State AFA, the National Strategy Information Center, the Boise Chamber of Commerce, the Idaho National Guard Association, and several other civic and service organizations.

The National Defense Forum was designed to give civilian leadership an opportunity to discuss international security affairs with scholars and government officials who are recognized experts in their respective fields.

Forum participants included **Dr. Richard V. Allen**, Vice President, International Resources, Ltd.; **Donald C. Brewster**, Vietnam Desk, National Security Council, The White House; and **Frank Barnett**, President, National Strategy Information Center, Inc.

The morning session opened with welcoming remarks from Idaho AFA President **Donald M. Riley** and Idaho Gov. **Cecil D. Andrus**. A noon luncheon featured an address by **Thomas H. Wurtz** of Denver, Colo. AFA National Director **James M. Trail** was Toastmaster.

Dr. Donald F. Kline, Executive Director for Higher Education, State of Idaho, moderated the informal afternoon discussion session and summary.

The following officers were elected to lead the state organization: **Carl Tipton**, President; **John Conover** and **Bob Lynch**, Vice Presidents; **Holly Moore**, Treasurer; and **Alton Bunderson**, Secretary.

AFA President **George D. Hardy** was the featured speaker at the convention banquet, and Boise Valley Chapter President **Don Troyer** was Master of Ceremonies.



At the Joe Walker Chapter's recent Charter Night Dinner, **John G. Brosky**, left, AFA National Vice President for the Northeast Region, swears in new officers. From his left, President **Henry Temple**, Vice President **Mary Bakaitis**, Secretary **Charlotte Koblak**, and Treasurer **Edmund Dzimiera**. **Thomas Walker**, father of the late Joe Walker for whom the Chapter is named, is seated at the table.

AFA News

During the program, President Hardy presented AFA Certificates of Honor to **Alan K. Bixby**, a teacher at the Wood River High School in Hailey, Idaho, and to the school's students for their efforts in writing letters in behalf of our POWs and MIAs in Southeast Asia, and for writing to encourage students throughout the country to participate in the letter-writing campaign (see photo, p. 23).

The **Utah Air Force Association's** sixteenth annual aerospace symposium was held at Salt Lake City's Ramada Inn on May 20-21.

The symposium, entitled "**The Future Is Now**," featured presentations on ecology, space vehicles, new bombers, and other interrelated subjects.

At the kickoff luncheon, **Maj. Gen. Douglas T. Nelson**, AFSC's B-1 System Program Director, told a capacity audience of more than 200 persons that America's famed B-52 fleet is growing old and, unless it is replaced by the B-1 bomber, the US will no longer have a serious bomber capability against the Soviet Union.

General Nelson drew a dismal picture of growing Russian strength compared with shrinking US military



At Utah AFA's annual aerospace symposium are, from left, Brig. Gen. M. R. Reilly, USAF Deputy Director of Civil Engineering; Utah AFA President Glen Jensen; and Maj. Gen. Douglas T. Nelson, AFSC's B-1 System Program Director.



Principals in the Tri-State Convention (Arkansas, Louisiana, and Mississippi) held in Shreveport, La., included, from the left, Arkansas AFA President Alexandria Harris, Louisiana AFA President Toulmin Brown, Alabama AFA President Jack Haire, AFA National President George D. Hardy, Mississippi AFA President Milton Castleman, and Texas AFA President John Allison.

power and called the multibillion dollar B-1 "essential" to the nation's defense. "If we lose part of our deterrent capability and back down, it is going to encourage other Soviet moves worldwide. They always deal from a position of strength and when they think they have some advantage they try to capitalize on it," he said.

The afternoon program on "**Aerospace and Ecology**" included presentations by **Brig Gen. Maurice R. Reilly**, Deputy Director of Civil Engineering, Hq. USAF; **W. R. Searce**, Assistant to the Vice President for Public Affairs, United Air Lines; and **John M. Swihart**, 747 Operations and Analysis Manager, Boeing Co. The Moderator was **Gil Moore** of the Thiokol Chemical Corp.

The second day's program—"Space . . . Frontier of Man"—included presentations by **Peter Romo**, TRW; **Charles J. Donlan**, Deputy Associate Administrator (Technical) for Manned Space Flight, NASA; **Sherman L. Hislop**, director of Shuttle Engineering, McDonnell Douglas Aeronautics Co.; and **Raymond L. Hixson**, Utah Space Port Committee. **Col. Jack Alston**, USAF (Ret.), Director of Industrial Promotion for the State of Utah, was the Moderator.

Spencer G. Schedler, Assistant Secretary of the Air Force for Financial Management, was the featured speaker at the symposium banquet. AFA National Director **Jack Withers** of Dayton, Ohio, was Master of Ceremonies.

In his remarks, Mr. Schedler said that defense spending is not a swollen monster that dominates the US bud-

get but, taking inflation into account, is actually shrinking to below the pre-Vietnam War level.

He criticized what he called "popular misconceptions" about the federal defense budget and said that heavy cuts in military spending could seriously endanger the nation's security.

The Utah AFA is to be congratulated on another highly successful and effective program, and for its sustaining and significant contributions to the mission of the Air Force Association.

The **South Central Region's** first tri-state convention was held in Shreveport, La., May 21-22.

The Convention, which included **Arkansas, Louisiana, and Mississippi state organizations**, opened with a golf tournament at Barksdale AFB, La. The convention program also included a banquet, two business sessions, and a luncheon.

AFA National President **George D. Hardy** was the speaker at the banquet in the Barksdale AFB Officers' Open Mess, and Louisiana AFA President **Toulmin Brown** was Master of Ceremonies.

Mr. Hardy's address covered the critical requirement for the Air Force's B-1 bomber, and the rationale for including the B-1 as one of the elements in a triad of strategic forces consisting of bombers, land-based missiles, and sea-based missiles.

Summing up what the bomber allows us to do—or more importantly causes the enemy to realize what we can do and what the other two elements of the triad can't do as well—

FIVE GREAT AFA INSURANCE PROGRAMS

complete information by return mail!

no cost! no obligation!

1

MILITARY GROUP LIFE INSURANCE

Offers equal coverage at the same low cost for flying and non-flying personnel. No geographical or hazardous duty restrictions or waiting period. Insurance up to \$20,000 plus \$12,500 accidental death benefit. Cost of insurance has been reduced by dividends for six consecutive years. All Air Force personnel, on active duty, in the National Guard and in the Ready Reserve are eligible to apply.

2

CIVILIAN GROUP LIFE INSURANCE

For non-military members of AFA. \$10,000 of protection at exceptionally low cost. Double indemnity for accidental death except when the insured is acting as pilot or crew member of an aircraft. Waiver of premium for disability. Choice of settlement options.

3

FLIGHT PAY INSURANCE

Protects rated personnel on active duty against loss of flight pay through injury or illness. Guaranteed even against pre-existing illnesses after 12 consecutive months in force. Grounded policyholders receive monthly payments (tax free) equal to 80% of flight pay—the equivalent of full government flight pay, which is taxable.

4

ALL-ACCIDENT INSURANCE

(now includes pilots and crew members)

Offers all AFA members worldwide, full-time protection against all accidents—now even including accidents to aircraft pilots and crew members. Coverage up to \$100,000. Two plans: complete, low-cost family protection under the popular Family Plan (including all children under 21), or individual coverage. Includes medical expense benefits, and automatic increases in face value at no extra cost.

5

EXTRA CASH INCOME HOSPITAL INSURANCE

Puts up to \$40 a day cash in your pocket for every day you or an insured member of your family is hospitalized. Cash benefits for up to 365 days. No physical examination required. You use benefits any way you see fit. All AFA members, active-duty and civilian, up to Age 60 are eligible to apply.

**RETURN THIS COUPON
FOR COMPLETE
INFORMATION ON
ANY OR ALL AFA
INSURANCE PLANS**

AIR FORCE ASSOCIATION
Insurance Division

1750 Pennsylvania Ave., N.W.
Washington, D.C. 20006

Without obligation, please send me complete information about the AFA Insurance Program(s) checked at right.

Name

Rank or Title

Address

.....

City

State Zip

- Military Group Life Insurance
- Civilian Group Life Insurance
- All-Accident Insurance
- Flight Pay Insurance
- Extra Cash Income Hospital Insurance

8/71

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.



PRESIDENT
George D. Hardy
Hyattsville, Md.



BOARD CHAIRMAN
Jess Larson
Washington, D.C.



SECRETARY
Nathan H. Mazer
Roy, Utah



TREASURER
Jack B. Gross
Harrisburg, Pa.

NATIONAL DIRECTORS

John R. Alison
Los Angeles, Calif.
Joseph E. Assaf
Hyde Park, Mass.
William R. Berkeley
Redlands, Calif.
Milton Caniff
Palm Springs, Calif.
M. Lee Cordell
Berwyn, Ill.
Edward P. Curtis
Rochester, N.Y.
S. Parks Deming
Colorado Springs, Colo.
James H. Doolittle
Los Angeles, Calif.
A. Paul Fonda
Washington, D.C.
Joe Foss
Scottsdale, Ariz.

Paul W. Gaillard
Omaha, Neb.
Jack T. Gilstrap
Huntsville, Ala.
Martin H. Harris
Winter Park, Fla.
John P. Henebry
Chicago, Ill.
Joseph L. Hodges
South Boston, Va.
Robert S. Johnson
Woodbury, N.Y.
Sam E. Keith, Jr.
Fort Worth, Tex.
Arthur F. Kelly
Los Angeles, Calif.
George C. Kenney
New York, N.Y.
Maxwell A. Kriendler
New York, N.Y.

Thomas G. Lanphier, Jr.
La Jolla, Calif.
Robert Lawson
Los Angeles, Calif.
Curtis E. LeMay
Newport Beach, Calif.
Carl J. Long
Pittsburgh, Pa.
Howard T. Markey
Chicago, Ill.
J. P. McConnell
Washington, D.C.
J. B. Montgomery
Santa Ana, Calif.
Warren B. Murphy
Boise, Idaho
Martin M. Ostrow
Beverly Hills, Calif.

Dick Palen
Edina, Minn.
Julian B. Rosenthal
New York, N.Y.
Peter J. Schenck
Arlington, Va.
Joe L. Shosid
Fort Worth, Tex.
Robert W. Smart
Washington, D.C.
C. R. Smith
Washington, D.C.
Carl A. Spaatz
Chevy Chase, Md.
William W. Spruance
Wilmington, Del.
Thos. F. Stack
San Francisco, Calif.
Hugh W. Stewart
Tucson, Ariz.

Arthur C. Storz
Omaha, Neb.
Harold C. Stuart
Tulsa, Okla.
James M. Trail
Boise, Idaho
Nathan F. Twining
Hilton Head Island, S.C.
Jack Withers
Dayton, Ohio
James W. Wright
Williamsville, N.Y.
Rev. Robert D. Coward
(ex-officio)
National Chaplain
Orlando, Fla.
Norman Flemens (ex-officio)
National Commander
Arnold Air Society
Austin, Tex.

VICE PRESIDENTS

Information regarding AFA activity within a particular state may be obtained from the Vice President of the Region in which the state is located.



Will H. Bergstrom
655 Bridge St.
Colusa, Calif. 95932
(916) 458-2179
Far West Region
California, Nevada,
Arizona, Hawaii



John G. Brosky
513 Court House
Pittsburgh, Pa. 15222
(412) 355-5424
Northeast Region
New York, New Jersey,
Pennsylvania



C. W. Burnette
Box 3535
Anchorage, Alaska
99501
(907) 272-3537
Northwest Region
Montana, Idaho,
Washington, Oregon,
Alaska



B. L. Cockrell
10706 Tioga Dr.
San Antonio, Tex. 78230
(512) 925-4408
Southwest Region
Oklahoma, Texas,
New Mexico



Lester C. Curl
217 Surf Road, Box 265
Melbourne Beach, Fla.
32951 (305) 723-8709
Southeast Region
North Carolina,
South Carolina,
Georgia, Florida,
Puerto Rico



Wm. D. Flaskamp
400 Second Ave. South
Minneapolis, Minn. 55401
(612) 338-0661
North Central Region
Minnesota,
North Dakota,
South Dakota



Stanley Mayper
P.O. Box 14252
West Omaha Station
Omaha, Neb. 68114
(402) 391-1301
Midwest Region
Nebraska, Iowa,
Missouri, Kansas



H. John McGaffigan
265 Stuart Ave.
Shreveport, La. 71105
(318) 861-1990
South Central Region
Tennessee, Arkansas,
Louisiana, Mississippi,
Alabama



Edward T. Nedder
1176 River St., Room 22
Hyde Park, Mass. 02136
(617) 361-1113
New England Region
Maine, New Hampshire,
Massachusetts,
Vermont,
Connecticut, Rhode
Island



Jack C. Price
441 Vickie Lane
Clearfield, Utah 84015
(801) 777-3750
Rocky Mountain Region
Colorado, Wyoming,
Utah



David M. Spangler
503 N. Union St.
Danville, Va. 24540
(703) 793-5431
Central East Region
Maryland, Delaware,
District of Columbia,
Virginia, West Virginia,
Kentucky



W. M. Whitney, Jr.
708 Francis Palms Bldg.
Detroit, Mich. 48201
(313) 961-6936
Great Lakes Region
Michigan, Wisconsin,
Illinois, Ohio,
Indiana

AFA News

Mr. Hardy stated that, with bombers, we have the potential for limited and controlled actions; bombers are also very useful in third-area conflicts, both in a nuclear and conventional bombing role; bombers can be recycled repeatedly, and employed in sustained campaigns; bombers are useful in a conventional role against tactical targets; and, finally, the presence of a strategic bomber in a diversified deterrent force helps our position in SALT-type negotiations.

In closing, Mr. Hardy said, "The Air Force Association believes ardently that attainment of this goal is one of the most vital tasks this nation faces in today's troubled world. And we hope and pray that like the venerable B-36 it will provide many years of service . . . providing free men with peace without having to fire a shot in anger."

Lt. Gen. Russell E. Dougherty, Commander, Second Air Force—headquartered at Barksdale AFB—and a special guest at the banquet, accepted a Louisiana AFA plaque of appreciation for **Lt. Gen. David C. Jones**, former Commander of the Second Air Force.

Louisiana State **Sen. J. Bennett Johnston, Jr.**, was the featured speaker at the Convention Luncheon, and State AFA Vice President **Lee J. Lockwood** was Master of Ceremonies.

Louisiana delegates elected **Ralph Chaffee** of Shreveport, La., to succeed **Toulmin H. Brown** as President of the State AFA. Other officers elected: **Bill Clapp** and **Lee J. Lockwood**, Vice Presidents; **Hannan Bordelon**, Secretary; and **Louis J. Kaposta**, Treasurer.



Lt. Gen. Russell Dougherty, left, Commander of the Second Air Force, accepts a plaque of appreciation from Louisiana AFA President Toulmin Brown for former Second Air Force Commander Lt. Gen. David Jones.

Special guests at the Convention included **Lt. Gen. John Hardy**, USAF (Ret.); **H. John McGaffigan**, National Vice President for AFA's South Central Region; AFA National Director **Jack T. Gilstrap**; Alabama AFA President **Jack Haire**; and Texas AFA President **John Allison**.

Members of the Convention Committee were: **Mr. Brown**, **Mr. Chaffee**, **Col. Donald A. Currie**, **Jim Larkin**, **Mr. and Mrs. Dick Sorensen**, **Mr. Kaposta**, **Lenora S. Miller**, and **Mr. and Mrs. Flavel Sabin**.

Joe Higgins, the "Toastmaster General of the Air Force," was the guest of honor and featured speaker at an Air Force Dining-In held recently in the Lowry AFB Officers' Open Mess. The event was sponsored by the **Air Force Accounting and Finance Center (AFAFC)** in observance of the twentieth anniversary of the founding of the Center and the twenty-fifth anniversary of the Air Force Association. It was the first Air Force Command-sponsored function honoring AFA during its Silver Anniversary Year.

Joe Higgins, the "Dodge Safety Sheriff" of TV fame, is a past President of AFA's Los Angeles Chapter and has participated in many AFA programs at the community, state, and national levels. In his address, Mr. Higgins said, ". . . it is a unique experience for me to appear before an Air Force audience—not as the Safety Sheriff of Dodge City, or as Air Commodore Height-Hobson—but as my humble self, Joe Higgins, school teacher turned actor," and proceeded to give a very serious and significant message directed at "our ability to establish and maintain a proper rapport with the young people of the country."

During the program, **Colorado Gov. John A. Love**; **Rep. James D. McKevitt** (R-Colo.); **Lt. Gen. Durward L. Crow**, Air Force Comptroller; AFA

National President **George D. Hardy**; and **Brig. Gen. Edwin S. Wittbrodt**, Commander of the AFAFC, were called on for appropriate remarks.

The many distinguished guests included: **Spencer J. Schedler**, Assistant Secretary of the Air Force for Financial Management; Aurora Mayor **Paul C. Beck**; **Maj. Gen. William F. Pitts**, Director of Budget, USAF; **Brig. Gen. Walt Williams**, Commander, 140th Tactical Fighter Wing, Colorado Air National Guard; **Shelby Harper**, President, Denver Chamber of Commerce; **Frank Mineo**, President, Greater Aurora Chamber of Commerce; **George Douglas**, Chair-



Joe Higgins, right, guest of honor at a recent Air Force Accounting and Finance Center Dining-In, enjoys a joke with, from left, AFA National President George D. Hardy and Brig. Gen. Edwin Wittbrodt, Commander of the Center.

man, Military Affairs Committee, Denver Chamber of Commerce; **Col. Jake C. Eckert**, USAF (Ret.), Chairman, Military Affairs Committee, Greater Aurora Chamber of Commerce; AFA National Director **S. Parks Deming**; Colorado AFA President **R. E. Stanley**; **Col. Benjamin S. Catlin, III**, Commander, Air Reserve Personnel Center; Front Range Chapter President **Roy Haug**; and **John Zipp**, a member of AFA's Civilian Personnel Council.

COMING EVENTS . . . AFA's Twenty-fifth Anniversary National Convention and Aerospace Development Briefings, Shoreham and Sheraton-Park Hotels, Washington, D. C., September 19-23 . . . **Alabama AFA Convention**, Birmingham, October 9 . . . **Pennsylvania AFA Convention**, Lewistown, October 29-30 . . . **Michigan AFA Convention**, Detroit, November 6. ■

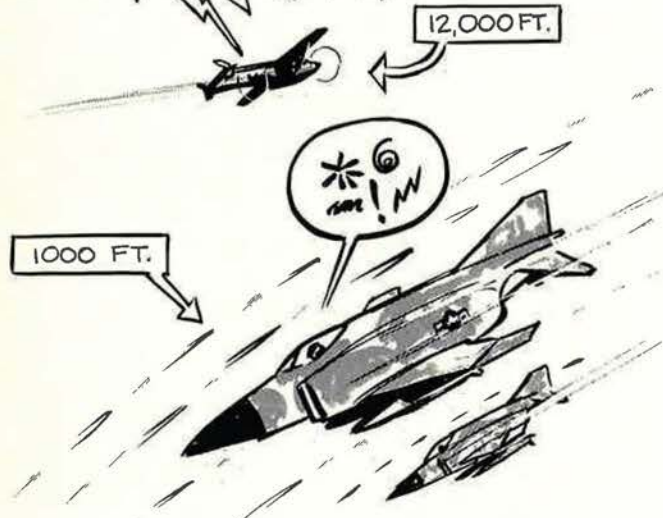


Bob Stevens'

"There I was..."

FAC-TO-FIGHTER-JOCKS -

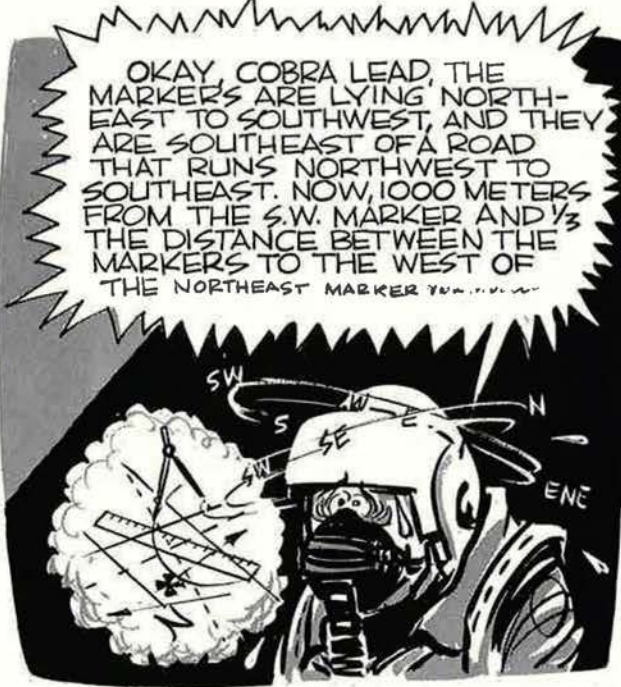
I HAVEN'T SEEN ANY GROUND FIRE - IT'S A GOOD TARGET. C'MON IN!



P.S. GUESS WHO GETS HOSED?

Above, god-like, he pirouettes and whirls
As toward the guns, us fighter-jocks he hurls.
And this we'd like to do as we attack—
Reach out our hands and choke that bloody FAC!

THEN THERE'S THE FAC WHO'S BIG ON TRIG - AT NIGHT, YET!



OKAY, COBRA LEAD, THE MARKERS ARE LYING NORTH-EAST TO SOUTHWEST, AND THEY ARE SOUTHEAST OF A ROAD THAT RUNS NORTHWEST TO SOUTHEAST. NOW, 1000 METERS FROM THE S.W. MARKER AND 1/3 THE DISTANCE BETWEEN THE MARKERS TO THE WEST OF THE NORTHEAST MARKER YOU...



HEY, LEAD! THEY REALLY SIEVED YOU ON THAT PASS!! NOW PUT YOUR NEXT BOMB 10 FEET TO THE LEFT OF THE LAST ONE!

THE LAST STRAW -



I WANT YOU TO GET THAT GUN SITE THAT JUST CHEWED UP THE F-4 FLIGHT AHEAD OF YOU ---



NAPALM ONLY

THANKS TO: MAJ. R.H. FAY, 389 TFS APO SF. WHO SAID: SERIOUSLY, THE FAC'S ARE FINE, BRAVE GUYS...

Bob Stevens

AT TRW, COMMUNICATIONS SATELLITES ARE MORE THAN A LOT OF TALK.

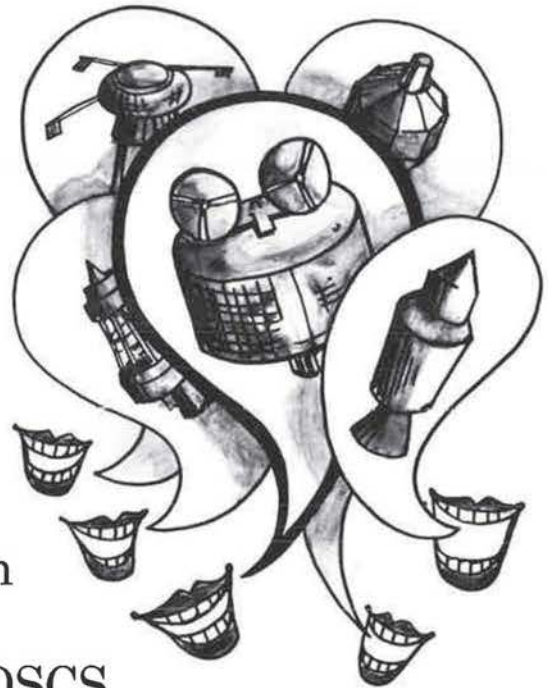
Today's defense efforts require instantaneous, worldwide voice and record communications. TRW communications satellites help make it happen.

At TRW we're now building the Defense Satellite Communication System phase II satellites for the Department of Defense. For phase I DSCS we provided major subsystems, and for COMSAT we supplied the Intelstat III satellites which now provide worldwide commercial service.

TRW's space communications achievements reach back over a decade, to the early Pioneer probes that provided communications over millions of miles.

Looking toward the future, adaptations of the X-band DSCS II spacecraft (which provides long lines trunking using super high frequencies (SHF) and complex surface terminals) can also relay communications for the naval fleet, military aircraft, and other smaller terminals which must typically use the ultra high frequency (UHF) band.

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



TRW®



The USAF F-15 will outfly, outshoot and outfox any adversary aircraft threatening American air superiority.

F-15: A Fighter Pilot's Fighter.

The fighter pilot will find the F-15 sized to his job. He can carry a sufficient and versatile mix of air-to-air armaments and still have the performance and staying power to engage and defeat any adversary. □ He can do this over enemy territory because he'll have all the warning systems needed to evade enemy defenses. And he'll have the acquisition systems needed to find and sort out targets. With all this, he will retain the maneuverability and acceleration to gain the advantage in the air battle arena. □ The F-15 will give the Air Force the ability to acquire, identify, engage, and defeat any type of enemy aircraft, in any weather – not only in the projected combat environment of the theorist – but in the real world where the fighter pilot must do his job.

MCDONNELL DOUGLAS

