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AIR FORCE

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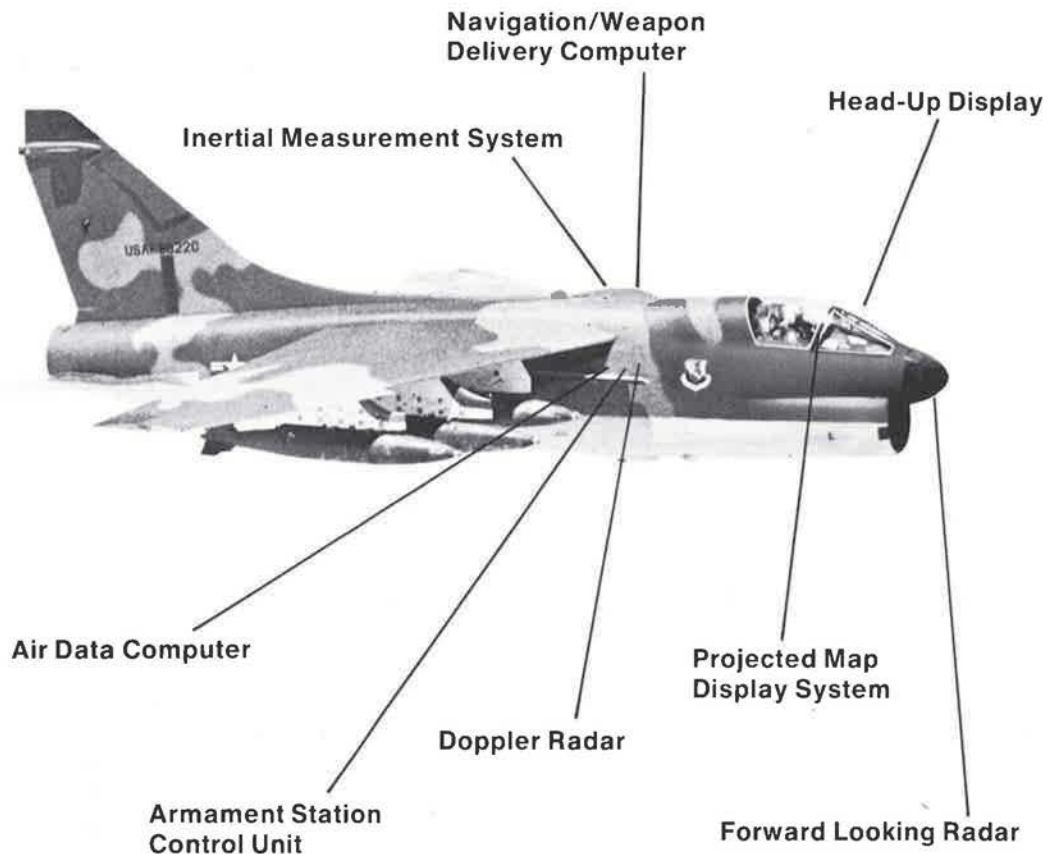
MAGAZINE



NIMROD

USAF's Truck-Busting A-26s
On the Ho Chi Minh Trail
—p. 30

ALSO IN THIS ISSUE:
Special Report on the
Soviets' New Strategic Bomber
—p. 35



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.

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



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The illustration, by Porter White-side, shows an A-26—call sign "Nimrod"—of the 609th Air Commando Squadron, based in Thailand, working over truck traffic on the Ho Chi Minh Trail. The story starts on p. 30.



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We have a way to find out what's really going on in the other 3/4 of the world.

Why is the weather a favorite topic of conversation? What else can we do besides talk about it?

One thing we know for sure is where most of our weather comes from: the seas around us.

It is too costly to put weathermen in the world's oceans. That was the problem: to find a less expensive way to put information-gathering devices in the oceans where they would provide data for more accurate weather predictions.

Under contract with the U.S. Navy's Office of Naval Research, we began work on this important project. Was it possible to station a buoy in the ocean and have it report to meteorologists on shore?

Devices are mounted atop the mast to measure wind, humidity, rain, solar radiation and barometric pressure.

The hull is forty feet in diameter and seven-and-a-half feet deep. It weighs 100 tons.

Antenna relays information from the ocean station to on-shore control, up to 3,000 miles away.

To do its job, the buoy would have to have more than 100 sensors for gathering oceanographic and meteorological data for transmission to shore command. The buoy would have to be moored in deep ocean, in depths to 20,000 feet.

Finally, it would have to operate routinely in 150-knot winds, 10-knot currents, and 60-foot breaking waves.

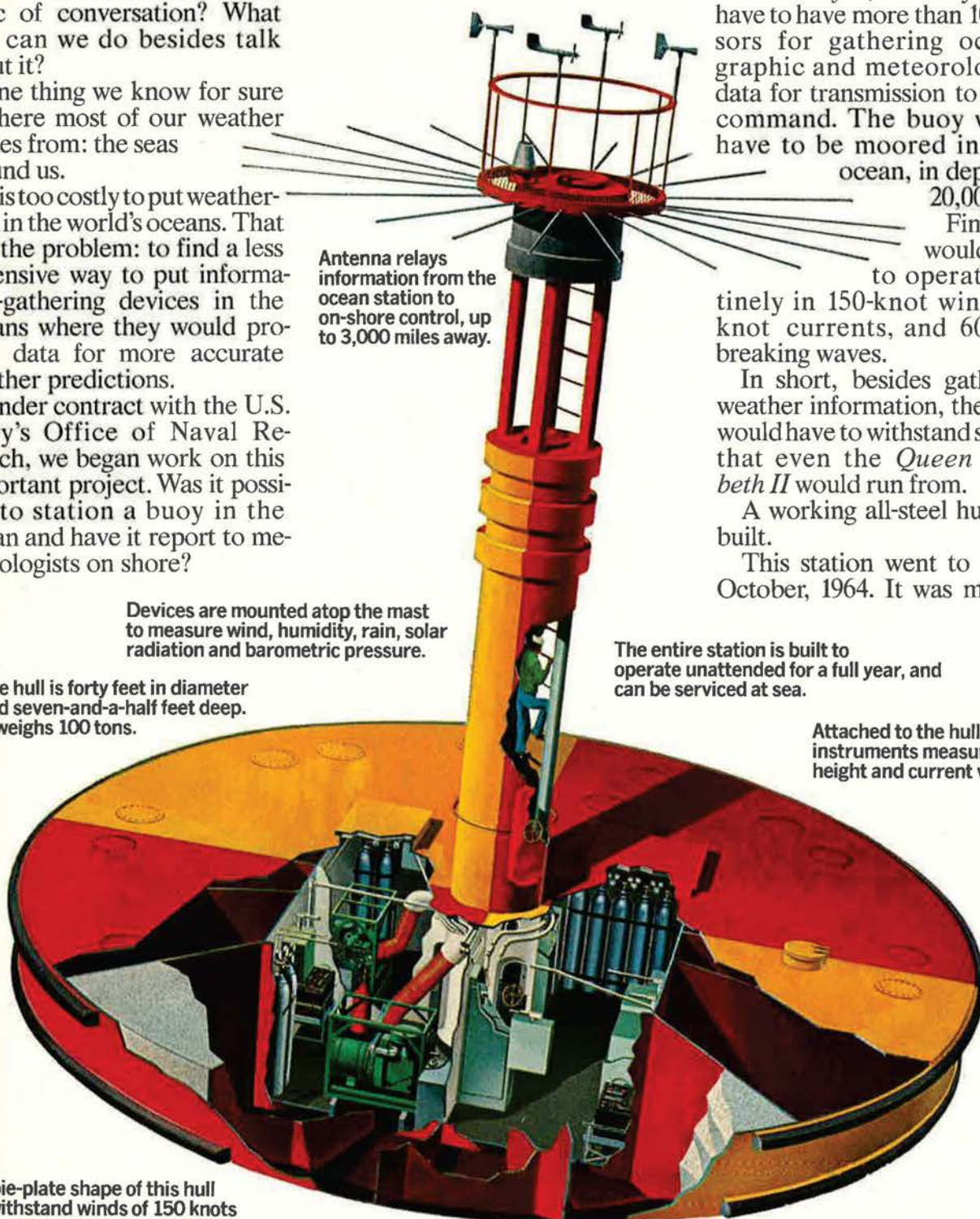
In short, besides gathering weather information, the buoy would have to withstand storms that even the *Queen Elizabeth II* would run from.

A working all-steel hull was built.

This station went to sea in October, 1964. It was moored

The entire station is built to operate unattended for a full year, and can be serviced at sea.

Attached to the hull, other instruments measure wave height and current velocity.



The pie-plate shape of this hull will withstand winds of 150 knots and waves of 60 feet. The hull rode out Hurricane Betsy in 1965.

Inside, electronic equipment gathers and stores information from 100 different sensors for transmission to shore.

Below the surface, more devices are placed on the mooring lines to measure water temperature and salinity.

in the middle of the Gulf Stream, off the Florida Coast, in a hurricane lane.

The station carried environmental sensors to see what a hurricane would do to the buoy.

In calm seas, the buoy worked to our fullest expectations. The most physical test of the system was to come.

In September, 1965, the eye of Hurricane Betsy passed within fifty miles of the station.

Waves were 45 feet high. Wind speed averaged 80 miles per hour. Gusts as high as 110 miles an hour.

Through this punishing storm the buoy functioned routinely.

Today, ocean data stations are operated off our east coast by the Commerce Department's National Oceanic and Atmospheric Administration. Next year, additional stations will be in service in the Gulf of Mexico to monitor the hurricane season. In the future, a network of these stations could

form a major part of a worldwide weather watch.

This is the kind of data ocean stations send back:

Meteorological data on wind speed and direction, barometric pressure, air temperature, relative humidity, precipitation and solar radiation.

Oceanographic data on ocean current, direction and speed, water temperature, salinity and surface wave profile.

By knowing the exact water temperature a thousand miles away, we'll know better whether a storm will bring snow or rain when it reaches land.

One way or another, this information will benefit everyone. For instance, by helping tell when to plant and harvest, schedule a vacation, even locate fish.

Because of the buoy's capabilities, the U.S. Coast Guard decided to use it as an unmanned navigation aid. So far, our Electro Dynamic Division has outfitted seven of them and the Coast Guard is using them to replace lightships, at a great reduction in operating costs.

Navigation buoys are on sta-

tion now off the entrances of New York and San Francisco harbors, in Delaware Bay, and off the English Coast, among other places.

Off our busy harbors, these navigation buoys could form networks of traffic sensors reporting to onshore stations and helping control ships in and out of ports.

Because we could put so many technologies together, we could put together the weather and navigation stations.

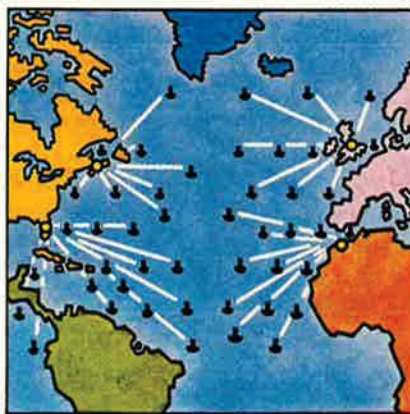
They're typical of something else at General Dynamics. Our people develop new technologies for specific needs. Then someone else in the company finds other uses for those technologies.

It's happening in all sectors of our business, in defense and in our growing commercial markets. It happens in marine systems. It also happens in aerospace, shipbuilding, telephone systems, electronics and natural resources.

It explains why we're a company that keeps doing things no one's been able to do before.



Prototype weather station off Florida.



Potential ocean station network.



Navigation buoy off the English Coast.

GENERAL DYNAMICS

The Realities of Realistic Deterrence

By John L. Frisbee

SENIOR EDITOR, AIR FORCE MAGAZINE

A NEW national strategy, Realistic Deterrence, was announced by Secretary of Defense Melvin R. Laird early this year. Realistic Deterrence is an outgrowth of the Nixon Doctrine, which the President first explained at Guam in July 1969. Mr. Nixon wants to meet our existing foreign commitments with fewer US forces deployed overseas. Our allies are expected to supply the bulk of the troops in their own defense.

According to Mr. Laird, Realistic Deterrence—the corollary to the Nixon Doctrine—is an *active* strategy using the total forces of the US and its allies to deter conflict across the spectrum, from insurrection to all-out nuclear war. While discouraging conflict, it is intended to encourage negotiations, in contrast to earlier strategies, which Mr. Laird characterized as simply *reactive* to an opponent's initiatives. There has, as yet, been little attempt to articulate this strategy in detail or to describe how it will be implemented.

Perhaps because of the vagueness with which the Nixon Doctrine and Realistic Deterrence have been defined, Navy supporters have heralded these two strategic statements as buoys marking the course to a new golden age for the Navy. "Sea-Based Deterrent," "Blue Water Strategy," and "Landward Projection of Naval Power" are slogans that appear and reappear in the popular media and the defense journals. The goal clearly is to establish the Navy as the dominant force in national defense by putting all (or most) of the strategic nuclear forces, and most (or all) of our tactical air forces at sea.

We don't believe that the realities of Realistic Deterrence and the Nixon Doctrine warrant the optimism with which they have been embraced by many sailors—present, past, and would-be.

During recent months, AIR FORCE Magazine has examined the fallacies of an all sea-based nuclear deterrent. There are equally grave fallacies in the rationale for putting a much larger part of US tactical airpower at sea.

In the first place, though the new strategy may be more active than previous ones, it still is a *deterrent* strategy. And the key to deterrence is the certainty, in a potential enemy's mind, that aggression directly against US forces will elicit prompt and painful response. Deployment of even small land-based US air and ground forces in threatened areas of high US national interest constitutes an unambiguous commit-

ment and therefore has a high credibility index. Sea-based tactical air forces, cruising offshore and out of sight, are at best a highly ambiguous commitment. Their credibility index is low. And deterrence rests on credibility.

It is worth noting that wherever we have maintained the unambiguous commitment of land-based, overseas deployments, aggression has been deterred. Where major aggression affecting US national interests has happened—Korea, Vietnam—the aggressor was not constrained by the somewhat distant presence of a powerful US fleet.

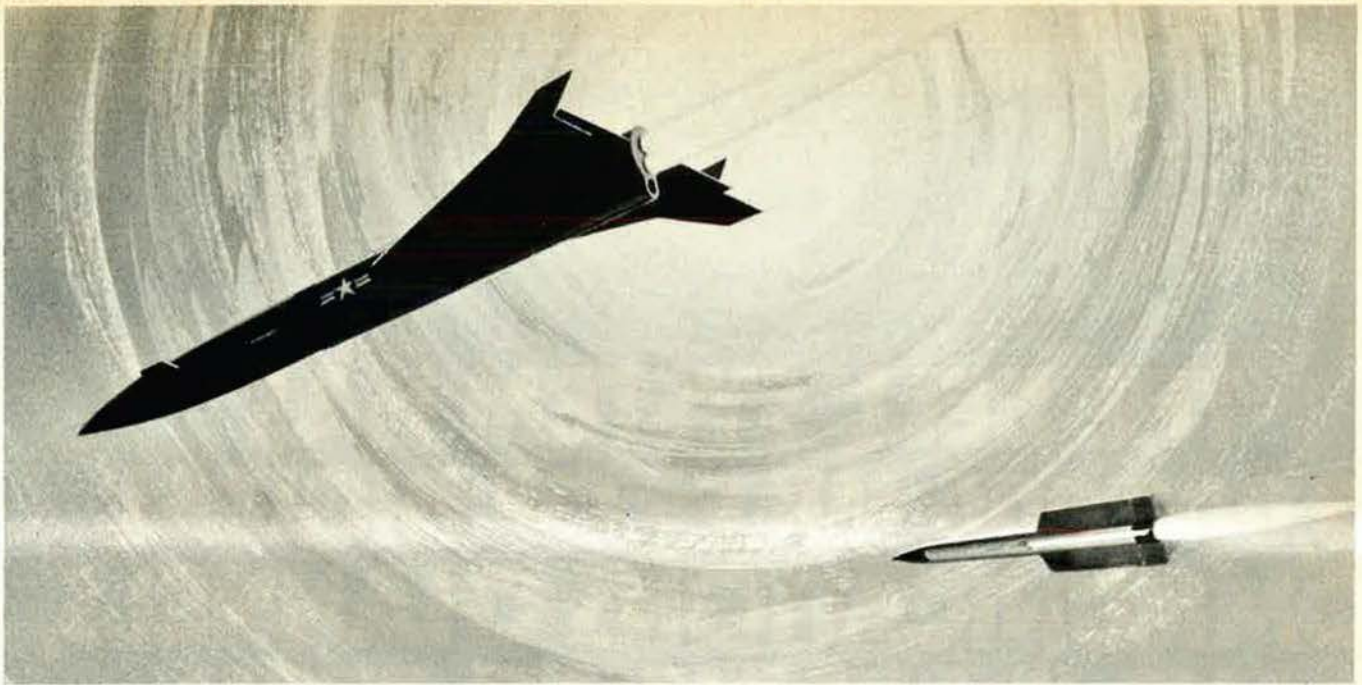
Supporters of expanded tactical seapower invariably turn to hypothetical situations where the US might be denied overseas bases and where we would have to depend on seapower. It's a bit difficult to conceive of the US coming to the aid of a country that refused us base rights. This Navy argument might well fit the designs of an imperialistic nation. But the US has no imperialistic ambitions. And it has never been explained how carrier aviation—with its relatively short range, small payloads, and **vulnerability** to enemy land-based air—could contribute **significantly** to defending the area of prime US foreign interest—Western Europe.

It's also worth noting that the Navy itself is highly dependent on extremely expensive offshore facilities, as the Chief of Naval Operations, Adm. Elmo R. Zumwalt, Jr., observed in a recent *US News & World Report* interview.

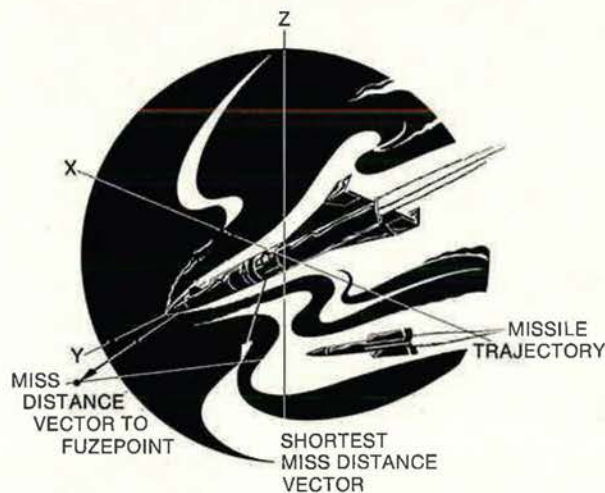
Navy supporters refer to the US as essentially a sea power. That's good nineteenth-century thinking, but in this last third of the twentieth century the US is really not a sea power. It is a *global* power with interests and commitments that extend far beyond foreign shorelines—beyond the reach of all sea-based forces except the Navy's countercity nuclear missiles, which are purely instruments of reaction to a nuclear attack on the US.

It seems clear to us that the US will continue to need land, sea, and air forces. But the balance of those forces had better be compatible with the realities of Realistic Deterrence and of the national interests that strategy supports. Those realities indicate no need for expanding seapower at the expense of the other services—especially of the more flexible, wide-ranging, hard-hitting tactical air forces that only the Air Force can supply.

This is no time for cheap-shot solutions. ■



miss?



A unique Vector Miss Distance Indicator (VMDI) can give you the answer during critical missile tests. Results are no longer a hit or miss situation.

This new Motorola system lets you compare exactly how a missile reacts against targets at various altitudes and airspeeds. Unlike other systems, VMDI establishes the trajectory of the missile relative to the target as well as the range and angle vector to the missile as it passes. Another plus is the position of

the missile at the instant of fusing. Scoring information is available from 0 to 200 feet. With this system you can determine if "misses" are random or if a set pattern is developing.

The airborne sensor can be linked to a computer on the ground through Motorola's Integrated Target Control System (ITCS) or through a number of other telemetry links. The VMDI system eliminates the guesswork with a direct printout of all scoring information. Tape readouts as well as plotter or CRT displays can be provided. Static tests of the system are now being conducted at an Air Force facility.

For information contact Motorola Government Electronics Division, Radar Operations, 8201 E. McDowell Rd., Scottsdale, Az. 85252 (602) 949-3172.



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You see, we have one fully integrated network. It has both "analog" and "digital" channels...and has had for many years. Signals travel as waves on one and as pulses on the other. Regardless of the original source or form of the signal, whether human voice or computer, we readily transform it to travel over either channel.

This flexibility makes virtually all of our network available for data transmission. It keeps charges low. And it gives us alternate routes should trouble arise.

Then why are we going heavily digital? Because with modern electronics, especially solid-state circuitry pio-

needed at Bell Labs, digital transmission is better not only for data but for many other services as well.

Digital transmission is better because it eliminates many kinds of noise, thereby getting more information over the same size cable with greater accuracy.

Digital is clearly technology's best answer to many of America's future communications needs. It will benefit everybody, not just our data customers.

We have 13 million channel miles of digital now, and we have definite plans for the near future.

- For 1972, a new digital system that will operate at 6.3 mcgabits per second, four times the speed of our present all-digital lines.
- By the mid-'70's, initiation of private line service on an end-to-end, fully digital basis which will ultimately serve every major city in the country.
- By the late '70's, waveguide systems capable of thousands of megabits per second.
- By 1980, the Bell System's network will be four times its present size. A large proportion of it will be digital—enough to provide ample capacity to meet America's data-handling needs.

The American Telephone and Telegraph Company and your local Bell Company are continually working to improve service to business.

This time by increasing digital services to benefit all our customers.



Ploesti Mission

Gentlemen: I believe that AIR FORCE Magazine erred in synthesizing from "conflicting" sources its statistics on the Ploesti mission of August 1, 1943 ("The Ploesti Raid—A Statistical Summary"), in the August issue. I would have expected to see AIR FORCE step in and resolve the omissions and errors which have existed in published accounts of this famous mission since 1943-44. Instead, AIR FORCE's "statistical summary" creates a new source which will propagate and confuse like so many others before.

Conflicting accounts and boundless, undocumented statistics drove me to official but unpublished sources and "raw history" as it exists in the twenty-eight-year-old records of the Army Air Force units and headquarters involved. Examination of these records provides one explanation to me why so many different statistics have appeared over the years.

It appears that researchers for articles or books often reach into the records and take information from an official document that actually was superseded a day, week, or month later with updated information. Others follow tabulating information on the

same event but from documents not at the same point in the data's chronological development. Thus, a conflict develops.

Too, it must be remembered that the Ninth Air Force disbanded in Africa soon after the Ploesti raid, and A-2 personnel who would have eventually summarized these data no longer had access to the necessary records or personnel.

The fruits of my own research, in the form of data on the August 1, 1943, Ploesti mission, summarizes directly from sortie reports of the 98th, 376th, 44th, 93d, and 389th Bomb Groups (H), and the files of the IX Bomber Command/Ninth Air Force, where applicable. This information does not consist of mere numbers, but tabulations of each appropriate category indicating the group, squadron, the individual pilot's name and rank, aircraft serial number with ID letter or number, airfield used for takeoff/landing, clarifying remarks, and specific source.

These data have been compiled by myself over a year's period with the cooperation of the Federal Records Center (GSA) and are part of a private research project addressing IX Bomber Command (H) air campaigns

in the Middle East, 1942-1943. The information is totally from micro-filmed records of the AAF units and headquarters involved at the time.

The important tabulation, which I believe is stated incorrectly in the August issue of AIR FORCE, relates to losses. AIR FORCE has indicated target area and combat losses to be fifty-seven aircraft/crews, and when the aircraft lost to Turkish internment are considered, the combat-related losses soar to sixty-one, not to mention the single aircraft lost for operational reasons en route.

The accompanying tabulation (*see box*) of the 176 sortie reports generated by participating AAF units indicates that many less were lost for all reasons.

T. E. DAVIDSON, JR.
Crofton, Md.

Where "A Better Way" Works

Gentlemen: John Loosbrock has once again hit the nail squarely on the head ("There's Got To Be a Better Way," July issue). This time he struck close to home. In fact, he hit the very nail which I have been trying to get a crack at for some time. However, he could have gone one step further and stated exactly what the Air Force is doing about this problem. A virus with many strains, he calls it "middle-management featherbedding" in governmental circles. In the Air Force it is recognized as "multi-level review." Nevertheless, the symptoms are the same: a higher and higher proportion of total effort going into keeping track of what is being done and a smaller and smaller percentage into actual doing.

The Air Force solution directed by the Chief of Staff is direct and quite simple—reorganize to achieve more direct involvement of Commanders in actual operation and less in staff management at all intermediate command levels.

The Aerospace Rescue and Recovery Service (MAC) has been doing just that at Wing level and below for some time. It really works.

COL. T. P. FERRATO
Commander
42d ARRS (MAC)
Hamilton AFB, Calif.

A Concerned Officer

Gentlemen: Having followed your publication's accounts regarding our

The Ploesti Mission of August 1, 1943

Aircraft attempting the mission	178
Aircraft crashing on takeoff	1
Aircraft not attempting takeoff	1
Aircraft successfully proceeding on the briefed course	176
Aircraft which turned back (aborted) en route	14
Aircraft lost operationally en route	1
Aircraft actually attacking	161
Combat-related losses	44
Aircraft lost at the target, in the target vicinity, and to fighters	41
Aircraft lost during the return:	
Lost at sea	1
Ditched (part of the crews rescued)	2
Aircraft and crews interned in Turkey	7
Total aircraft losses, all causes	52
Aircraft and crews returned to Libya (from target)	91
Aircraft and crews which aborted that returned to Libya	10
Total aircraft and crews which returned to Libya on August 1, 1943	101
Aircraft and crews returned from target to Allied bases	19
Aircraft and crews which aborted that returned to Allied bases	4
Total aircraft and crews at Allied bases on August 1, 1943	23

SCIENCE/SCOPE

A new forward-looking infrared night-imaging system, described as one of the most advanced ever developed, has been delivered to the U.S. Air Force by Hughes. The system, designated MAFLIR (for Modified Advanced Forward-Looking IR), has greatly improved resolution and should extend operational ranges significantly. It has been installed in a C-131 aircraft and the Air Force will test it to determine its suitability for high-speed flight reconnaissance as well as for high-altitude application. MAFLIR was developed for USAF's Avionics Laboratories.

A hand-held, wide-angle optical transceiver that provides clear, secure communications up to three miles has been developed by Santa Barbara Research Center, a Hughes subsidiary. It resembles a binocular, weighs only four pounds including the rechargeable battery, and can be reliably operated after minutes of instruction. It was designed as a low cost walkie-talkie in line-of-sight communications applications, such as ship-to-ship, ship-to-shore, helicopter-to-ground, and land-based operations. Other optical communicator designs provide secure communications over ranges up to 15 miles.

The U.S. Navy's TV-guided Condor missile will have a simplified data link subsystem which Hughes is developing under contract with North American Rockwell. The new system incorporates advanced circuitry design and repackaging techniques which reduce the cost of operational hardware significantly. Air-launched Condor is a rocket-powered, long-range missile to be used by Navy attack aircraft against ground targets. It provides carrier-based planes with a standoff capability and greatly increased bombing accuracy.

High-voltage DC power transmission and control problems are now under study at Hughes' Malibu, Calif. research laboratory. The original research currently being conducted on DC converter valves and circuit breakers stems from the company's earlier ion-propulsion research for NASA. The Electrical Research Council, which represents America's private and public utilities, is partially funding the development of the Hughes DC breaker.

Electric power specialists from 13 countries, who were attending a CIGRE conference in Los Angeles on AC-DC converting equipment, reviewed the work in progress during a visit to the Hughes laboratory recently.

Belgium's Ministry of Defense has ordered preproduction laser tank fire control systems for use in the Belgian Army's Leopard tank. Built by SABCA in collaboration with Hughes, the system incorporates a computer, sensors, a precision mirror-drive assembly, precision optics built by O.I.P. Belgium, and a laser supplied by Eltro GmbH of Germany, a licensee of Hughes. During earlier trials the system demonstrated more than twice the first round hit capability of a classic fire control system. Reaction time to engage a target has been reduced to a few seconds.

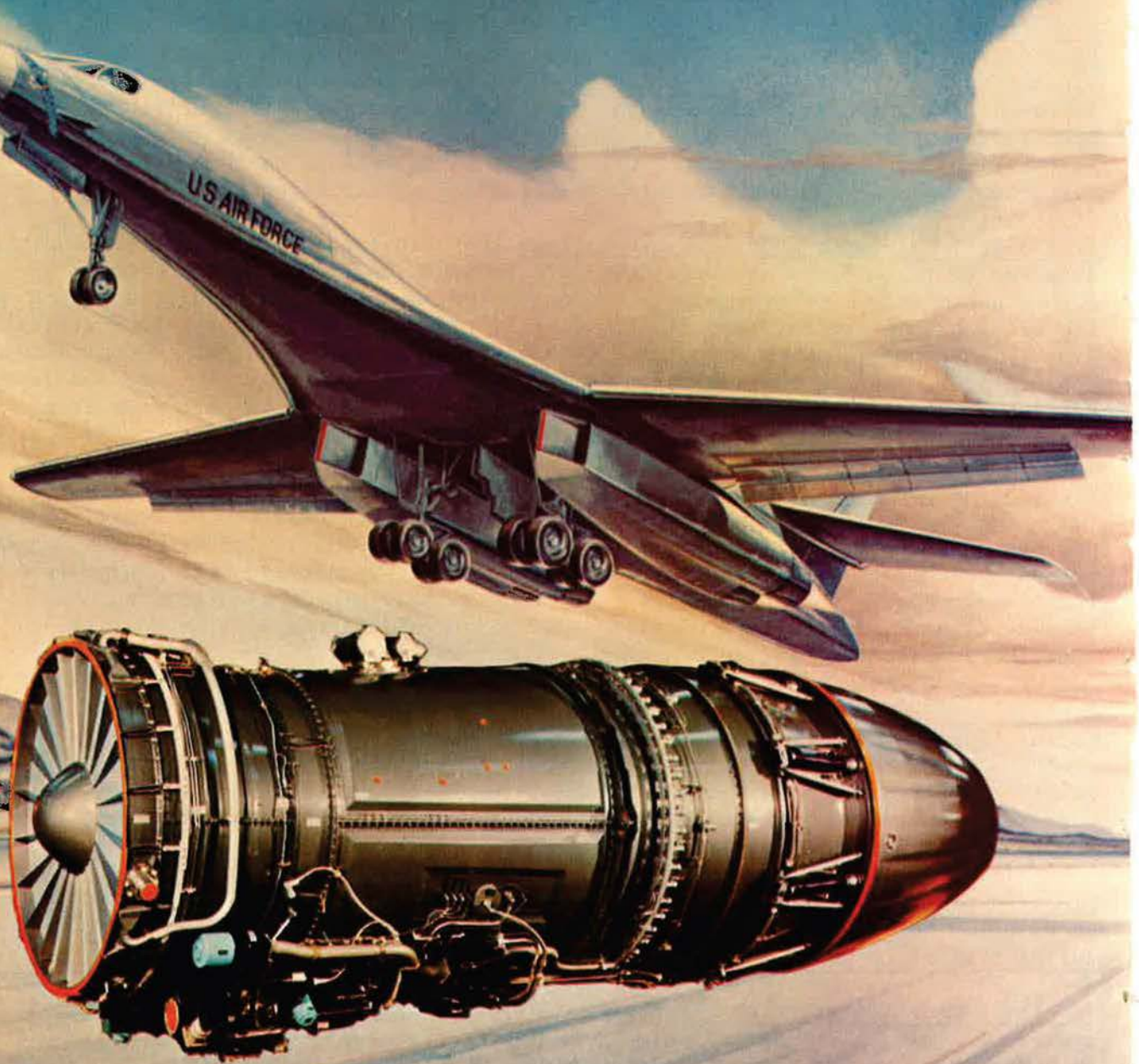
A patent on pulsed laser holography has been awarded to Hughes. The new illumination technique permits holograms to be recorded in times as short as 30 billionths of a second (an important factor in noisy environments). Earlier continuous-wave gas lasers required long exposure times. Scientists foresee many valuable applications for holography in industry, medicine, dentistry, archeology, and teaching.

Creating a new world with electronics

HUGHES

HUGHES AIRCRAFT COMPANY

**Another advance in engine technology
from General Electric . . .**



On time, on spec, on cost . . . for the B-1.

General Electric's new F101 augmented turbofan for the USAF B-1 has passed initial design review by the U.S. Air Force and is on schedule for core engine testing later this year. Important milestones leading to flight test with the North American Rockwell B-1

are being met . . . on time, on spec, on cost. The F101 represents a significant advance in aircraft engine technology. In the 30,000 lb. thrust class, it delivers about the same thrust as two of the J79 engines powering today's high performance

aircraft. Yet it occupies 30% less space and has a 25% lower specific fuel consumption.

As a member of the B-1 team with the U. S. Air Force and North American Rockwell, General Electric is dedicated to the advancement of U. S. aviation technology.

205-26

AIRCRAFT ENGINE GROUP

GENERAL  ELECTRIC

Airmail

conflict in Southeast Asia and having talked with many returning pilots since my "doolie" year at the Air Force Academy, I can attest to the veracity of your reporting. Consequently, I could not help but feel your August editorial, "Those Pentagon Papers—Who Needs Them?" to be "right on."

Many of your points in the first paragraph are the very reasons for which I conceive of our war as being a misfeasance. I agree completely with your analysis of the Pentagon papers. It seems paradoxical that the American people are today unhappy with President Thieu's actions with respect to RNV's elections in light of the Pentagon papers' revelation that the right of self-determination was never a major factor behind our role anyhow. So the title of your article should not have been "The Pentagon Papers—Who Needs Them?" but rather "The Pentagon Papers—Who Needs Them, Reads Them, or Heeds Them?"—definitely a poor commentary on the American public.

Just as PFC Edward R. DeBrava, Jr., said in writing his winning Freedoms Foundation essay, "The misconception that freedom is simply a privilege has allowed free men to think that no effort is required of them. Nothing could be further from the truth. A free society that is preoccupied with its own diversions and comforts will not long be a free society," applies likewise to threats from without and the usurping of power by a demagogue from within.

Of course, we both must realize that not everyone is able to read the AIR FORCE Magazine to glean the misfeasance of our war. Calling the administration of The New York Times to task for their publicity ploy in handling the release of the papers was well spoken and needed.

However, just as AIR FORCE Magazine has been so circumspect with respect to the misfeasance of our war, it has likewise been entirely myopic regarding the malfeasance of the war. It is here that we diverge. I oppose our war because of both its misfeasance and its malfeasance (for the war being both illegal and immoral). Therefore, in actuality your sin has been as egregious as the Times.

I remember listening to the fighter jocks at the Academy, back from our war, griping out of one side of their mouths over the limited targeting,

which has, in effect, prevented many civilian casualties, while out of the other side blaming Marshal Giap for making war so dirty by theorizing that all people are combatants and having his troops practice such.

The fighter jocks only questioned the morality of Giap's theories, never once realizing the hypocrisy of what they were promoting. Their promotion being, in effect, only a long-armed Giap theory in which the combatant never has to face the civilian he kills, where under Giap the combatant at least faces his victim. Of course, Giap is limited by technology. One could guess that he would promote the same tactics as have our pilots and your magazine.

One can only picture American cities previously virginal to external enemies' bombs (excepting the War of 1812) being laid waste at the hands of Giap and proponents like those existing in our own Air Force who decry the limited number of targets. Again the specter of Dresden, Hiroshima, and Nagasaki arises.

It is the bitterest of fruits when we understand the hypocrisy of our self-realization that we are no more civilized than our ancestors who we have, at least in our minds, disparaged as being less civilized and more barbaric. It seems far more civilized to have the leaders of the armies fight to their deaths to establish a decision, or even simply armies as a whole, as was done in the past. At least those to die would do so voluntarily and those innocent people who have little desire for and/or gain from the wars could be immune.

I agree that our war has been a misfeasance but only in attempting to lessen the malfeasance. We can end both by getting out militarily while attempting to help economically.

Peace and agape.

LT. D. R. "CHIP" TERRILL

National Correspondence Secretary
Concerned Officers Movement
Washington, D. C.

Dear Lieutenant Terrill: We're pleased that you liked the editorial, a bit distressed by your judgment of the magazine's stand on targeting, and fully aware that it takes a man of strong conviction backed by a considerable amount of guts to publicly identify himself as an official of the Concerned Officers Movement.

It seems to us that you have made a starkly black-and-white judgment on the targeting issue. AIR FORCE Magazine has criticized the restrictions placed on the use of airpower in SEA. We have never advocated indiscriminate bombing, and never will.

(Reply continues on page 75)

Air Force F-15



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For this nation's newest air superiority fighter—being built by McDonnell Douglas—Sperry is developing the attitude and heading reference system, the digital air data computer, the multi-function display, and the flux valve.

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Airpower in the News

By Claude Witze

SENIOR EDITOR, AIR FORCE MAGAZINE

It was a typical Witze-ism. In August, Claude was about to leave on a well-deserved and extended vacation that would take him out of the country. He asked me, "Got any ideas about a column I could write now that would stand up in October?"

"Why not skip a month?" I thoughtlessly responded.

"Look," he growled, "as long as Witze is working for AIR FORCE Magazine, there's going to be an 'Airpower in the News' every month."

"Okay," I said. "So how about sharing with your readers some of the stories you've been regaling me with? You're a critic of the press. How about establishing your credentials for the job?"

So he did, and we present them herewith. Some of the best stories are not here, for obvious reasons. But there are more than enough to show that when Witze talks about newspapering, he's been there.

—JOHN F. LOOSBROCK

The Wayward Press (Reminiscence Div.)

I never knew A. J. Liebling, the original Wayward Pressman, except as a by-line and a legend. He was a reporter on the old New York *World*, a famous newspaper that expired in 1931. It had been the *World* and my youthful admiration for the works of Henry L. Mencken on the Baltimore *Sun* that guided me into this inky business in the first place. Ben Franklin, city editor of the *World* when it passed away, was one of my teachers at the Columbia School of Journalism in 1932, and he used to talk about Joe Liebling.

Later, I found the tubby ghost of Liebling in the news room of the Providence *Journal* when I went to work there in 1936. There were many Liebling stories surviving from his halcyon stint on that newspaper. One concerned his eating capacity. In later years, Joe acquired a reputation as a gourmet, but in Rhode Island he was closer to gluttony. They say that he could, and did, eat a full barrel of steamed clams at the annual *Journal* staff clambake. He would sit in a tent on the beach, while others were swimming or playing softball, and when the games were over there were no more clams. He quit the *Journal*, determined that he would work for the *World*. Refused a job, he rigged a sandwich board saying "World Unfair to A. J. Liebling"—or words to that effect—and picketed the *World's* home on Park Row. It worked; he was hired.

A few years after the *World* folded, Joe joined the staff of the *New Yorker* magazine, where he pounded out a niche for himself in American letters. From time to time, he would write an essay called "The Wayward Press" that was a detailed study of the omissions, distortions, and downright fiction he found in newspapers. It always was well informed—he had some spies in the daily and wire-service offices—and caustic. Frequently it was hilarious. Joe did not like newspaper owners and was somewhat bitter about the fact that they wanted to make money, too frequently at the expense of good journalism. He viewed with alarm the growing number of cities with no news-

paper competition and compared the situation to the abolition of the free lunch in saloons. The lunch was made illegal by the alcoholic-beverage control board. The customers continued to buy beer and the saloon keeper raised the prices. Joe maintained that the publisher in a one-newspaper town can cut out the news, just as the saloon keeper cut out the lunch, and there is not much the customer can do about it.

Joe Liebling's prejudices and convictions in this regard have become outdated, in my opinion, but his basic idea that newspapers need a hair shirt remains commendable. That is why, in mid-1969, "Airpower in the News" inaugurated an item called "The Wayward Press." There is no rule that it must appear each month and there is no effort to borrow more than the title from Joe Liebling. In our specialized area of interest, national security and all its components, an extraordinary amount of misinformation manages to get into print. Talk to anyone inside the military-industrial complex and you will hear plenty of horror stories about this. And, as Daniel Moynihan has pointed out, there is an "absence of a professional tradition of self-correction" in the newspaper business.

On top of this, let it be understood that the First Amendment, which has been tortured a great deal in recent months, means just what it says. It provides Freedom of the Press—always written in capital letters by the lowercase press—and that includes the freedom to distort, lie, misinterpret, misquote, and determine completely what is fit to print. In the decade or more that I worked on the copy desk of a metropolitan newspaper, which is where the editors take their last look before words are put into type, I had only two restraints. They were the laws of libel, with which every copyreader must be familiar, and my own newspaper's standards of decency and ethics.

Such standards are set by people, and sometimes people are no damned good. They have prejudices and eccentricities and axes to grind. Before I went to Providence, I worked for about a year as telegraph editor of the Troy (N. Y.) *Record*. In the early thirties, the publisher in Troy had a thing about radio. A radio program in our paper would look something like this:

6:00 News
6:30 Comedy
7:00 Music
7:30 Comedy

At least a dozen times a night the news desk phone would put me in touch with an irate *Record* customer demanding the scheduled broadcast time for H. V. Kaltenborn, Amos 'n' Andy, Wayne King, or Fred Allen. I kept a copy of the Albany newspaper at my elbow to answer these questions. It was not many years, of course, until the *Record* itself was in the radio and television business and the policy was changed.

When I moved to the Providence *Journal* I found a local desk rule that banned the word "suicide." When Tom Dewey was District Attorney in New York and busting up Murder Incorporated, he grabbed one thug who turned out to be a highly important source of information. Dewey

locked this character up in an apartment house under a twenty-four-hour guard. The man went in the bathroom, the only place he was allowed privacy, and jumped out of the window. I wrote the *Journal* headline, on page one, that said:

JOE WHATSISNAME,
KEY DEWEY WITNESS,
IS FOUND DEAD

That was an accurate statement. It just didn't tell the story.

Many years before I joined the *Journal*, the newspaper's management had developed a real hatred for Franklin D. Roosevelt. It went back to the time when, as Assistant Secretary of the Navy under President Woodrow Wilson, Mr. Roosevelt got into a row with the *Journal* over some issue at the naval station in Newport. When FDR ran for Vice President on the ticket with James M. Cox in 1920, his name, like suicide, was banned from our news columns. A report on a political rally that year might say, "The Democratic Vice Presidential candidate also spoke." There were no quotes or identification.

Without laboring the point, suffice it to say that a newspaper is put out by individuals, and what is in it is determined by their mental quirks and judgment. If there has been any important change in the many years I have been sweating and swearing in these fields, it is that the apex of power in the newsroom has moved downward. The policies I worked under, which gave us useless radio listings and barred a word like suicide or FDR's name, came from the top management. We damned well put out the paper the way we were told to put it out. Now we have a generation working in top-prestige newsrooms that wants to take over these prerogatives. They are what I call *committed* reporters and editors.

Joe Liebling defined three kinds of writers of news:

1. The reporter, who writes what he sees.
2. The interpretive reporter, who writes what he sees and what he construes to be its meaning.
3. The expert, who writes what he construes to be the meaning of what he hasn't seen.

Well, those definitions are inadequate today. I won't write a new set, but wish to suggest that *my* committed



Thirteen of Claude Witze's thirty-five years as a journalist have been with *AIR FORCE Magazine*. He is the winner of several major awards for aviation writing.

reporter, or advocate, must be added. He is a man with strong personal opinions, and demands the right to use his publisher's Freedom of the Press to promote his own opinions in the columns of the publisher's newspaper. James Aronson, admittedly one of these men, has written a book called *The Press and the Cold War*, in which he tells how he quit the *New York Times* in 1947 because "my political and social philosophy had made it increasingly difficult to write 'objective' stories for a newspaper committed to United States policy. . . ."

Now, nearly twenty-five years after Mr. Aronson made that decision for that reason, Tom Wicker, currently an associate editor of the *Times* and, by my definition, a committed reporter, appears to agree with him. Wicker, writing in the *Columbia Journalism Review*, says that newspapers must change so they "will serve our time." Wicker says "Let a hundred flowers bloom" is the only recommendation he can make. First, he says, get the best people, "those with the highest intellectual standards, with the highest purpose." And the best writers, "who have sensitivity to what happens around them, who understand how the specific can be translated into the general, [and] who in the best sense are the novelists of their time." The editors of the *Journalism Review* clearly agree with this approach. In another edition, they pose the question: "With jobs more scarce, will newsmen have the will to carry forward the so-called newsroom revolution?"

Personally, I am not convinced of the merits of this revolution. It is perfectly possible for a determined and competent newspaperman to pursue his journalistic interests within the organization. Not all publishers are greedy and nefarious and stupid. When I worked on the Providence *Journal* copy desk, which I did for ten years, I also wanted to write. I did some book reviews. Felix Morley then was editor of the *Washington Post*, and, from time to time, I sold him an essay that appeared on the page opposite his editorial page.

When World War II broke out, my copy desk routine grew more strenuous—there were plenty of sixty-hour weeks—as staffers departed for the front. One of these was George Pelletier, the *Journal* aviation editor. He later rose to the rank of captain in the Navy, worked for Dan Kimball when Kimball was Secretary of the Navy, and moved, with Kimball, to Aerojet-General Corp. As an airplane buff, following the air war in my daily desk routine, I was a natural candidate to take over a small part of George's job. I was given a weekly aviation column to write for the Sunday newspaper.

This continued for the duration of the war. When it was over, I tried to convince my superiors that the *Journal* needed a full-time staff aviation editor. There was no luck until Ralph Damon, then president of American Airlines, visited my publisher one day and sold him on the idea. The *Journal* publisher was Sevellon Brown, one of those rare, front-office birds who once had been a reporter himself, and a man who took seriously the *Journal's* responsibility to its community. His paper was the only one in town, but he ran it—morning and afternoon—with the idea that he was competing against papers in both Boston and New York. He ordered me removed from the copy desk onto the aviation beat. From that day on, the *Journal* had detailed coverage of the postwar explosion in aeronautics—commercial and military.

Here again, it turned out that the problem was people. There were some bosses in the newsroom at the *Journal* who did not grasp the significance of what was going on in aviation and why it was important to Rhode Island, its citizens, and its industry. They did not know that Sevellon Brown, if given the chance to make the decision, would say that the role of the newspaper was to cover the story. It is my studied opinion that in newspapers, as in all

Airpower in the News

bureaucracies, there are little people who base their judgments on the wrong assumptions. They do something because they think the boss will like it. More often than not, they are wrong.

One example, after I was put on the aviation beat, was the annual struggle to get permission, and expense-account privileges, to cover the National Air Races in Cleveland, Ohio. In 1949, I broached the subject to a news editor. His response: "What's the local angle?" At the moment, there was no good answer to this question, except that we were running a metropolitan newspaper and the aviation editor should provide staff coverage of the nationally significant Labor Day event. There was trouble, but the publisher prevailed again and I went to Cleveland. On September 3, 1949, Navy Lt. Elliot A. Buxton, a native of Providence and son of a prominent physician in our city, was a winner. He was a member of Squadron VF-171, organized at Quonset Naval Air Station in Rhode Island, and flew the McDonnell F2H-1 Banshee. Taking off from the carrier *Midway*, fifty miles off New York, Lieutenant Buxton went the 432 miles to Cleveland in a bit under fifty-one minutes.

In the press box at the races, I collared a Navy public information officer, Lt. George W. Fey, and with his help the story was on page one in the *Journal* the next morning, with pictures. (Fey, today, is the Washington representative of the Sikorsky Aircraft Division of United Aircraft Corp.) The *Journal* news desk learned that the "local angle" comes out of the news and not the other way around.

Newspapermen are continually rediscovering what the trade calls "investigative reporting." Sometimes it is called muckraking and is tied to such names in journalistic history as Lincoln Steffens and Upton Sinclair. To begin with, it is difficult to find an example of news reporting that is not investigative or does not at least offer the opportunity for investigation. On the Providence *Journal* there was a great deal of investigative reporting when Sevellon Brown was running the paper. Our staunchest supporters said openly, sometimes from platforms, that without the *Journal* the politicians would steal the state. In the late 1940s, there were rumbles of deep discontent about the state airport program and its administration. It was under the control of a state Division of Aeronautics in the Department of Public Works. There was a state aeronautics director who finally aroused the suspicions of Publisher Brown. I was called to the front office, where the boss discussed the problem with me and climaxed the session with a question: "Is he honest?" My response was that I did not know, never having tried to find out. My immediate order was to go and find out. When Sevellon Brown gave an order like that, he wanted it carried out and he did not care how long it took or how much it cost.

In this case, it took many weeks and was my only assignment during that period. I put several hundred miles on my car, chasing over the back roads of Rhode Island. More than a week was spent in the State Office Building, studying public records—purchasing orders, in this case. The evidence of skulduggery finally came to the surface with ease, once the rumor went about that the *Journal* was looking behind the scenes. Clandestine witnesses came out of the woodwork. The entire account is not needed here. Suffice it to say that the aeronautics director was removed from office by the governor. The governor was

John O. Pastore, who since has become a distinguished member of the US Senate. Mr. Pastore never denied full credit to the *Journal* for its role.

There was another incident, in which I had the collaboration, plus a great deal of help, of the late C. B. Allen (see p. 22), then an aviation reporter for the New York *Herald Tribune*. "C. B." and I worked together on a story involving the first new postwar transports put in operation by American Airlines. It developed that the carrier bought the airframes from the Convair plant of General Dynamics Corp. and fitted them with surplus bomber engines purchased from the government's postwar stocks. The airplane had been designed for a more powerful, new engine, and the switch had the effect of degrading performance. The *Herald Tribune* and the *Journal* exposed this situation, and American Airlines modified the powerplants. Without this investigation, which necessitated one trip to California in search of facts, the public never would have known of the substitution, and many cities would have been forced to extend airport runways to accommodate the aircraft. The result was expensive for American, but saved millions for the taxpayers.

Why should a metropolitan newspaper have an aviation editor in the first place? One reason is to provide staff coverage of an event such as Lieutenant Buxton's victory at Cleveland. Another is to give the same kind of expertise to the subject of aviation that the newspaper gives to a major sport. There are newspapers in this country that will send four experts to a football game, but cover the Pentagon by dispatching a general assignment reporter, detaching him for the moment from a story about the corn crop over at the Department of Agriculture. Here is an example of a story that needed newspaper aviation expertise and didn't get it:

On March 2, 1965, before a House appropriations subcommittee, Defense Secretary Robert S. McNamara testified that the Air Force's XB-70 bomber never had flown at supersonic speed. He then argued, from this basis, that the airplane made minimal contributions to the state of the art and that the money spent on it was, for the most part, wasted. Not a single newspaper, to my knowledge, pointed out that the XB-70 had flown at supersonic speed on October 12, 1964, October 24, 1964, and on February 16, 1965—all prior to Mr. McNamara's erroneous testimony. The supersonic flights had been announced by USAF when they took place. If a baseball commissioner offered equally bad information about a team record or how many home runs Babe Ruth walloped, the sports writers from every daily in the country would have been screaming.

This is why I have so little sympathy for newspaper tycoons who contend the government has a credibility gap. Honestly, now, *who* has a credibility gap? John F. Kennedy, working from information provided by Robert McNamara, killed the Skybolt air-launched ballistic missile program because, he said, the technology was "beyond us." This was not true. Was the credibility gap in the Kennedy Administration, or did it rest on the desk of the newspaper reporters and editors who should have known better and said so?

There are examples to prove that the press, on occasion, can outdo the pros. A couple of years ago, on a visit to the Air War College at Maxwell AFB in Alabama, I was accosted by an Air Force colonel, who shall go unidentified in this account. He told me there was a time, in 1955, when he hated me. Naturally, I wanted to know why. It turned out that in the cold months of early 1955, when I was military editor of *Aviation Week* magazine, I covered a frigid military exercise in Alaska—specifically, at a place called Talkeetna. My friend, in 1955 a USAF major employed in the Pentagon, had been sent to the same exercise with a headquarters team to compile a

report on USAF's performance in the Arctic airdrop exercise. There had been weeks of preparation, and the major had his men scattered all through the show. They monitored the cockpits of the C-119 aircraft, the maintenance problems, the loading, the airdrop itself, and the complications of withdrawal. The team dashed back to Washington, via C-124, and spent a frantic weekend putting the report together. On Monday morning the Air Staff pushed their results to one side and used the *Aviation Week* material, filed from my typewriter at Elmendorf AFB the previous Wednesday. The colonel said it took him more than a decade to forgive me.

Another story from my *Aviation Week* days, which must go in an account about newspapering, involves the prestigious *New York Times*. A highly competent reporter named Jack Raymond, since departed to greener pastures, covered the Pentagon for the *Times* in that period. One morning he had a story in a lead column on page one of his paper that the editors certainly had put there because they were convinced of its news value. The subject escapes me at this writing, but I hailed Jack Raymond with some pique in my manner and told him the same news had been disclosed in my magazine, three weeks earlier. His response: "It's not news until it's in the *Times*."

It is this kind of attitude that stirs the bile of competitors and also the public figures we rely on for news in the first place. If the truth were known, the inner management of some major newspapers—a subject never placed under scrutiny by the press—makes the operations of other corporations and many government agencies look like models of efficiency and high cost-effectiveness. I know of one major newsroom where the determination of what will be printed depends less on the public's need to know than it does on how the available space is to be divided among local, national, and foreign affairs. The

wrangle goes on every night before the paper goes to press. If a cabinet officer from Washington gives a speech at a downtown hotel about international affairs, is it local, national, or international news? Which editor's space allocation must carry the burden? The event took place locally. The speaker came from the national capital. His subject involved overseas matters. Believe it or not, the three editors argue about the coverage. Sometimes the story is left out entirely because they can't agree.

There are other failures that cannot be blamed on such idiotic differences. At the conclusion of World War II, a literal army of newspapermen was tramping through the wreckage of Japan and filing daily accounts of what they saw. On the Providence *Journal* copy desk I had seen millions of words from the Associated Press, the United Press, the International News Service, the North American Newspaper Alliance, the Chicago *Daily News*, the Baltimore *Sun*, and a couple of other services now forgotten. The fact remains that, after reading all this and inflicting a portion of it on *Journal* subscribers, I did not know what happens when an atomic bomb explodes until John Hersey wrote his immortal story for the *New Yorker* magazine on August 31, 1946. I still have my copy of that issue. The daily press had been scooped.

At the annual spring meetings of the American Society of Newspaper Editors and the American Publishers Association, there is a great deal of chatter, and more pontificating, about newspapering as a profession. The fact is, it is not a profession. There are no professional standards and no efforts to set any standards. To be a newspaperman, the only thing you have to do is get a job on a newspaper.

Joe Liebling was a newspaperman's newspaperman. When he wielded his scalpel in "The Wayward Press," it was more in sorrow than in anger. The same is true in AIR FORCE Magazine, where I have plagiarized his title. ■

TAXI, ANYONE?

One morning, during a staff visit to Korea, I awoke earlier than usual. Deciding to have breakfast at the Officers' Club before going to the flight line for departure, I called the motor pool for transportation. Fifteen minutes later, nothing had happened. I called again and was assured that a car was on the way. Nothing happened. The third and fourth calls produced the same assurance and, needless to say, the same results. Fortunately, a station wagon appeared on the scene for baggage pickup, and I was on my way to the Club.

With this rather disturbing experience still fresh in mind, I asked to have a car pick me up within thirty minutes. The Vice Commander in Chief, who was heading our staff team, had made it clear that he wanted to meet all times on our itinerary to avoid inconveniencing any of our host units.

Some twenty minutes later, I advised the motor pool that I was ready to be picked up. Five minutes passed. No one and nothing had appeared. Abandoning all pretext of civility (it was now a couple of minutes before time to board the aircraft), I called the dispatcher and said rather firmly, "Sergeant, you'd better have something over here right away, no matter what it is."

After five more minutes had dragged by, an airman came up to me, saluted, and said, "Sir, I am your driver." Thank God. But something was wrong. In his hand, the airman was holding a bumper plate with a general officer insignia. Not seeing any type of transportation, much less a staff car, I asked, "Driver, how did you get here?"

"I took a taxi, Sir."

"Really. How do you expect me to get to the flight line?"

"I don't know about that, Sir," he replied. "The chief dispatcher at the motor pool said that a pretty damned mad general at the Officers' Club told him to get something over there right away, no matter what it was. Here I am, Sir."

—CONTRIBUTED BY BRIG. GEN. VICTOR N. CABAS,
ASSISTANT DEPUTY CHIEF OF STAFF FOR OPERATIONS, PACAF.

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

By William P. Schlitz

ASSISTANT MANAGING EDITOR, AIR FORCE MAGAZINE

WASHINGTON, D. C., SEPT. 14

Keeping a tight rein on what it considers a project vital to the future, the Air Force recently concluded a review of its B-1 bomber program.

The review, conducted at North American Rockwell Corp., the B-1 prime contractor, determined that development of the new aircraft is on schedule and within design specifications.

The preliminary design review is the initial application of management procedures established to ensure that the B-1 will keep to its schedule of first flight in April 1974. The review was undertaken by personnel of the B-1 Systems Program Office, Wright-Patterson AFB, Ohio.

In a related matter, the Air Force has approved a plan for development of the B-1's avionics subsystems. The proposal was submitted by Maj. Gen. Douglas T. Nelson, B-1 System Program Director.

The crux of the plan is to use off-the-shelf hardware where possible; where not, engineering development of required items will occur.

The plan calls for the source selection of a contractor to develop or subcontract the prototype avionics

hardware. This contractor will be responsible for the aircraft's computer, software, controls and displays, stores management system, and total subsystem integration.

Other source selections will develop the plane's electronic countermeasures gear and infrared surveillance systems.

The avionics interface contractor is to work closely with North American Rockwell, which has overall responsibility, to integrate the subsystems into the B-1 weapons package as smoothly as possible.

It was also announced that Good-year Aerospace Corp. has been picked to develop the Apollo-type flotation system for the B-1's crew escape capsule. (In an emergency, the entire crew compartment of the aircraft will eject as a single unit and float to earth under three large parachutes; the flotation system, of course, is for water landings.)

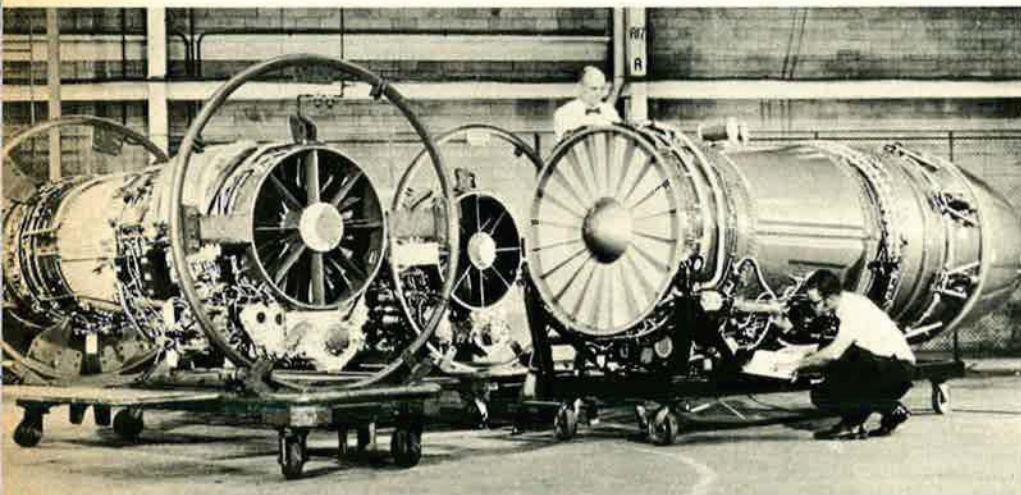
The severance system, parachute-escape-system retractors, and the crew restraint assembly for the B-1 will be constructed by Ordnance Engineering Associates, Des Plaines, Ill.



According to London's prestigious



Retired Air Force Col. Ward E. Cory gets a first-hand demonstration of control-tower operations at Richards-Gebaur AFB, Mo. The three traffic controllers are his sons: Seated, Airman Stuart M. Cory, Laredo AFB, Tex.; A1C Stephen D. Cory, left, Altus AFB, Okla.; and SSgt. Ward E. Cory, Jr., George AFB, Calif. The three-of-a-kind is unique in USAF.



The engine on the right, being examined by the technicians, is a mockup of General Electric Co.'s F101 augmented turbofan engine, designed for USAF's new B-1 bomber. Beside it are two J79 engines that power the F-4 Phantom, whose total thrust one F101 will duplicate at thirty percent less volume and a quarter less fuel use.

International Institute for Strategic Studies, the Soviet Union's land-based ICBM force now numbers 1,510, almost half again as many as the US has.

In its recently published "Military Balance 1971-1972," the Institute said that the USSR's force of submarine-launched ballistic missiles also has risen, to 440, largely because of an increase in the new Y class nuclear submarines, which now total twenty. These boats are being built at the rate of seven or eight a year.

The Institute said that this Russian effort could erase the US's present lead of 216 SLBMs by 1974.

The Institute qualified its statistics by reminding readers that, while the US has not multiplied its launcher force, it is increasing the number of warheads. One hundred Minuteman I's



Dubbed "Fat Albert," the Air Force's C-5 Galaxy recently showed its stuff by conducting a nonstop flight to Vietnam with cargo from the Sharpe Army Depot, Calif., consisting of the twenty-two helicopters shown at left, plus six tons of other material. It was the largest number of helicopters ever airlifted in a single flight.

have been replaced with the Minuteman III, each of which contains three independently targeted warheads. By 1975, this program will have the effect of doubling the number of targets capable of being hit.

Also, the US sub force is being converted to take the advanced Poseidon SLBM with its ten independently targeted warheads. At the conclusion of that program, warheads of the US SLBM force will have increased from 1,500 to more than 5,400.

The Russians, on the other hand, have had an active test program for multiple warheads since 1968 for use on their very large SS-9 missiles. (The SS-9 is known to have a greater "throw weight" capability than any US missile in use or planned.)

The Institute in its annually published "Military Balance" also made note of Soviet growth in both land and sea forces.

Through an exclusive agreement with the Institute, AIR FORCE Magazine will reprint in its December issue the "Military Balance 1971-1972" as a service to our readers. The Institute is highly regarded worldwide for the thoroughness and efficiency of its research, and the "Military Balance" issue of AIR FORCE should find a useful place on that shelf of handy reference material.



The bustle of many months will

Artist's conception of a joint US/Canadian project to develop an Air Cushion Landing System (ACLS) to permit military transport aircraft to operate from almost any kind of surface. Textron's Bell Aerospace Division has the \$4.6 million contract.

climax with the October 29 opening of the Japan International Aerospace Show 1971.

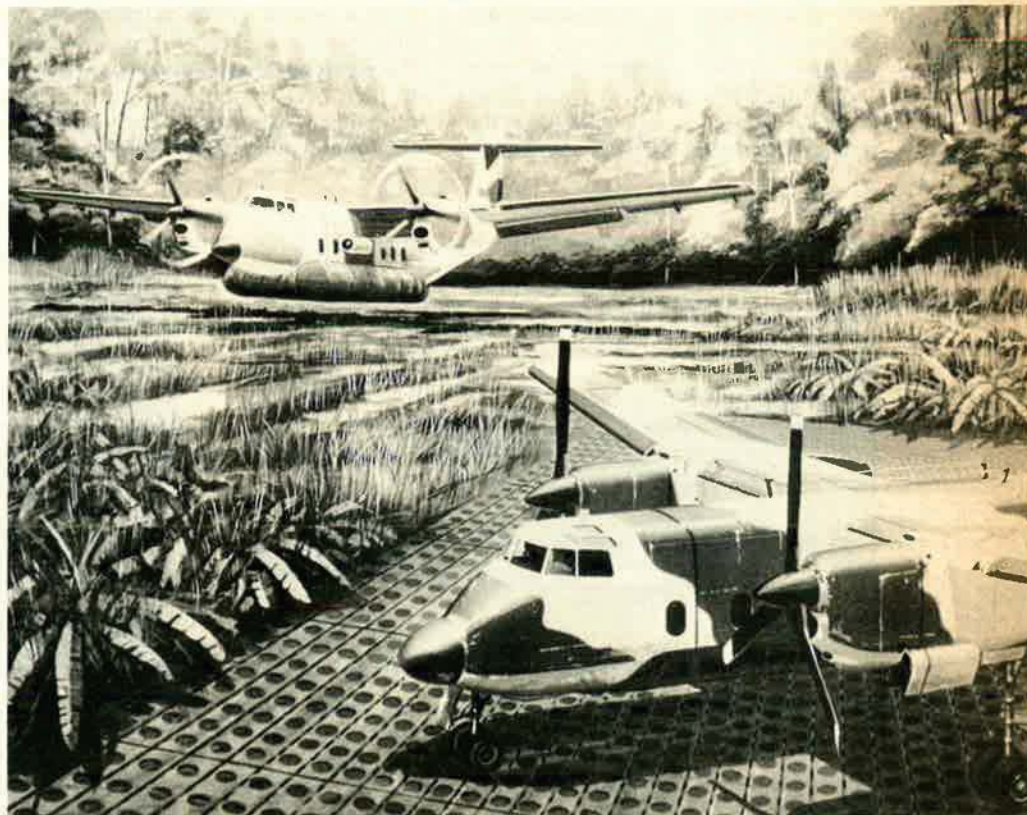
The exhibition, at Nagoya's Komaki Airport, is to continue through November 3. It is billed as the "biggest display of aviation and space products ever mounted in the Far East." Japan previously hosted air shows in 1966 and 1968.

The show is considered prestigious enough to rate performances by the

US Navy's Blue Angels aerobatic team and the US Army's Golden Knights parachute team.

Among aircraft at the show, Russia will display its tri-engine TU-154 business jet and its MI-8 and KA-26 helicopters.

Entries from Great Britain will include the Hawker Siddeley V/STOL Harrier, which the US Marine Corps is buying. Japan's Maritime Self-Defense Force views the Harrier as



Aerospace World

a good contender for a future ASW role.



In an unprecedented move in its forty-five-year history as a federal contractor, Pratt & Whitney Aircraft recently filed a formal complaint against the award of a governmental contract to another company.

This followed NASA's selection of North American Rockwell's Rocketdyne Division to build the engines for the space agency's proposed Space Shuttle (see September issue, p. 53).

The contract has an estimated value of at least \$500 million.

P&W asked that NASA not finalize the contract award until the Government Accounting Office, watchdog over federal spending, has reviewed Rocketdyne's selection. It was believed that P&W has some hefty congressional support on its side of the argument.

Such confrontations between firms over federal contract awards are on the increase now that a real crunch has hit the economics of the aerospace industry.

For its part, North American Rockwell said that P&W's protest over the award was "completely unjustified."

Chief of NR, Robert Anderson, deplored P&W's move and the delay it might cause in implementing the program. He said that his company's

credibility was based on an unsurpassed record of building rocket engines for almost eighty percent of the nation's space launches. "A total of twenty-six Rocketdyne engines were used on Apollo-15 and they performed flawlessly," he said.



In the face of conflicting opinions as to just what degree our youth in uniform has been drawn into the drug nightmare, USAF has expanded its urinalysis testing to single out users of heroin and other drugs.

In SEA, all individuals going on R&R or on leave in CONUS are being tested.

Also, selective testing within non-SEA areas of PACAF and USAFE is taking place, and at Lackland Military Training Center on the basic trainee level.

Plans are afoot to expand testing to all personnel in PACAF and USAFE, with AFSC to act as manager in testing all other Air Force personnel.

According to the US Air Force, the CONUS testing program will be fully operational by March 1, 1972, and the full program overseas by February 1, 1972. All overseas returnees will undergo urinalysis, which will also be given to USAF people at random and during periodic physicals.

When in full swing, the program will analyze samples for traces of amphetamines and barbiturates, as well as heroin and other opiates.

In a related matter, Defense Secretary Melvin R. Laird has instructed the services' Discharge Review Boards to look over administrative discharges of other than honorable conditions that were meted out "solely on the

basis of personal use of drugs or possession" for such use.

The aim is to permit recharacterization of drug users' "undesirable" discharges to "under honorable conditions" to allow eligibility for VA medical help.



In its 1971-72 edition of *Aerospace Facts and Figures*, the Aerospace Industries Association has compiled data bearing out pessimistic forecasts regarding most segments of the aerospace industry. AIA, however, has also highlighted some areas that portend rosier prospects for the future.

On the minus side, sales, employment, profits, and backlog all declined in 1970 from 1969. (The increase in unemployment, as expected, has continued into 1971.)

[While AIA quotes a new record for aerospace exports of \$3.4 billion in 1970 against \$3.1 billion in 1969, the recent steps taken by the Nixon Administration to shore up America's position in the international marketplace make any forecast for the future difficult.]

On the plus side, AIA emphasizes the following:

- "Space sales for 1970, which dropped from \$4.3 billion in 1969 to \$3.6 billion in 1970, were largely due to the virtual completion of the hardware phase of the Apollo program. However, the Space Shuttle program, a major step forward in economic space exploration, and the Earth Resources program for unmanned satellites, are moving ahead.

- "Non-aerospace sales, which remained virtually the same over the 1969-70 period, are expected to increase as the advanced technology



Four F-111E fighter-bombers of the 20th Tactical Fighter Wing this summer deployed for the first time from RAF Upper Heyford, England, to Greece. The swing-wing aircraft are the latest addition to the US Air Force's weapons inventory committed to the support of NATO forces.



During the stay at Greece's Athenai Airport, an F-111 pilot explains to visiting dignitaries the intricacies of cockpit operations. The nonstop, unrefueled training flight to the Mediterranean took less than four hours, demonstrating the mobility and rapid-response capability of USAFE.



Representing all uniformed Americans, Gen. Bruce K. Holloway, Commander of SAC, officially transfers one of the largest donations (\$25,000) ever made to the USO from Arthur C. Storz, Sr., right, to Gen. Emmett O'Donnell, USAF (Ret.), National President of the United Services Organizations. Mr. Storz presented the check on behalf of the Eugene C. Eppley Foundation, an Omaha philanthropic organization that has contributed some \$35 million to medical, education, and youth groups since 1949.

generated by the aerospace industry enters an application phase to domestic and social problems. The industry is already heavily involved in transportation hardware work for the Urban Mass Transportation Administration. The broadening development of a marketplace for aerospace technology in socio-economic fields appears promising.

• "Obligational authority for aerospace products from two major customers—DoD and NASA—are estimated to increase \$1 billion in Fiscal Year 1972 (compared with FY 1971) to a total of approximately \$18 billion."



In a recent White Paper on defense, Canada announced plans to retire its subsonic Bomarc anti-aircraft missiles, deeming them obsolete in

terms of today's threat. Canada currently maintains two Bomarc squadrons.

At the same time, Canada reaffirmed its link with the US in defense of North America, and promised full cooperation in the surveillance and early-warning role. Use of Canadian airspace and facilities by US aircraft will continue.

However, Canadian Defense Minister Donald S. MacDonald said that Canada had no intention of becoming involved in the US antiballistic missile system, and in effect ruled out a request to permit designation of North Bay as the alternate North American Air Defense Command headquarters (in the event that the Cheyenne Mountain headquarters near Colorado Springs, Colo., were knocked out in an attack).

The White Paper calls for an increase in Canada's armed forces by about 1,000 personnel for a total of 83,000 by 1973. (Canada has an all-volunteer, service-integrated military force.) Canada's defense budget will increase by about \$18 million to \$1.8 billion, while an estimated \$5 million a year will be saved by shelving the Bomarc missiles.

Canada also plans no further reduction in its NATO commitment of 2,800 personnel stationed in Europe. It will, however, replace its British-built Centurion tanks with relatively light, air-mobile, close-fire-support tracked vehicles. This equipment replacement will occur at home as well—thereby "getting [Canadian

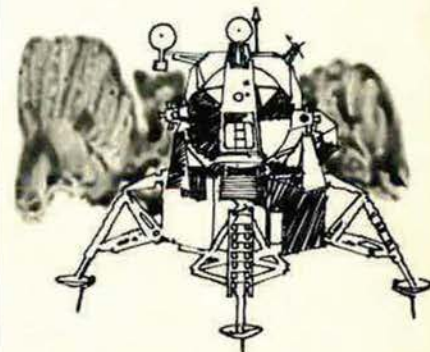
William P. Schlitz, who joined the staff of AIR FORCE Magazine in November 1968, as News Editor, has been named Assistant Managing Editor. He will continue to contribute the popular feature "Aerospace World" to each issue of the magazine. Since July 1969, Mr. Schlitz has also been Managing Editor of AFA's sister publication, AEROSPACE INTERNATIONAL.

RADARS

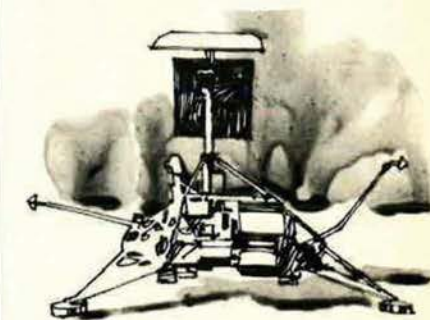
FOR SPACE



July 1976, Viking landing on Mars will use Terminal Descent Landing Radar now in development.



Man-rated Landing Radar for the Apollo Lunar Module provides precise altitude and velocity during lunar landings.



Surveyor Radar Altimeter and Doppler Velocity Sensor guided five spacecraft to soft lunar landings.

IF YOU WANT TO LAND YOUR SPACECRAFT ON THE MOON OR PLANETS, LET OUR RADAR DO IT.



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Aerospace World

forces] out of the heavy armor business," as one spokesman said.

Three CF-104 squadrons in Europe—currently assigned reconnaissance and nuclear-strike missions—will convert to a conventional attack role.

In eastern Canada, the White Paper disclosed, three CF-101 Voodoo squadrons will take over all interceptor tasks, including some now performed by US aircraft.



The FAA reports that in 1970 active pilots in the US reached a new high of 732,729, two percent above 1969's 720,028. There were increases in every major category except student pilots, FAA said.

The sharpest rise occurred in those pilots rated to fly helicopters only: these rose a whopping fifty-six percent, from 4,286 to 6,677.

Private pilots, representing forty-one percent, increased by one percent to 303,779.

Commercial pilots—twenty-five percent of the total—rose six percent to 186,821.

Airline pilots were up ten percent to 34,430—the same growth rate as in 1969.



The Army awarded Lockheed Aircraft Corp. a \$47.8 million contract to continue development of the AH-56 Cheyenne attack helicopter.

Despite the new money, Lockheed stands to lose \$72 million on the helicopter development program. Two years ago, when R&D problems arose, Army canceled a production contract that would have been worth an estimated \$50 million to the company.

With regard to the close-support role, at a recent news conference on Capitol Hill, spokesmen for the Members of Congress for Peace Through Law called for the immediate termination of the Cheyenne program; a cut-back to sixty (from 114) in the purchase of the British-made V/STOL Harrier for the US Marine Corps; and continuation of the USAF-sponsored A-X aircraft.



Despite the dedicated efforts of many groups and individuals, the disheartening situation confronting the US MIA/POWs in Southeast Asia—and their families—has improved little.



Six golf-cart batteries make up the powerplant for Air Force Capt. Joe Allred's "electromobile" on the left. (A normal VW is on the right.) He built the electric power system into his 1962 Volkswagen in his spare time. Its range is about fifteen miles, and the batteries take about four hours to recharge. Top speed of the electromobile is forty mph. Captain Allred is stationed at Hanscom Field, Mass.

In some respects, it has deteriorated, especially in regard to the number of letters received from POWs. In 1970, our men were permitted to send 2,600 pieces of mail from North Vietnam. Through the first eight months of this year, only 470 letters were sent from POWs in the North. So far, of

at least 339 men held prisoner there, just 190 men have been allowed to write.

Back in 1970, the first and only letter was received from a US serviceman held captive in South Vietnam. No other word has come from some 800 other Americans declared missing in action there and in Cambodia and Laos; all remain unidentified as to status.

Adding to the grief brought on by the drop in mail from the POWs has been a marked decline in prisoner morale: "Some of the letters have been extremely distressing in the despair the men convey" (see also "MIA/POW Action Report," p. 86).



Aerospace Defense Command recently assumed operation of a seven-site radar system built to detect sea-launched ballistic missiles.

The Sea-Launched Ballistic Missile Detection and Warning System will scan the coastal waters of both western and eastern North America. Six of its locations are Charleston AFS, Me.; Ft. Fisher AFS, N. C.; MacDill AFB, Fla.; Mt. Laguna AFS, Calif.; Mill Valley AFS, Calif.; and Mt. Hebo AFS, Ore. A seventh SLBM warning site has been constructed at Laredo, Tex.



Helicopters have many uses, and we're intrigued when we learn of new ones.

Recently, a small helicopter painted in official colors of the Mexican Attorney General's Office set down in the courtyard of the maximum-security Santa Maria Acatitla prison near Mexico City. Guards came to attention and presented arms, assuming

C. B. Allen

The death of Carl Beaty (C. B.) Allen in a Winchester, Va., hospital on August 12 left a big hole in the aviation writing fraternity. He was 75.

C. B. had just about seen it all. He was an Army pilot in World War I and served in the AAF in World War II. He covered Lindbergh's transatlantic flight for the old New York *World* and remained a close friend of Lindbergh thereafter. He covered the burning of the dirigible *Hindenburg* for the New York *Herald Tribune*, for which he toiled from 1934 to 1953, excepting only World War II service. His postwar beat for the *Herald Tribune* was at the Pentagon.

In 1953 he became assistant to the president of the Glenn L. Martin Co. (now the Aerospace Group of Martin Marietta Corp.). In 1965 he retired, but continued as a consultant to the company. In retirement he made his home in Moorefield, W. Va., where he was born in 1896.

We miss him very much.

—J.F.L.



Capt. Bob Ramsay, assistant director of the Air Force Academy's Candidate Advisory Service, discusses life at the Academy with a member of the Cadet Wing. Captain Ramsay is responsible for contacting young men in minority groups across the country who are interested in receiving an appointment to the Academy. He travels thousands of miles each year to speak to groups and individuals.

visiting brass would step out. Instead, two prisoners stepped in, and the whirlybird buzzed off.

To our knowledge, it was the first time that a helicopter has been instrumental in busting someone out of jail—other than in TV's "Mission Impossible," that is.

The escaped prisoners were Joel Kaplan, an American convicted of murder, and his Venezuelan cellmate, Carlos Antonio Contreras Castro, up for counterfeiting and forgery. (Adding an element of intrigue to the affair was a subsequent statement by Kaplan's attorney that his client was an

agent of the CIA, which had engineered the daring escape.)

The escapees later were reported at an airstrip 100 miles from Mexico City, boarding a lightplane for parts unknown.

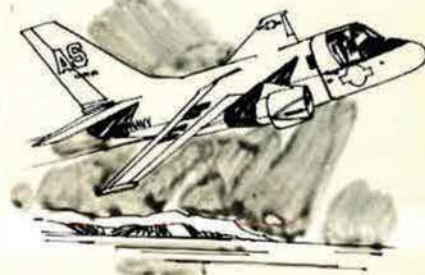


Another Air Force Academy Falcon has earned a niche in the hall of fame. This time, however, the Falcon is—a real falcon.

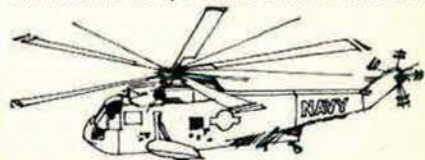
Seems that the feather used by Col. David Scott to test Galileo's theory of gravity during Apollo-15's recent stay on the moon came from an Air

RADARS

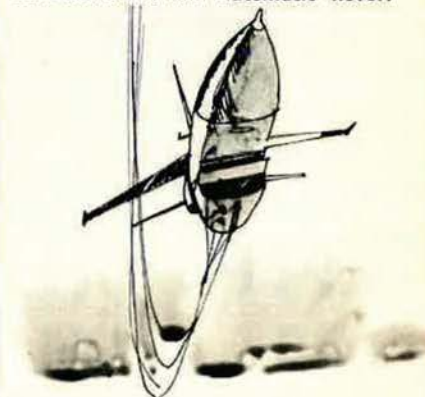
FOR NAVIGATION



The AN/APN-200 Doppler Velocity Sensor provides precision velocity in a single unit for the Navy's new S-3A ASW aircraft.



The AN/APN-182 Doppler radar provides helicopters with point-to-point navigation, auto-transition and automatic hover.



For 10 years remotely piloted vehicles have used our radar navigation systems and altimeters for missions around the world.

**IF YOU WANT TO NAVIGATE
AND CONTROL YOUR AIRCRAFT,
LET OUR RADAR DO IT.**



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SPECIAL!

This December issue of AIR FORCE Magazine will be a combined AIR FORCE Magazine and AEROSPACE INTERNATIONAL edition. Advertisers in this issue will reach the more than 12,000 non-US readers of AEROSPACE INTERNATIONAL, in addition to the 115,000 readers of AIR FORCE Magazine at no additional cost. These bonus readers are hand-picked government officials, ranking military officers, and aerospace executives in more than 95 countries outside of the United States.

Air Force Magazine

proudly presents

in December

a major report from

The Institute for Strategic Studies, London



“THE MILITARY BALANCE”

1971/72

By special arrangement, we are privileged to present The Institute for Strategic Studies' prestigious annual report, "The Military Balance," a country-by-country analysis of the world's military forces and equipment. The Institute, a world-famous military authority, has long been recognized for its scholarly research. "The Military Balance" is one of their most respected and sought-after military research studies. The December issue of AIR FORCE Magazine, containing this report, will not only be widely read, but is sure to serve as a tabletop reference throughout the year. Your advertising can be part of this important publication. Closing for advertising reservations is October 29. Contact your nearest AIR FORCE sales office for further details.

Aerospace World

Academy mascot named "Hungry," a Colorado prairie falcon.

Hungry is a celebrity in her own right, what's more. She is trained to perform exhibition flights during home and away football games, the Academy informs us.

She's a youngster—only six years old—and has called the Academy home since she arrived there in 1965 when only an "eyas" (or baby in falconer language).

Her feather, as well as others molted at the Academy's falcon mews (cages), was obtained by Mrs. Scott, at the Colonel's request, from Maj. Leo W. Stockham, an associate professor at the Academy's Department of Aeronautics, who was a classmate of Colonel Scott's while both studied for master's degrees at MIT.



The Air Force has initiated full-scale development of the Subsonic Cruise Armed Decoy (SCAD).

SCAD is to be used by bombers to confuse enemy ground and airborne defenses. The missile's radar image will closely resemble that of a bomber, thereby enhancing the latter's penetration capability.

To develop SCAD, USAF will employ a unique management arrangement used previously in producing ballistic missile and space systems. The Systems Program Office at Wright-Patterson AFB, Ohio, is to be beefed up and, rather than delegating responsibility to a prime con-

tractor, will itself control integration of SCAD's various subsystems and retain responsibility for performance requirements.

Requests for proposals for airframe, engine, guidance navigation, and decoy subsystems will be issued for competitive bidding shortly after the FY 1972 appropriations bill is passed, Air Force said.

SPO is to coordinate engineering compatibility, and the entire program will be accelerated, applying the "fly-before-buy" yardstick, USAF said.



NEWS NOTES—Neil A. Armstrong, the first man to walk on the moon, has resigned as NASA's Administrator for Aeronautical Development to teach engineering at the **University of Cincinnati** (see photo, p. 36).

The US's first man in space, **Alan B. Shepard, Jr.**, was promoted to the rank of rear admiral in August.

Lockheed Aircraft received a \$64 million supplement to its contract to build C-5s; the total now is \$2.74 billion.

United Aircraft won a \$29.5 million addition to its Navy contract to build engines for the **F-14A**.

Mainland China ordered six Trident airliners from Britain's **Hawker Siddeley**, reinforcing talk that China plans an international airline; total cost for the Tridents will reach about \$50 million.

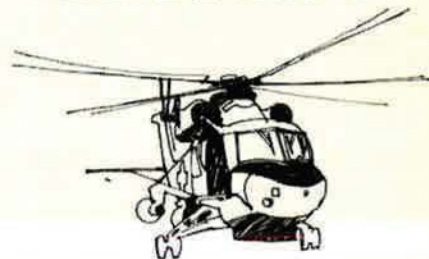
DoD has announced that **West Germany** will purchase 175 **McDonnell Douglas F-4** Phantom fighters beginning early in 1973 through early 1976. Total cost—with **General Electric Co.** expected to build the engines—will run over \$1 billion. Major details still have to be worked out, however, DoD said. ■



At recent ceremonies at the Air Force Museum, Col. Henry D. Chiu, aide to Gen. Bruce K. Holloway, presented memorabilia of the SAC Commander's World War II experiences with the 23d Fighter Group in China. Col. Bernie S. Bass, left, Museum Director, and Museum Curator Mark Sloan, right, examine the souvenirs. The collection will eventually be displayed in the Museum's new home, Wright-Patterson AFB.

RADARS

FOR DETECTION



Helicopter-installed radar has achieved consistent detection of moving, low-level aircraft in sea and ground clutter.



Electronic beam steering offers high speed, inertia-less scanning, and conformal mounting.



IF YOU NEED TO FIND IT,
MEASURE IT, TRACK IT,
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A Sort of Military History

From the Jaws of Victory, by Charles M. Fair. Simon & Schuster, New York, N. Y., 1971. 445 pages with bibliography and index. \$8.95.

Mr. Fair chooses as his title and text the comment of President Lincoln about General Ambrose Burnside after Antietam: "Only Burnside could have managed such a coup, wringing one last spectacular defeat from the jaws of victory."

The book is subtitled "A History of the Character, Causes and Consequences of Military Stupidity, from Crassus to Johnson and Westmoreland." The subtitle will probably guarantee the book a large sale and Mr. Fair's fluent and acidic pen will give many readers what they are looking for: a selective survey of some of history's less notable military failures with a suitable antimilitary/antiestablishment interpretation throughout.

Mr. Fair, according to page 139 of "Contemporary Authors," is at present a specialist in neurophysiology, which may explain his degree of expertise in military history. He sweeps the ages, focusing on Crassus—whose defeat at Carrhae was hardly a turning point in history—Edward III, Philip II of Spain, Charles XII of Sweden, Peter the Great, Napoleon, McClellan, Burnside, de Wimpffen, Hamilton, Haig, Hitler, and finally his arch-criminals Johnson and Westmoreland.

Occasionally Mr. Fair's wit produces a literary gem: . . . "[French] reserves of valour, which in their long history they have seldom been found to lack, and have not infrequently needed." Regrettably, literary brilliance is not an acceptable substitute for historical analysis.

The author does reveal military stupidity, or rather he allows extensive quotations from Plutarch, Froisart, Fuller, Freeman, and the *Encyclopedia Britannica* (1911 edition) to reveal it for him. Napoleon is dismissed as possessing only "spur of the moment capability," Burnside is a "nihilistic professional," Westmoreland's "real bent was apparently for devices," and Johnson is marked by a "rather brutal nature and pliant morality."

Such assessments, however, might

carry more weight if the limitations of Mr. Fair's scholarship were not so frequently and unhappily revealed every time he falls off the edge of his sources. Liddell Hart really is not best known for his concurrence in the Maginot Line; Clausewitz's "first principle" is not "the primary objective in war is to destroy the enemy's army or his fleet or both"; the *Levée en Masse* of 1793 might just have had something to do with total war before Sherman became its "inventor"; the French did in fact have "a plan" in 1914; the senior British generals in 1914 were anything but "university trained"; the German economy was not "superbly organized for war" in 1939, nor did the Nazis possess "a backlog of first-rate weapons." By the time Mr. Fair reaches his real contemporary targets, his credibility is badly tarnished. He has slid smoothly from speculation to assumption to "fact" too many times, although the pleasant unpredictability of his selection processes has kept the attention of the reader.

In the chapter on "Johnson vs. the Eastern Intellectuals," the more popular critics of the war in Southeast Asia are paraded, and the weaknesses of the earlier chapters maintained, which is a pity, because presumably Mr. Fair has constructive intentions. However, his conclusion that, to avoid the military stupidities of the past, "the only sensible course is to develop a Method and a System," isn't exactly revolutionary.

An analysis of military failure could have been so valuable: Cornwallis, Villeneuve, Lee, Ludendorff, and Goering really did fail in ways that changed history, but on them Mr. Fair is silent. Instead, he convincingly

substantiates part of his own foreword to his earlier book, *The Dying Self* (Wesleyan University Press, 1969): "Historical evidence is mostly of a kind one would never accept in the library or even in law; . . . one can interpret it according to one's bias by stressing the facts which are 'significant' and underplaying or ignoring the rest."

—Reviewed by Wing Commander Richard A. Mason, RAF, Department of History, US Air Force Academy.

National Security—Two Views

The Pentagon Watchers—Students Report on the National Security State, edited by Leonard S. Rodberg and Derek Shearer. Doubleday, Garden City, N. Y., 1970. 369 pages plus appendix. \$7.95.

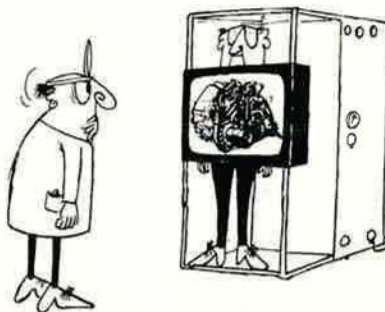
The Strategy of Technology—Winning the Decisive War, by Stefan T. Possony and J. E. Pournelle. Dunellen, New York, N. Y., 1970. 189 pages. \$7.50.

Here are two books concerned with the national security establishment and how it works. They are as different in treatment and conclusion as day from night. Each merits attention, for reasons diametrically opposite.

The Pentagon Watchers, its introduction states, was a summer study by a "group of students," sponsored by the Institute for Policy Studies. Marcus Raskin, a codirector of the Institute, contributed one chapter. A number of years ago he enjoyed national attention, along with Dr. Benjamin Spock, the Rev. William Sloane Coffin, and others, as a defendant in the "Boston Five" draft-conspiracy case.

The youthful authors make such judgments as that "America has become the new imperial power." Massive "education activities" are necessary if "the anti-Communist reflex and the belief that the way to national security lies in more military spending are to be seriously challenged."

The chapter headings—"The Pentagon Propaganda Machine," "Spoon-feeding the Military—How New Weapons Come to Be," "Buck Rogers Is Alive and Well—and Doing R&D for the Pentagon," etc., etc.—suggest



the tone and content of the volume. There is little new in the matter under attack.

One fundamental conclusion by the students—along with the opinion that it is inherently wrong for the US to seek to be on the frontier of advanced technology—is that “the solution to the arms race and high military budgets does not lie in disarmament talks. Only when the real source of the problem—the defense establishment and its associated industries—are dismantled or converted to the production of useful civilian goods, will it be possible to talk of disarmament, or of peace for this troubled land.”

Happily for this reviewer, *The Strategy of Technology* was read after the above-discussed outpouring. There is a rationality and a lucidity about this volume too rarely present when technical matters are considered.

The authors have good credentials; Stefan Possony is a senior fellow at the Hoover Institution on War, Revolution, and Peace at Stanford University, and Jerry Pournelle, former managing director of the Pepperdine Research Institute, is a systems analyst and research engineer. Craig Hosmer, who has written the foreword, is ranking minority member of the Joint Committee on Atomic Energy of the Congress.

The authors' main thesis is that the United States is at war, a continuing, implacable technological war, with the USSR. In the US no real effort has been made to understand technology and its critical importance. Despite the fact that “our very survival depends upon not losing in the technical arena . . . we have failed to develop a strategy of technology, let alone a strategy for winning the Technological War.”

In the technological war, strategy must drive technology (not the other way around) so that there can be an overall strategy of technology, not merely strategic elements that make use of the products of technology. The authors show that in the USSR “strategy is the foremost business of the top echelon,” but that American “strategic decision makers are only strategists pro tem and must depend upon on-the-job training.”

To give the scientist control of creating a national strategy of technology would be “an error of grave consequence.” Although responsibility for our deficiencies in technical strategy must rest ultimately with the military, “they have been slow in understanding the need for technological strategies and in adapting to this innovation in conflict.”

In his foreword, Craig Hosmer says the book “makes an impressive contri-

bution to the understanding of what may be the most important problem the US faces today: the development of a proper decision apparatus for technical decisions.” With that verdict, this reviewer must agree.

—Reviewed by Walter T. Boney, former Director of Information for the Aerospace Corp.

The “Right” View?

The Conscience of a Majority, by Barry Goldwater. Prentice-Hall, Englewood Cliffs, N. J., 1970. 248 pages. \$7.95.

In this book Senator Goldwater fires repeated loads at a number of targets that need to be hit. His favorite target is something called a “liberal”—and usually a “Democratic liberal.” These terms are not defined explicitly, but the reader gets the idea that liberals are those who have fostered and supported big spending by big government. The reader is also left with the uneasy conclusion that there is no history that predates the past three and a half decades.

But within this one-generation view of American society, Senator Goldwater makes a very persuasive case for retaining old values that have proved to be worthwhile. He is refreshingly in favor of honesty and fair play, for the rights and freedom of the individual, and against the intolerance of the intolerant. He sums it all up on the penultimate page when he writes, “. . . the big problem which must be faced involves the right of the individual citizen to a life of privacy insofar as that life does not unduly infringe upon the rights of his fellowman.”

Along the way, Senator Goldwater directs his lance at a host of over-inflated power centers. These the Senator describes as running the gamut from the reincarnated isolationists, through some of the more powerful labor unions, to the controversial communications media. There can be little doubt that the Senator has had unpleasant experiences with all of them.

Much to the Senator's credit, he clearly separates the need to avoid waste and inefficiency in the Department of Defense from the much more vital need to maintain a strong national defense. This point is all too often obscured by those who would use any shortcoming—however trivial—as an excuse for the United States to disarm unilaterally. As the Senator so eloquently says, “Problems . . . must not be allowed to blind this country to the need for keeping its defenses strong.”

For all its soundness, one word of caution is probably in order. This book is not a balanced treatment of the past thirty-five years. It is—as it was no doubt meant to be—the view of a conservative. In this, it tends to lump all those who are not conservatives (and Senator Goldwater's brand of conservatism at that) as liberals. But just as the Senator points out that “you cannot lump all Indians into one group,” neither can you lump all conservatives or all liberals into one group. And, of course, the Senator's suggestion to “ban left-hand turns” could be interpreted as a bit too antiliberal.

—Reviewed by Sally Quenneville. Mrs. Quenneville is a research assistant in Washington, D. C., and a student of the national scene.

Memoirs of a Noted Editor

Peace and Counterpeace: From Wilson to Hitler, by Hamilton Fish Armstrong. Harper and Row, New York, N. Y., 1971. 585 pages. \$12.95.

As a small boy, Hamilton Fish Armstrong wanted to be a fireman. That was the only time in his life that he deliberately planned to reach a specific goal. He need not have worried, though. After Princeton, there was a short stint as Army lieutenant in the First World War, and a fling at journalism. Then he and Archibald Cary Coolidge were asked to launch the American foreign policy quarterly *Foreign Affairs*. Armstrong stayed on for almost fifty years, the last forty-three as editor.

Knowing Hamilton Fish Armstrong (not to be confused with his cousin, the isolationist New York congressman) to be a world traveler and confidante to statesmen and monarchs, one comes to *Peace and Counterpeace* with high expectations. We are not disappointed for these are wise, perceptive memoirs spiced with wit and irony. The book is beautifully written, almost elegant in structure and turn of phrase.

Nostalgia can run deeply and delight our senses, and for those in need of a beautiful dose, Armstrong's chapter on his days at Princeton is heartily recommended. It alone is worth the price of admission. Armstrong skimping his academic work for other pursuits . . . bumping up against classmates Allen Dulles, Scott Fitzgerald, Edmund Wilson, and a member of the *Daily Princetonian* who was tagged “Runt”—James Forrestal. And those “soft hazy days” when “the world was at peace; I did not dream it could

Airman's Bookshelf

be otherwise. Did anyone? I felt free, on my own, ready for anything."

Armstrong recalls no gap between generations. Although often skeptical of the Establishment, "we were not possessed by the certainty of later generations that our answers to problems were infallible and that contrary answers by our elders were conceived in hypocrisy."

Traveling to jar loose articles for *Foreign Affairs*, he writes of some delightful episodes:

- On the Orient Express, he never found romance or intrigue, but always "unshaved Romanians in crumpled pajamas."

- Mrs. House drawing on about one night at the White House when President Wilson and Colonel House, stretched out on the floor over a large map, couldn't locate Bucharest.

- Beautiful Queen Marie of Romania lecturing Armstrong on the usefulness of royalty: "Like clowns, they amuse the people, even with their funerals, and keep them contented."

- In Moscow, waiting to enter Lenin's tomb, Armstrong sees a boy tugging at his mother's dress and pointing toward him. After some time, she hesitantly leaves her place in line and walks up to him. "Douglas Fairbanks?" she asks. "Only when I shook my head regretfully was the little boy satisfied."

And then the job of editing this astonishingly successful quarterly is poignantly described. Coolidge and Armstrong insisted that *Foreign Affairs* have complete editorial freedom from the Council on Foreign Relations, which founded and supported it. Neither man was ever subjected to any pressure, and, says Armstrong, "in the world of journalism and politics that may be a record." Always scrupulous to balance Democratic and Republican views in the magazine, over the years the editor found it difficult to recruit effective Republican spokesmen.

Armstrong devotes the last part of the book to the rise of Hitler and Mussolini and to the dashing of the powerful hope for peace that came on after World War I. It is a sad story. Interviewing the Führer, he found Hitler reading to him from a piece of paper. Hitler lived in a vacuum, "for and by himself alone." Mussolini was convinced that the German leader had made some bad mistakes—especially in persecuting the Jews—and

that he was moving too fast. "Remember," observed the Duce, "what I do now I do after ten years of experience."

Hamilton Fish Armstrong refers to the period between Hitler's assumption of power and the Nazi invasion of Poland as the "counterfeit peace." Despite the good times laced into the 1920s and 1930s, this was an unsettled, troubled period highlighted by a staggering depression and the buildup to a global conflict. Thinking about these contributions, and nostalgically of another time, one is suddenly swept up in the paradoxes of his own era.

There is no escape.

—Reviewed by Herman S. Wolk, Office of Air Force History, Hq. USAF.

New, Compact Reference Book

Military Aircraft of the World, by John W. R. Taylor and Gordon Swanborough. Scribner's, New York, N. Y., 1971. 230 pages plus index. \$5.95.

The authors have produced what must be the most comprehensive compact book on military aviation ever published. About 300 different aircraft are described and illustrated with photographs. Three-view silhouettes are included for nearly half of them.

The book includes not only combat aircraft but also transports, helicopters, recon planes, trainers, and command and control aircraft like the Soviet "Moss" AWACS. All the latest Soviet designs are here, as are data on and drawings of the B-1, F-15, and F-14. There are also a number of Polish and Yugoslav aircraft—including jets—that are rarely seen in any publication. The center section of the book has striking color photos of a dozen particularly photogenic aircraft. A very handy, accurate, and inexpensive hard-cover reference book.

A Theory of Leadership

Leadership and Exchange in Formal Organizations, by Dr. T. Owen Jacobs. Human Resources Research Organization, 300 N. Washington St., Alexandria, Va. 22314, 1971. 352 pages with index.

This book, published in August 1971, is a scholarly integration of basic and applied research on leadership, focusing on the "influence process" in formal organizations. Dr. Jacobs has used the framework of "social exchange theory" for pulling together

the findings of more than forty years of leadership research. The "social exchange theory" views communication and interaction between persons as an exchange of both material and nonmaterial goods.

Leadership and Exchange in Formal Organizations provides a theoretical basis for understanding the leadership process, a foundation for experimental work on organizational leadership, and a reference work for those who need to put leadership principles to immediate use. It has been adopted as a textbook by the US Naval Academy, and is being used as a key source document in a major new Army program of tailoring its leadership training to the requirements of today's world.

Persons interested in obtaining a copy of the book should contact Mr. Saul Lavisky, HumRRO, 300 N. Washington St., Alexandria, Va., 22314. The book was originally prepared as a report for the Office of Naval Research.

Weapons in Striped Pants

Nuclear Diplomacy: The First Twenty-Five Years, by George H. Quester. Dunellen, New York, N. Y., 1970. 327 pages with notes. \$10.

This comprehensive study of the impact of weapons and deployments on international relations was prepared under sponsorship of the Center for International Affairs, Harvard University. Focusing principally on nuclear weapons, the author discusses the sociological and economic aspects of the cold war in terms of issues, alliances, and weapons development.

In his review of the concepts, doctrines, and strategies that evolved between 1945 and 1969, Mr. Quester raises a number of interesting questions. For instance, if there had been mutual trust between the US and the USSR, would it really have made a significant difference in the postwar military balance? Does the increasing affluence of the major powers make military expenditures a less than reliable index of political hostility?

To answer such questions, one must recreate the environment of earlier years. In the author's words: "The cold war has a military history, although, unlike other military histories, weapons have rarely been used. Because they have not been used, the activity surrounding weapons has been much more speculative and theoretical than it otherwise might have been; to have realized one scenario would have been to cancel many others. The

attempt here is to identify the events, the thinking and speculation, as they were."

This is a book for the serious student of military/political affairs.

US Alternatives in Europe

Detente Diplomacy: United States and European Security in the 1970's, by Timothy W. Stanley and Darnell M. Witt. Dunellen, New York, N. Y., 1971. 170 pages with appendices. \$6.95.

Both of the authors have served with the US Mission to NATO, where Dr. Stanley was Defense Advisor to the US Mission with the rank of Minister. Both also have held senior positions in the Department of Defense. In this book, they assess the long-term interests of the principal powers associated with the postwar European scene.

Against the complex background of the German question and the Berlin problem, they discuss the military balance in Europe, and offer their suggestions for mutual and balanced reductions of military forces on both sides. There are, in their view, possible areas for further movement in East-West relations and policy alternatives for Western diplomacy.

The Modernization of Warfare

Science, Technology, and Warfare. The Proceedings of the Third Military History Symposium, US Air Force Academy. US Government Printing Office, Washington, D. C., 20402, 1971. 221 pages. \$1.25.

This recently published report on the 1969 Military History Symposium, sponsored by the USAFA Department of History and the Association of Graduates, includes a series of excellent papers on the impact of science and technology on military affairs, together with searching commentary on each paper. The subject is examined in chronological increments; from 1400-1700, 1700-1850, and the twentieth century.

Also included is the text of the Harmon Memorial Lecture in Military History, which was presented by Dr. Elting E. Morison of Yale University in conjunction with the Symposium. Dr. Morison spoke on "The War of Ideas: The United States Navy, 1870-1890."

New Books in Brief

Armoured Fighting Vehicles of the World, by Christopher F. Foss. In-

cluded are pictures, technical data, and brief histories of all armored fighting vehicles presently in service. In addition to tanks, the author covers armored cars, self-propelled guns, and specialized vehicles, and describes armored vehicles now under development. Scribner's, New York, N. Y., 1971. 192 pages with index. \$5.95.

Earthbound Astronauts, by Beirne Lay, Jr. A veteran writer on aviation tells the story of the development and construction of Apollo systems by directors, engineers, and scientists of NASA and of industry. Prentice-Hall, Englewood Cliffs, N. J., 1971. 198 pages. \$6.95.

Flat-Tops and Fledglings: A History of American Aircraft Carriers, by Gareth L. Pawlowski. This huge, beautifully bound, and strikingly illustrated history of US aircraft carriers will tell most readers more than they knew there was to be told about the Navy's flat-tops. The book is in large format with more than 400 illustrations. A. S. Barnes, Cranbury, N. J., 1971. 530 pages with index. \$20.

Flying Army: The Modern Air Arm of the US Army, by W. E. Butterworth. In a well-illustrated, large-format book, the author traces the history of Army aviation from its roots in the observation balloons of the Civil War to the present. Now a full-time author, Butterworth has been an information officer and technical writer at the Army Aviation Center, Fort Rucker, Ala. Doubleday, New York, N. Y., 1971. 196 pages with index. \$9.95.

Three books for the serious collector are: *Gloster Aircraft Since 1917*, by Derek N. James (446 pages, £5.50); *Hawker Aircraft Since 1920*, by Francis K. Mason (495 pages, £4.20); and *Polish Aircraft 1893-1939*, by Jerzy B. Cynk (760 pages, £7.50). All three books are encyclopedic, lavishly illustrated, and published by Putnam & Co. Ltd., London, England, in 1971.

Nagasaki: The Necessary Bomb?, by Joseph L. Marx. The author of *Hiroshima: Seven Hours to Zero*, now examines the second use of an atomic bomb to determine whether it was necessary. Most of the book deals with what was happening in Japan between detonation of the first bomb on August 6, 1945, and the second, three days later. After his detailed consideration of all the factors that pertained at that time, he concludes that the second atomic bombing was necessary. Macmillan, New York, N. Y., 1971. 239 pages with index. \$6.95.

Soviet Military Trends: Implications for US Security, by William R. Kintner and Robert L. Pfaltzgraff, Jr. A

brief, theoretical analysis of the alternative emphases that may be embodied in Soviet foreign policy. Appendices include comparisons of US and Soviet military forces, and an examination of developing Soviet policies in the major regions of the world. Foreign Policy Research Institute, 3508 Market St., Philadelphia, Pa. 19104, 1971. 50 pages. \$3 soft-cover.

Suiting Up for Space, by Lloyd Mallan. A science writer describes the scientific and engineering work that has culminated in today's space suits. Tracing that evolution demands a considerable discussion of spaceflight, which extends the bounds of the book beyond those suggested by its title. The book is in large format, and beautifully illustrated. John Day, New York, N. Y., 1971. 262 pages with index. \$9.95.

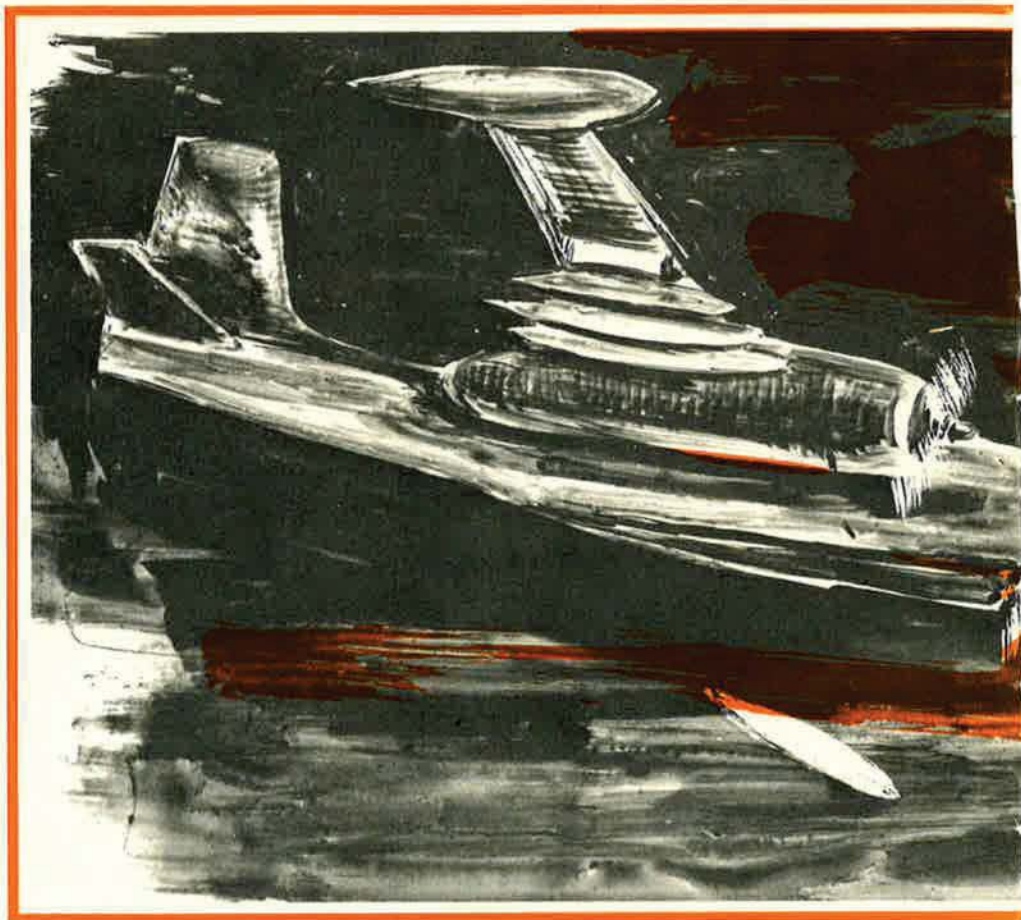
Tonkin Gulf, by Eugene G. Windchy. The author, a veteran of eleven years in the Far East with the US Information Agency, has written a detailed account of the Tonkin Gulf incidents of August 2 and 4, 1964, casting considerable doubt on the authenticity of those incidents. Doubleday, New York, N. Y., 1971. 358 pages with index. \$7.95.

Tragic Victories, by Edward Jablonski. This is the second of a large-format series on air action in World War II. It covers the period from Pearl Harbor to Schweinfurt, with chapters on the Flying Tigers, Midway, Ploesti, and early large-scale RAF attacks on targets in Germany. Excellent illustrations. Doubleday, New York, N. Y., 1971. 207 pages with index. \$9.95.

Travel Guide for Servicemen, by Joseph K. Taussig III, Capt., USMC (Res.) and Dorothy P. Taussig. Lists by state all military installations and the facilities and services available to military personnel (including retired) traveling on duty or leave orders. The guide also has good state and metropolitan area maps, points of interest by geographical area, a listing of national parks and their facilities, and a short chapter of advice to traveling service people. Rand McNally, New York, N. Y., 1971. 64 pages with index. \$2.95 paperback.

Western Technology and Soviet Economic Development 1930 to 1945, by Anthony C. Sutton. A detailed, scholarly investigation of the contributions made by western technology to the development of Soviet industry before World War II. The book challenges the view that US trade with the Soviets has little impact on growth of the Soviet economy. Hoover Institution Press, Stanford, Calif., 1971. 401 pages with index. \$12.50. ■

Interdiction on the Ho Chi Minh Trail



In 1966, the first A-26s—call sign “Nimrod”—began operating out of Thailand’s Nakhon Phanom Air Base against the Ho Chi Minh Trail. A former A-26 pilot of the 609th Air Commando Squadron tells of his experiences in this sturdy Douglas light bomber, a machine that first saw combat in World War II, was dusted off for Korea, and now has served with distinction in Southeast Asia—a truly remarkable retread . . .

NIMROD—King of the Trail

By Capt. Michael J. C. Roth, USAF

ILLUSTRATION BY CLIFF PRINE



"And Cush begat Nimrod; he began to be a mighty one in the earth. He was a mighty hunter before the Lord. . . ."
 —Genesis 10:8,9

ONE DAY in the spring of 1964 we had an unscheduled arrival at Williams AFB, Ariz. I was then about halfway through basic pilot training in the T-38, and this stranger on the ramp aroused my curiosity. It was a Douglas B-26—the World War II "Invader," known until 1948 as the A-26—on its way to the boneyard at Davis-Monthan AFB. The poor old girl couldn't quite make it all the way to her final resting place.

At the time, I was occupied with things like afterburners and flight director systems. I looked on this surprise visit as my one, perhaps only, chance to get a close-up look at a disappearing species. It

would have surprised me to learn that, as I looked over this old prop-driven airplane, forty other B-26s were being completely rebuilt by the On Mark Engineering Co. of Van Nuys, Calif. And it would have been an even bigger surprise to know that four years later, I would be returning from Thailand, utterly convinced that this aircraft, which I had by then flown in combat, was a magnificent machine.

As I looked over the B-26 at Williams that day, I recalled some of the things I'd heard about it. There was the story of a B-26 in Korea pulling up on the wing of a Mustang, feathering an engine, and staying right in formation with the F-51, though the fighter pilot had his throttle firewalled.

And there was one about the B-26 pilot who had run a North Korean truck over a cliff at night by coming in on the deck with his landing lights shining into the truck

driver's eyes. Were the stories true? I couldn't say for sure. But they did give the airplane a certain aura. By 1964, however, that aura was tarnished by stories of B-26s losing wings in flight, and there was little doubt in my mind that the airplane was finished.

A Shock to a Jet Pilot

Then in June 1967, I stood on the ramp at England AFB, La., and looked at the airplane I had just been assigned to fly: the On Mark-modified B-26K, which had been redesignated the A-26. I quickly found out that this was not the speedster from Korea. Though it was claimed to have a top speed of 305 knots with external armaments (which in itself was somewhat less than a firewalled Mustang), the airplane actually cruised at a little over half that speed. The reason was some of the modifications done on the old B-26: a beefed-up wing, permanent wingtip tanks, greater internal fuel capacity, and increased armament capability.

The inner workings of this airplane were a real shock to a young captain who had nothing but jet experience. The main compass was similar to that used as a second backup on the KC-135 I had been flying. The instruments in front of the right seat were vacuum driven, something that had been mentioned back at Williams only as an interesting historical note. The oxygen regulator was the oldest type I had ever seen, but I was reassured on that point. The oxygen system was purged and never used. And there was one distinctly disturbing thing about the airplane—no ejection seats. To bail out, you simply jettisoned the canopies and dived over the wing.

Perhaps most bewildering of all to a jet pilot, used to only throttles, was the array of levers to control props, mixtures, and carburetor heat. I remember so well some of the early questions like, "What's a jug?" and, "If I want to go fast, what do I push?"

The program at England AFB answered those, but raised one other big question that took a long time to answer. The airplane was slow, but stable. It maneuvered decently if you supplied the muscle.

If you exerted all of your strength and got an assist from the navigator, you might even be able to pull the maximum allowable Gs. So the big question became, "Why this airplane at this time?"

To SEA in the A-26

In eight weeks at England AFB I learned to land the A-26 decently and to deliver ordnance with it passably. I was then sent to the 609th Air Commando Squadron at Nakhon Phanom Royal Thai Air Force Base, familiarly known as NKP. This organization had brought the first A-26s to Southeast Asia in 1966, and began using them in one of the most demanding missions in the history of aerial warfare—interdicting the Ho Chi Minh Trail. The 609th adopted the permanent call sign "Nimrod."

The Nimrod mission was unusually demanding because of the combination of obstacles it had to overcome. The Ho Chi Minh Trail itself was—and is—a vast network of vehicular roads, footpaths, and staging areas. It comes out of North Vietnam in a number of places from Mu Gia Pass down to the DMZ, winds through Laos, and enters South Vietnam in the vicinity of Khe Sanh and several more southerly points.

The terrain through which it runs is spectacular. Rugged, 5,000-foot mountains are interspersed with wide river valleys. From the floors of those valleys jagged limestone formations, called karst, rise hundreds of feet straight up. And covering it all is a dense rain forest that in some places is triple tiered. The main roads, with a few exceptions, are visible from the air, but the footpaths and way stations are hidden under the forest canopy.

This road network was protected by an array of antiaircraft guns that ranged from 12.7 mm up to 57 mm. Here was a partial answer to my big question. For some reason, up until I left the Nimrods in 1968, the Communists never brought SAMs or radar-controlled guns into the area. Since the vast majority of traffic moved at night, all A-26 missions were flown in the dark. This gave us a sporting chance to

survive in a gun environment that would have been disastrous in daylight. But the darkness was a two-edged sword. It greatly complicated our search for targets.

In September 1967, when I arrived at NKP, there were no operational strike aircraft equipped with night target-detection devices such as those on the AC-130 and AC-119 gunships now flying the Trail. The problem of pinpointing and hitting targets on the Trail at night was solved by teamwork between the FACs in O-2s, C-123s, and C-130s, and the strike aircraft.



The World War II C model of the Douglas A-26 Invader had a bombardier's "greenhouse." The B model mounted guns in its nose.

The equipment used by the FACs enabled them to visually spot trucks on the roads, even on the darkest nights. Truck sightings by our FACs numbered well into the thousands each month during the dry season, from October through April, and

included some vehicles as large as moving vans.

Teamwork on the Trail

When the FACs picked up a target, they had to reference its position on the ground to something that could be seen and identified in the dark by a strike pilot's unaided eye. Flares were used frequently to illuminate targets, but most pilots preferred the protection afforded by darkness. The reference was usually a fire—perhaps one left from a previous strike or from a marker dropped by the FAC. It was vital that the strike pilot use the same reference point as the FAC. This required precise communication, and FACs frequently met with strike crews to work out exact descriptive wording.

Once the strike pilot was satisfied that he had sighted the reference

that the FAC was describing and could locate the target, he would launch a strike. After the first strike, the FAC could guide the strike pilot further by making corrections from the point of the initial strike.

Since all strike aircraft used in the 1967–1968 dry season were dive bombers of some sort, the process of hitting a convoy could be quite time-consuming. It was a process of orienting the strike pilot, setting up a bombing pattern, attacking, evaluating the accuracy of the strike, and once again orienting.



During the Korean War, B and C models of the Invader, now designated B-26, once more saw service. This Korean C with H2S radar was used for night bombing.

And here was the rest of the answer to my big question: Why the A-26? Under prevailing conditions, the A-26 could run through this process with better results than any other airplane the Air Force could put into the air.

The reasons are not mysterious. The airplane was equipped with eight external ordnance pylons, a large bomb bay, and eight .50-caliber machine guns in the nose. It could carry a maximum armament load of 11,000 pounds and had a combat radius of 575 miles,

which allowed an hour and a half over the target and a half hour of reserve fuel. Since most of the Ho Chi Minh Trail is within 200 miles of NKP, the time on target could be considerably over an hour and a half.

Because of the airplane's low speed and adequate maneuverability, the Nimrod pilot could cruise at a low enough altitude to easily pick out reference points the FACs were using, go from there to his target, and roll into his attack pattern from that same low altitude.

The A-26 was also an extremely stable platform, which made for very good bombing and strafing accuracy. And, finally, the airplane was rugged. I know of A-26s that took hits in the props and engines and still managed to land with both engines running.

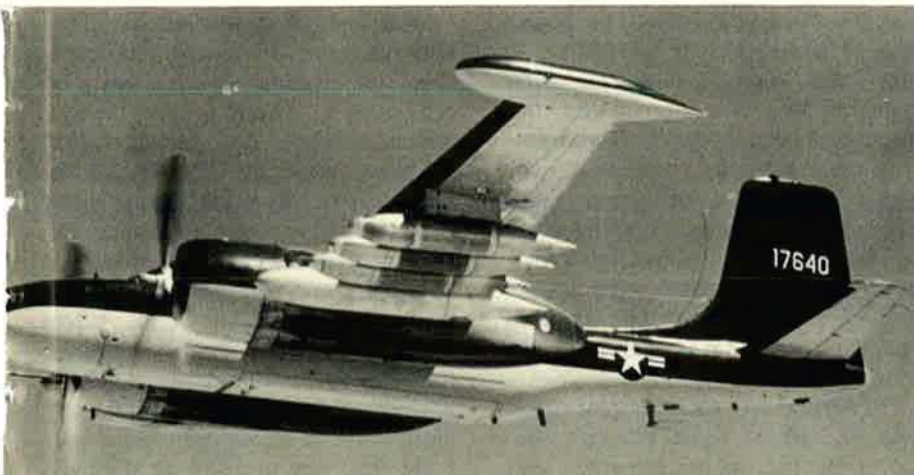
A Big Night for Nimrod

Of the 146 missions I flew, I think perhaps the one that best demonstrated the great value of the airplane took place on April 5, 1968. On that night I was assigned to work with an O-2 FAC on a short stretch of the Trail about sixty miles due east of NKP.

As often happened, we searched for a long time without sighting a single truck on the road. The movement of trucks usually took place in short spurts of activity, and trucks seldom, if ever, made the entire trip from North to South Vietnam in one night.

A little over an hour after arriving on station, my FAC sighted two trucks on the road. He dropped a flare and marked them with a rocket. I made two passes with hard bombs. The FAC then confirmed that I had destroyed one of the trucks, but, before he could determine the exact whereabouts of the other, he began to have airplane problems, and had to return home. A radio check with other FACs at different locations on the Trail revealed that there was no other activity. So I began an unaided visual search of my assigned road section.

At this point, I should say that a more proper pronoun to use in referring to the A-26 is "we." Each airplane carried a pilot in the left seat and a navigator in the right. My navigator, Lt. Col. Francis L. McMullen, is one of the finest men it has been my privilege to know in the Air Force. His navigation duties were minimal, since he had no tools other than a map.



This Vietnam Counter Invader, again designated A-26, was "remanufactured" by On Mark Engineering Co. specifically for counterinsurgency work.

The author, Capt. Michael J. C. Roth, is a 1963 graduate of the Air Force Academy. Following pilot training, he served for three years as a SAC KC-135 crew member. In 1967 and 1968, Captain Roth flew A-26s in Southeast Asia. After two years as a graduate student in management at the University of Southern California, he was stationed in Japan as a WC-135 pilot and as transportation officer at Yakota AB. He has recently been assigned to the Systems Program Management office at Wright-Patterson AFB, Ohio.

TACAN was the primary method of navigating, and the pilot was able to operate that alone. The navigator's main job, according to the checklist, was to operate the armament and fuel systems. In the course of their tours, however, our navigators actually became second pilots. Every one of them, I believe, was capable of flying the airplane home and landing it. Two A-26 navigators that I knew are now pilots—one in F-4s and the other in B-57s.

Jackpot

After our FAC returned to NKP that night, we spent another half hour searching over our assigned area before sighting something. That "something" was a 37-mm anti-aircraft gun that fired two clips at us.

I was able to pinpoint his position in the dark because of three small fires on the ground that surrounded him, probably unknown to the gun crew. We flew high over the gun's position to get a TACAN reading and then checked it on our map. It was well off any road, and in an area where there were no known villages.

Colonel McMullen gave me the elevation of the terrain at the gun position and figured out the best heading for a pass on it. Though we carried flares, we knew it was to our advantage to attack a gun in the dark. We rolled in and laid CBUs (cluster bomb units) across the triangle formed by our three reference fires.

One of the bomblets scored a direct hit on some munitions that flared into an intense pinpoint of white fire, sending rays of light through the trees almost like a spotlight. Colonel McMullen saw three more guns come up during our first pass, but we chose to ignore them

and concentrate on the fire we had started.

After climbing back up to our base altitude, we informed the nearest FAC, a C-123, that we had a good target for him to look over. He started for our position, bringing with him the A-26 with which he was working. Since we had already been out for more than three hours and fuel was beginning to become a problem, we decided to lay more ordnance around our first strike rather than wait for the C-123.

Three more passes on the target with fire bombs turned the area into an inferno. We could see secondary explosions every few seconds, and our incoming friends had no trouble finding their new target. We remained in the area while the C-123 made a pass over the growing fire.

His observer shouted over the radio, "My God, you found a truck park!" He counted eight burning trucks and said that the secondary explosions were coming from oil drums and crated cargo laid out on the ground. As we departed for NKP we heard him begin to brief his A-26 on the target.

This was a particularly good mission because of the target we had found—the truck park. The objective of interdiction is, of course, to stop the enemy's supplies from reaching him. We learned that destroying trucks on the Trail and putting craters in the roads made the enemy's logistics operation more difficult, but was not coming close to achieving the objective. Obviously the Communists were getting enough supplies down the Trail to support a very large war in South Vietnam.

Bombing the road system itself was an almost futile exercise, because of the many bypasses and alternates available and because of the large labor force permanently

stationed on the Trail. Thus, it was especially satisfying to find and hit one of the large caches of supplies destined for South Vietnam. We found them occasionally, but not often enough.

Magnificent Airplane

The A-26 was a magnificent airplane. It did its job better than any other could have, and I'm sure that any pilot could share my attachment to the Nimrod. But, I also have tremendous admiration for the other aircrews and airplanes that worked the Trail. The FACs, whether in O-2s, C-123s, or C-130s, were the indispensable eyes of the team. Unarmed or lightly armed, they braved all of the gunfire that came up at us. I never saw a FAC get chased off a target by ground fire.

The other members of the strike force are equally deserving of praise. During the early part of my tour, we frequently worked with T-28s, whose call sign was "Zorro." I was told at one of my early briefings at NKP that "if a Zorro can find a truck, he'll get it every time." I soon learned that this was true. The Zorro pilots finally wore out their T-28s, and near the end of my tour reappeared on the Trail in A-1s, as deadly as before.

Another group of pilots I really respected were our friends in the B-57s, out of South Vietnam. The B-57 came closest to matching the capabilities of the A-26 for this mission, and it was always a pleasure to team up with one. The B-57 crews I saw were all gutsy, excellent marksmen.

The F-4s that worked the Trail with us were obviously a different class of airplane from those I've mentioned. Their greater speed, wider patterns, and higher roll-in altitudes were all drawbacks for night strikes. Even so, I saw many F-4 pilots lay their ordnance exactly where the FACs wanted it.

But for me, the Nimrod will always be King of the Trail. I feel fortunate to have had an opportunity to fly it. It made me a part of something I thought I could only look at—like a museum piece—as I did that day in 1964 at Williams AFB. Nimrod was a mighty hunter, and its crews, proud men. ■

THE Soviet Union is in the process of adding a new, high-performance bomber to its arsenal of strategic offensive weapons. Information obtained and cross-checked here and abroad by AIR FORCE Magazine indicates that several fully developed prototypes of a Mach 2, 250,000-pound-class, twin-engine strategic bomber, code-named "Backfire" by Western intelligence, are currently undergoing testing in the Soviet Union.

The variable-sweep-wing aircraft resembles the Air Force's B-1 in its key performance characteristics. The aircraft was first observed in the fall of 1969, but references to it by US and other officials, including published testimony before congressional committees, have been sparse. Produced at an industrial plant in the Urals, the Backfire presumably signals the Soviet Union's intent to match the US triad concept through the 1980s by providing a modern bomber component in its mix of strategic forces.

The probability with which full-scale production of the aircraft at its Urals facility can be predicted rests in part on specific, though not disclosed, observations and also on the fact that several identical prototypes were developed. While Soviet aircraft designers have shown a consistent propensity for prototype development and test, the number of prototypes of systems not committed to production rarely exceeds two.

Based on past Soviet R&D and production habits, it can be assumed that the Backfire will enter the operational inventory of the Red Air Force either late in 1973 or early in 1974—several years before the first B-1 is slated to be delivered to SAC.

With an unrefueled radius of action of about 3,000 nautical miles, the new Soviet bomber qualifies as a long-range strategic weapon for deployment against the US as well as against China or NATO forces in Europe. The impact on the antiquated and inadequate continental US air defenses (see "Air Defense: Weakest Link in the Deterrent Chain," December '70 AIR FORCE) of this emerging Soviet capability is bound to be enormous. The Backfire is known to be equipped with a flight-tested refueling system. In the light of the Soviet Union's penchant for cautious, systematic R&D programs, the Backfire's basic design and performance characteristics were probably specified and "frozen" as long ago as the early 1960s.

AIR FORCE Magazine has learned the following about the Backfire:

- The aircraft is probably powered by two uprated and modernized Kuznetsov NK-144 engines. These afterburning fanjet engines produce a maximum thrust of 38,500 pounds each on the Soviet TU-144 supersonic transport. The version used on the Backfire is likely to exceed that output by a substantial margin.

- The aircraft appears capable of flying part of its mission supersonically at high altitude or subsonically at low levels. The Backfire also appears to be capable of covering a distance of 6,000 nautical miles in about fourteen hours at subsonic speed without refueling. The low-altitude penetration speed appears to be similar to that of the B-1—in the high subsonic regime at about Mach 0.85.

- The Backfire's takeoff roll is 1,000 feet to 2,200 feet less than the requirement of the presently deployed Soviet bomber types.

In its broad-gauged efforts to proliferate its arsenal of strategic weapons, the Soviet Union has not overlooked the versatility of an advanced-technology strategic bomber. Its present intensive test program involving several flying prototypes indicates that the USSR's next technological surprise will be . . .

BACKFIRE

Special Report on the New Soviet Strategic Bomber

- The Backfire will outperform other aircraft of the present Soviet bomber inventory of 750 Badgers and Blinders, and 195 Bisons and Bears, in most key areas.

The Backfire probably will be equipped with an air-to-surface missile, free-fall bombs, and electronic countermeasures. The missile could be carried semi-submerged in the fuselage.

The current emphasis on modernizing the aircraft inventory of the Soviet Air Force, this magazine learned, also includes the development of a new, advanced, tactical attack aircraft, a new advanced interceptor, and a VTOL fighter similar to Hawker Siddeley's Harrier. ■

—BY EDGAR ULSAMER



As the budgets of USAF and the National Aeronautics and Space Administration are being pared, cooperation between the two government agencies intensifies across a spectrum of scientific and R&D programs. Recent NASA work in the field of aeronautics may give rise to important advancements . . .

Coming: A New Series

By Edgar Ulsamer

SENIOR EDITOR, AIR FORCE MAGAZINE

COOPERATION between NASA and the military services—especially the Air Force—in space programs is very close, but is perhaps most intense in the field of aeronautics.

NASA Administrator Dr. James C. Fletcher and NASA's Deputy Associate Administrator for Aeronautics Neil A. Armstrong (the first man on the moon, who has just announced his resignation from government service to assume the post of Professor of Engineering at the University of Cincinnati) stressed to this re-

porter that, during this period of austere budgets, intergovernmental cooperation, joint research, and sharing of facilities take on added importance.

As a case in point, Mr. Armstrong cited a joint Air Force/NASA program involving the design and fabrication by General Dynamics Corp.'s Convair Div. of a supercritical wing for a modified F-111 aircraft. Known as the TACT (for transonic aircraft technology) program, this joint \$13 million effort will explore



NASA's Dr. Fletcher hopes for more aeronautical R&D effort.



Ex-Astronaut Neil Armstrong envisions a new series of experimental aircraft by the end of this decade.



A supercritical wing, developed at NASA's Langley Research Center under the direction of Dr. Richard T. Whitcomb, is shown being installed on a modified LTV F-8, which subsequently attained speeds of Mach 1.15. Supercritical technology delays the drag rise associated with supersonic airflow until well into the transonic regime.

of Hypersonic Scramjets?

and evaluate the application of supercritical-wing technology to highly maneuverable, advanced aircraft.

Originated by NASA, the TACT wing is one of a family of supercritical airfoils that, under optimum conditions, can increase the practical limit of subsonic flight from about Mach 0.85 to the Mach 0.98 region while improving aircraft maneuverability by a significant margin. NASA's supercritical-wing design moves the shockwave that during transonic flight normally forms over the thickest section of the wing back to the trailing edge. The result is reduced drag buffeting and lessened adverse effects of airflow separation.

NASA's Flight Research Center at Edwards AFB, Calif., will be responsible for all TACT flight-test operations after the F-111 involved has been modified and instrumented. The actual flight-test program will involve both NASA and USAF test pilots.

In the promising area of Control Configured Vehicles (CCV), NASA complements the Air Force R&D efforts. A sophisticated outgrowth of stability augmentation systems that go back to the B-47 program, the CCV concept, as originated by the Air Force Systems Command's Flight Dynamics Laboratory, provides aircraft with artificial stability by means of very active, electrically or electronically activated, control systems. Air Force and NASA scientists believe that within the next ten years such a missile-like control system will permit ultra-high maneuverability as well as reductions in aircraft weight of up to twenty percent.

Employing "fly-by-wire" techniques, which use electronic linkages in place of the bulky and vulnerable hydraulic lines from the cockpit to the aircraft's control surfaces, the CCV approach is premised on constantly "fine-tuning" the aircraft to prevailing conditions with the aid of sensors and possibly even a com-

puter. NASA is presently adapting an F-8 aircraft to utilize a computer developed for the Apollo command module for just that purpose.

Eventually, NASA aerodynamicists believe that vectored thrust (jet engines whose thrust can change direction in the manner of Hawker Siddeley's V/STOL Harrier) could profitably augment CCV technologies.

New X-Series of Hypersonic Aircraft?

One of the key, long-term tasks confronting NASA and the Air Force is exploration of the hypersonic (Mach 5 to Mach 12) flight regime. The only aircraft that ever operated above Mach 5, the X-15, was deactivated three years ago and plans to retrofit it with scramjet (supersonic combustion ramjet) engines were canceled for budgetary reasons. Mr. Armstrong told AIR FORCE Magazine that "there is a strong possibility" that recent and promising advances in propulsion technology effected by NASA's Langley Research Center might, within five to seven years, "lead to a new family of research vehicles," if the money is available.

NASA research, he said, has come up with preliminary findings in the areas of propulsion, structures, and cooling that suggest that an actively cooled, hypersonic vehicle can "be-

The September issue of AIR FORCE Magazine featured the first part of Senior Editor Edgar Ulsamer's interview with NASA's new Administrator, Dr. James C. Fletcher, and dealt with the Space Shuttle. This month, we continue with a report on principal NASA activities that have direct or indirect bearing on Air Force programs.

—THE EDITORS

come a practical reality if a national commitment to proceed in this direction is made." NASA's new hypersonic research engine concept, which incorporates the engine inlet into the aircraft's configuration in a three-dimensional sense, sharply reduces the amount of fuel required for cooling purposes.

The conventional scramjet "requires more fuel for engine cooling than is needed for flying the aircraft, if it can be made to work in the first place," Mr. Armstrong said, adding, "but Langley has now come up with some ideas for engines that don't look like scramjets at all and that use only fifty to sixty percent of their fuel for engine cooling. This in turn makes it possible to use some of the fuel for cooling the structure of the vehicle."

He explained that this step opens new possibilities to change the shape of the vehicle from a thick-bodied deltawing configuration to a trim design employing smaller, triangular wings. Such a vehicle could employ a structure made basically of aluminum actively cooled by liquid hydrogen fuel, which has great cooling capacity as well as high-energy content. However, it is characterized by low density and requires far more tankage space than conventional fuels.

For this reason, Mr. Armstrong said, the research aircraft "will have to be a rather good-sized vehicle." Referring to the termination of the X-15 program, he said, "with hindsight it would seem that technologically we really didn't know where to go at the time we quit flying the aircraft. Any continuation of the effort would have been patchwork. By contrast, it seems that with reasonable efforts in the areas of propulsion, structures, and aerodynamics over the next five to seven years we could launch a significantly advanced family of hypersonic research vehicles." He stressed that developing an operational hypersonic vehicle for either military or commercial purposes would require "very big expenditures of funds," and, therefore, no realistic forecasts could be made at present.

NASA's Other Aeronautical Programs

A key area of continuous cooperation between NASA and the military, Dr. Fletcher stressed, involves technical support and test of such military aircraft as the Air Force's F-15 and B-1, and the Navy's F-14. He added that his agency was eager to join DoD's rejuvenated prototype effort (*see AIR FORCE, August '71, p. 32*) so far as conceptual aspects are concerned.

Also of considerable importance to the Air Force is NASA research on nuclear-powered aircraft and air-cushion landing gears. The latter, being pursued in concert with the Air Force's Flight Dynamics Laboratory, could lead to a breakthrough in air mobility. It would

replace the conventional landing gear with retractable, inflated hovercraft skirts for landings.

Another NASA program in which the Air Force is involved concerns research in the field of air-breathing nuclear propulsion for large aircraft. Meant to power transport aircraft or other subsonic aircraft with a gross weight of more than one million pounds, such a power unit would permit operations of at least 10,000 hours between refueling. Research of this type regarding aircraft of unlimited range has been under way at the Agency's Lewis Research Center in Columbus, Ohio, since 1964 on a "low-level basis."

NASA cooperation with other government departments involves, in the main, the Department of Transportation in such areas as V/STOL and STOL technology, as well as refined supersonic aircraft designs, Dr. Fletcher said. Recent research centers on a design for two forward-mounted and two rear-mounted engines to blow engine-exhaust air over the wings. It appears to offer, through greater aerodynamic efficiency, substantial range increases above previous supersonic aircraft designs.

Asked about the level of NASA's funding allocations to aeronautical R&D (\$110 million for FY 1972 out of a total agency budget of \$3.3 billion), Dr. Fletcher said that "within the framework of our present budget, this represents to me a satisfactory distribution." He added that, if a budget increase were attainable, "we should shift more money toward aeronautics." Dr. Fletcher indicated that he would seek more funds for NASA in the future but added, "I am not prepared at this time to say specifically what our budget should be."

In addition to the Space Shuttle and aeronautical research, several other major NASA programs are of concern to the Air Force because they expand the frontiers of science and fundamental knowledge.

The Grand Tour

In the late 1970s, the five outer planets—Jupiter, Saturn, Uranus, Neptune, and Pluto—will be uniquely positioned for multiple fly-by missions by single spacecraft, substantially reducing the cost of outer-planet exploration. For this reason, NASA has scheduled a "grand tour" of these planets during the 1976-1979 "open window." NASA, at the moment, is conducting an intensive review of the alternatives. Dr. Fletcher said the idea is "to obtain the greatest amount of scientific advance for the least possible amount of money. We have tentatively changed plans from a full five-planet tour to four trips of three planets per tour, but are also examining other alternatives. These involve different launch dates as well as cheaper ways of doing the job, possibly through the



NERVA, a joint AEC-National Aeronautics and Space Administration program, is a nuclear-powered rocket for deep-space missions or long-duration orbital applications. Shown here at the Nuclear Rocket Development Station, Nev., NERVA produces up to 75,000 pounds of thrust in the vacuum of space by pumping super-cold liquid hydrogen through its nuclear reactor, where it is heated to very high temperatures so that it will expand with high energy through the nozzle.

use of Pioneer [an existing spacecraft of relatively low cost], fewer flights, and new, more economical photography.”

He said the alternate approaches will be reviewed and evaluated by the National Academy of Sciences' Space Science Board and other scientific advisory groups. A final decision is to be reached this fall, in time for NASA's budget submissions to the Administration, Dr. Fletcher said.

Still a third major NASA program, the NERVA nuclear rocket, is currently caught up in budgetary controversy. The linchpin of NASA's long-term plans for long-duration, deep-space missions, the 75,000-pound-thrust NERVA rocket is essential for manned or unmanned trips to the outer planets involving good-size payloads, according to Dr. Fletcher. NERVA rocket is essential for manned or un- would also be extremely useful in such applications as long-duration orbits around the moon or Mars,” Dr. Fletcher said, “but we are not ready to spend the money needed to bring NERVA into being within this decade.”

For the same fiscal reasons, he said, NASA has delayed developing a special booster to loft NERVA into space. While a number of existing systems, including Titan III and Saturn, can perform this task, they would not be as cost-effective as a new design. (NASA is also considering a modular NERVA configuration that could be orbited in sections by the Space Shuttle.)

The advantages of a nuclear rocket lie in the fact that its specific impulse is about 100 percent greater than that of the best chemical rocket. NERVA's nuclear reactor is used to heat hydrogen which, in turn, is expelled to create thrust in the vacuum of space. NASA planners believe that the nuclear rocket should be developed for use in the 1980s and are satisfied “with the very good progress that has been made in its development so far,” Dr. Fletcher said. The Administration requested

\$15 million for NASA's NERVA program in FY 1972, but Congress increased this amount to \$39 million.

Because NERVA is being developed jointly by NASA and the Atomic Energy Commission, an additional appropriation of \$15 million is being sought by the Administration as part of the AEC budget. The House has approved this request, but the Senate voted to allocate \$42.8 million “to complement the FY 1972 funds, which have been provided to NASA for their portion of this joint program and [to] permit the project to continue at the 1971 level.” A joint House/Senate conference was to resolve the discrepancy in allocations in September. Dr. Fletcher commented on these actions, saying, “The Congress feels—and it's a very good point—that we shouldn't run the risk of letting the program wither away because we put too small an amount of money into it.”

Dr. Fletcher promised greater emphasis on NASA's so-called applications programs, involving meteorology, earth physics, earth resources, communications, and navigation. “We believe the pictures of the earth that our astronauts took from the moon have brought home to everybody the smallness of our own planet and the need to preserve its limited resources. In order to get the full picture of the biosphere on a continuous basis, a space-based monitoring system is vital. The potential of NASA's applications program is enormous. Unfortunately, while we received several hundred proposals from external sources for worthwhile application programs, we are once again limited by our budget. We do consider this program one of our key missions because it is essential to the care and feeding of this planet,” Dr. Fletcher said.

On this point, as across the wide range of shared programs, personnel, and facilities, the United States Air Force and the National Aeronautics and Space Administration have a common goal. ■

In June, the author described the perils of World War II Primary pilot training. Here, he recalls the thrills of Basic at Gunter Field, Ala., and the verities of the Vultee Vibrator, taught by an RAF instructor straight from the bonnie braes of Bobby Burns country, with a firm foot on the . . .

Rrr-ight Rrr-udde-rrr!

By Col. Cal Carpenter, USAF (Ret.)

CARTOON BY BOB STEVENS

WORLD War II Army pilot training was all memorable for me, but the most memorable part of it was Basic. This was where the Primary graduate, by then a seat-of-the-pants-trained pilot in a light, error-forgiving, civilian-type trainer, was taught to fly an instrument-equipped, more powerful, and less-forgiving military aircraft. It was, you might say, the real beginning of a military pilot.

I also learned a couple more things in Basic, in addition to those taught in the regular flying and ground-school curricula. One was that barracks rumors were not always completely wrong, especially about airplanes. The other was that you can be very wrong judging a man's flying attitudes by first impressions—especially Royal Air Force pilot officers; and most specifically a Scotsman who happened to be a pilot officer.

This valuable education in both flying and judgment began one clear November day in 1942. I was a few thousand feet over the still-green Alabama countryside near Gunter Field in the front cockpit of a BT-13. It was my first ride in the "Vultee Vibrator"—so called because it was built by Vultee and because it made a distinctive, vibrating roar when the throttle was opened with the propeller in flat pitch.

"I shall now demonstrate a power-on stall," said the instructor (whom I shall call "Lieutenant F") over the intercom from the rear cockpit.

I was a little tense. I had already had many barracks-rumor briefings on the dangerous flight characteristics of the BT. I'd heard alarmist rumors about it ever since Pre-Flight. But the intercom was one thing, at least, that I liked. I could hear what the instructor said—something I never had been able to do over the gosport tube in Primary.

Lieutenant F throttled the 450-hp Pratt & Whitney engine back a bit and eased back on the stick. He held it there a moment while the trainer slowed down. There was nothing scary about that. I was just about to dismiss the hair-raising stories about a power-on stall when I learned to respect rumors.

The BT buffeted for an instant only, then the thing dropped right out from under us like two tons of lead. At the same time, the nose whipped back and forth, the left wing dropped and, except for the instructor's mighty boot on the right rudder, would have rolled over into a power-on spin. Shake, rattle, and roll! Dust from the floorboards! My radio microphone jumped off the hook into my lap!

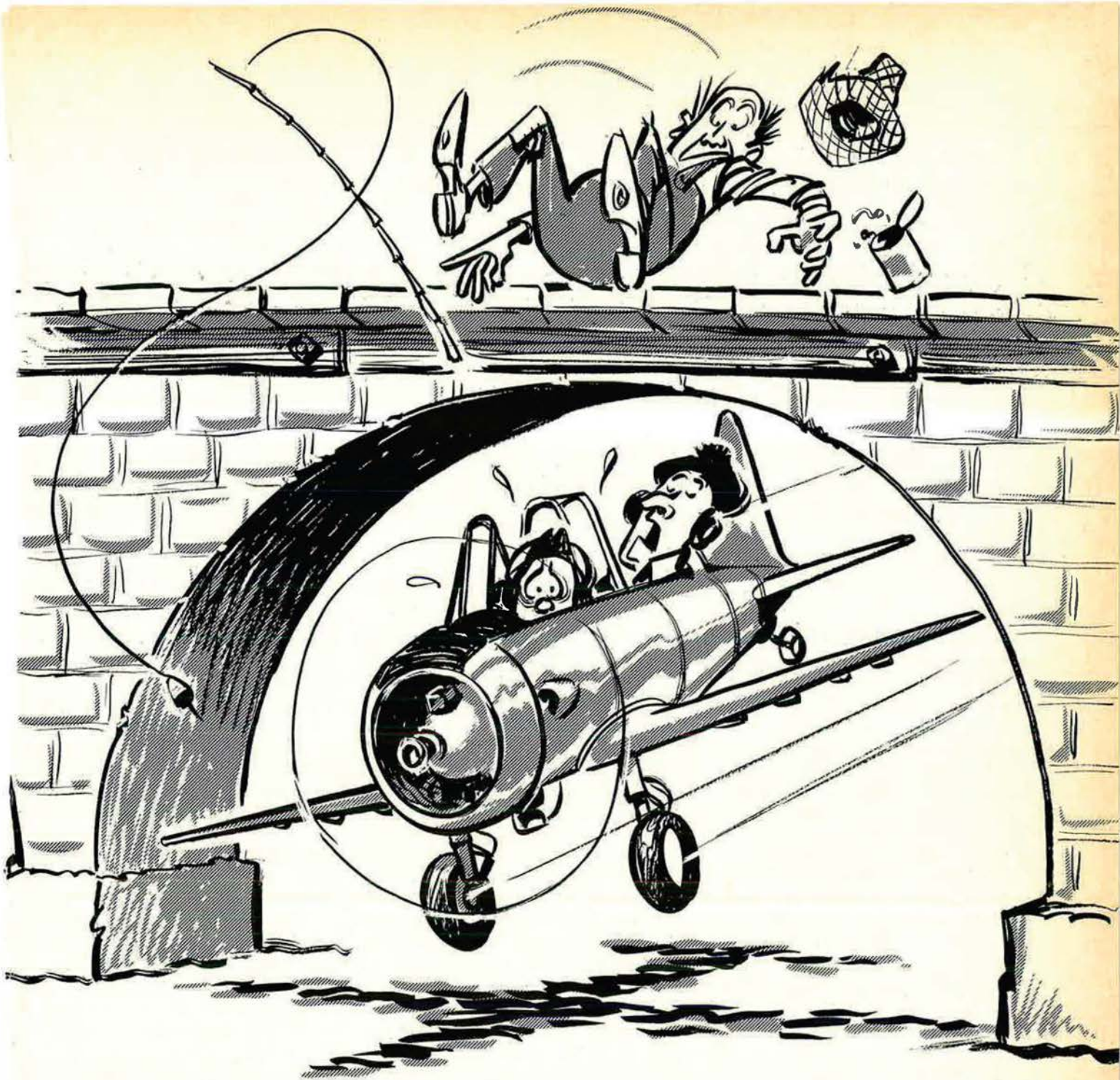
No airplane I'd ever been in had acted even remotely like that before. I was shaken half out of my wits as the instructor backed off on the throttle and kept walking the rudders to ease the airplane into a reasonably stable dive. When he and I finally caught up with the falling airplane, he opened the throttle again and brought the nose up to level flight. The ground was startlingly close.

"She's a little rough in a stall," he suggested in a classic understatement. "You get on that right rudder quick or she'll spin."

We climbed back up and he demonstrated a spin. It wasn't like any I'd ever done in the stable little Cub or the lovable old Stearman. But it wasn't quite as bad as that first stall because we entered the spin power off; the torque of that "big" radial engine wasn't there to whip you into the first turn.

I practiced stalls and spins for an hour and we went home, I with a hearty respect for the BT-13 firmly lodged under my crew cut. And my respect for barracks rumors had risen some, too. In fact, I probably started one of my own that night.

In Primary I'd had only one flying instructor; I had three in Basic. The first was the laconic, understatement-prone Lieutenant F. He gave me a few more rides and then



"Gie it a wee mo-rrr-e rrr-ight rrr-udde-rrr, lad."

one day we landed at an auxiliary field. He climbed out.

"All right," he said. "Take her around three times by yourself."

I did, and after the third landing I taxied back to pick him up. I was really proud—the first in my flight to solo in that real military aircraft. I taxied back sitting high in the front cockpit, my flight cap cocked under the earphones, my elbow on the side of the cockpit, working the throttle with professional flicks of

the wrist. The instructor climbed up on the wing, looked at my beaming face, and said:

"Get your arm back in the cockpit!"

I got it back.

"Take two stars for being too cocky," he growled and climbed in. "And take me home."

Two stars meant I was poorer by fifty cents—each star cost a quarter. This was a minor flight-line punishment for certain venial sins of omis-

sion and commission. The stars were posted on a big board in the ready room beside each offending cadet's name. At the end of the school we paid off, and the money was used for a cadet-instructor party.

For a few more days things went quietly with Lieutenant F. Then he was transferred and I was assigned to a young RAF pilot officer. There was a large number of RAF flight trainees on the field and the instructor pool was mixed. Some Ameri-

cans flew with British instructors and vice versa. I flew only once with that young man before he, too, was reassigned. It was enough.

We were out doing basic maneuvers when the weather caught up with us. The ceiling kept lowering and we kept working down to stay in the clear, until we were buzzing around at less than 2,000 feet. At this low altitude, the daring young man in the back seat decided perhaps we ought to do some spins. Remembering how close the ground was after pullout in that first spin session—when we'd started much higher—I knew we'd never make it. I was thoroughly indoctrinated in the military way. I had confidence in my competent-looking young instructor and the pilot wings he wore. Still I questioned.

"Sir, are we high enough?"

The young pilot officer thought a minute and said: "P'rhaps not, Mister. Let's look around and see if we can find a place to climb higher."

We looked but only found ourselves forced even lower.

"Well, we're bloody well supposed to practice spins," said the pilot officer. He seemed determined.

"Yes, sir, but I think we're too low," said I.

"P'rhaps so," said he.

We buzzed around and I sweated while he made up his mind.

"Oh, all right," he finally said. "Let's return to the aerodrome."

We did, and I for one was glad to get there. I can't be sure, of course, but I do believe, if I hadn't spoken up, we'd have spun ourselves right into the ground.

My final instructor was Pilot Officer "T." He was a Scotsman with a thick burr. He was an older man; I'd guess he was nearing thirty. Rumor had it that he was a former professional golfer—had

once stood high in the British Open. I believe it, for he had wrists as broad as my hand.

Pilot Officer T was a fine pilot and a quiet gentleman with tremendous patience and a real knack for instructing. I can still hear his calm Scots burr on the intercom:

"Now, Ca-rrr-pente-rrr, let's do a powe-rrr-on stall. Pull he-rrr up . . . now, rrr-ight rrr-udde-rrr, rrr-ight rrr-udde-rrr . . . hold he-rrr. . . ."

Pilot Officer T was such a mature, thoroughgoing gentleman, I figured him for a stern disciplinarian and regulation-abiding man. The first indication I had that this was not necessarily an accurate assessment of his character was in early December. We had been practicing instrument flying for a couple of hours. I came out from under the hood and he ordered me to take us home. I did and, after landing, was taxiing along the ramp to the parking area. I was taxiing too fast and not very alertly, for as I turned the trainer sharply at a ramp-taxiway intersection, it got away from me. Before I knew it, the cranky machine had turned a full 180 degrees and was pointing back the way we had come. I had cut the throttle when the ground loop started, and the thing finally stopped. I sat apprehensively awaiting the wrath I was sure would come from the back seat, along with an order to take at least five stars. Not a word. I waited a moment before I looked back.

There sat Pilot Officer T with the shortest cigarette butt I've ever seen, smouldering between his pinched thumb and forefinger. Smoking in the BT-13 cockpit was strictly forbidden, and Pilot Officer T could have been in big trouble if the word had gotten out.

I was stunned. I hadn't thought anyone would smoke in the airplane, certainly not on landing. After a little more thought, I realized it was not as foolhardy as it

looked. The cockpit was certainly not tight; there was good ventilation or I'd have smelled the tobacco.

Pilot Officer T looked at me coolly for a moment. I turned my head without a word, spun the airplane around, and continued to the parking area. The incident was never mentioned, by either of us.

A bit later, I had more evidence that Pilot Officer T was no sedate old man. One day, while doing airwork, he took over without ado and pointed the nose down toward a power line.

"I suspect ye'll be a'buzzin' one of these days," he said. "I'd bette-rrr show ye how to do it rrr-ight so ye don't kill ye-rrr-self!"

The next thing I knew he'd set up a beautifully controlled low-level pass, and we went screaming under the high-power line where it crossed a river.

"Now," he said quietly. "You take the b-rrr-idge up ahead!"

I did, hoping devoutly there were no unseen cables in the way.

Shortly thereafter, while doing make-up flying on a beautiful Sunday afternoon, we departed Gunter for instrument airwork. Pilot Officer T took over immediately after take-off and we proceeded, at low level, to the training area. He turned up a river and, arriving over a small town a few moments later, set up a landing pattern on a nearby meadow, and competently put the BT-13 on the ground. He taxied over to the edge, parked, and cut the engine, with me aghast at the idea of landing on an unauthorized field. No sooner was the engine cut than we were met by a car full of young people, including two extra girls. We climbed out and joined them for a run downtown to the drugstore and ice-cream sodas. It was, it seemed, all arranged.

After a pleasant hour or so we returned to our great silver "warplane" to find it respectfully surrounded by local citizenry. We basked in their admiration for a few minutes, climbed back aboard, and took off for Gunter.

Pilot Officer T's only remark was that "People su-rrr-e are f-rrr-iendly in Alab-aa-ma." ■

The author, Cal Carpenter, retired from USAF in 1966 to take up a second career as writer and gentleman farmer in the foothills of the Appalachians, near Brevard, N. C. This is his third article in AIR FORCE Magazine in recent months.

One of USAF's top personnel managers describes what he and his staff do to translate the new Personnel Plan—discussed in earlier issues of this magazine by General Ryan and General Dixon—into action programs at the USAF Military Personnel Center, where . . .

'Our Business Is People'

By Maj. Gen. Rene G. Dupont, USAF

ASS'T DCS/PERSONNEL FOR MILITARY PERSONNEL, HQ. USAF
AND
COMMANDER, USAF MILITARY PERSONNEL CENTER

IN THE May and August issues of AIR FORCE Magazine, Air Force Chief of Staff Gen. John D. Ryan and his Personnel Chief, Lt. Gen. Robert J. Dixon, discussed the kind of personnel force we are building for the future. This optimum force is described in detail in the USAF's new Personnel Plan—eight volumes of concepts, goals, and objectives that spell out the direction in which the Air Force personnel system is moving.

This third article on the personnel system will focus on the function of the United States Air Force Military Personnel Center (USAFMPC) and its role in making the USAF Personnel Plan work. It also discusses what the individual can do to help make it work.

Organization

The Military Personnel Center's paramount task is to translate personnel planning and programming into specific programs that meet our objectives. In order to do this, the USAFMPC is organized functionally. Four major directorates reflect the principal areas of the personnel life cycle:

- **The Directorate of Personnel Resources and Distribution** is responsible for worldwide assignments and career development of lieutenant colonels and below;

- **The Directorate of Personnel Program Actions** manages NCO and officer promotions, Regular appointments, and other Selection Board activities, as well as retirements and separations;

- **The Directorate of Personnel Services** is concerned with such member benefits as recreation programs, Officer, NCO, and Airman Open Messes, and a host of other nonappropriated fund activities;

- **The Directorate of Personnel Data Systems** ties our complex system together by managing the flow of information into, within, and out of the USAFMPC.

In addition to the major directorates, the Assistant for Procurement and Retention develops and manages important programs that help us procure, motivate, and retain a high-quality, professional force of managers and technicians. Finally, the Assistant for Personnel Plans, Programs, and Organizational Requirements performs a variety of tasks aimed at keeping us on track and pointed in the right direction.

This brief look at the formal USAFMPC organization tells only a small part of the story. Since the Air Force became a separate service in 1947, the personnel function has slowly evolved from a very decentralized unit structure to a consolidated, fast-reacting system. This was made possible by the development of the personnel data system in the late 1950s. In the early '50s, we needed more than 30,000 personnel managers and technicians, representing almost four percent of the total force, to



Maj. Gen. Rene G. Dupont has been Commander of the USAF Military Personnel Center at Randolph AFB, Tex., since August 1969. Much of his post-World War II career has been in SAC, with bomb units and in staff positions. He has served on the Air Staff as a planner, and was Secretary of the Staff at SHAPE Headquarters prior to assuming his present duties. General Dupont is a graduate of the Air Command and Staff College and of the National War College.

manage the Air Force personnel system. Today we manage a much more sophisticated system with a great many more programs, and do it with about 20,000 people, or just over two and a half percent of the total force.

The birth of the Consolidated Base Personnel Office (CBPO) was primarily responsible for the reduction in personnel management people, and we're still reducing the personnel community today. As we moved through the 1960s, the personnel data system was revised and updated to provide personnel managers current and reliable information for decision-making. Today, personnel data flows from the CBPOs through USAF's major commands (MAJCOMs) to the USAFMPC. Many personnel functions have become centralized; the result is more equitable treatment for the entire personnel force—and, more importantly, for the individual.

We no longer provide promotion or assignment quotas to base level, and hope that the best qualified people will be selected for promotion or the most eligible for reassignment. With centralized programs, we can compare the total force when promoting, or the entire career field when reassigning, and we can select the best qualified people for schools, regular augmentation, and many other programs. This is one of the many ways we maintain and improve the quality of the force.

Another way we maintain force quality and build a professional and highly motivated force is through the career-development program. For many years the Air Force had no real, dynamic career-development program. Career-development policies existing in the 1950s and early '60s were generally ineffective because policy-makers and resource managers had no feedback upon which to judge their success or failure. Hence, individuals sometimes felt that the Air Force was not concerned about career

development. There was no "visibility" among officers with regard to career growth.

Such questions as "Where can I expect to be five years from now?" went unanswered simply because there were no answers. Growing dissatisfaction with this situation and its effect on retention rates led to some major career-development studies in the mid-1960s. These studies resulted in the establishment of a career-development division at the USAF Personnel Center in 1967, and to a basic change in the organization of the assignments function.

Prior to 1967, manning officers managed many career areas for one major air command. With the career-development division came a functional realignment. Manning officers now manage a specific career field for the entire Air Force. These managers themselves, along with their career-development counterparts, hold the Air Force Specialty Code of the career area they manage. Each resource manager used to manage some 3,400 officers. Today he manages about 1,500. This allows more time to evaluate and assign each individual.

In addition, the career developers ask for feedback from officers in the form of a career objectives statement that outlines the individual's desires for his Air Force future. Direct personal participation is encouraged; officers are asked to write or call the USAFMPC if they have questions. A complete change in philosophy has occurred since the late 1950s, when individuals were deliberately discouraged from calling or visiting Hq. USAF.

Force quality must also be maintained through management of the *total force*—not just the active force we concentrate on today. A concept called "total force management" is now being developed to move us in that direction.

In August 1971, Volume IV of the Personnel Plan was approved for publication. This



The ASTRA (Air Staff Training Assignment) Program sends carefully selected junior officers to the Air Staff on one-year tours of duty. Capt. Roger W. Mortensen (left) is an ASTRA officer assigned to the Air Staff's Motivation and Retention Division at the USAF Military Personnel Center.



Career-development monitors are assigned to every officer career field. The monitors, who have the same occupational specialty as the officers they manage, counsel and advise their counterparts in the field individually by telephone, mail, or by personal consultation.

volume focuses on both the Air National Guard and the Air Force Reserve force structures. At the same time, the Military Personnel Center, in concert with the National Guard Bureau, the Air Force Reserve, and other members of the personnel family, is implementing and recommending actions to improve and equalize personnel policies for the *total force*, i.e., active, Air Reserve Forces, and civilians.

Data and Information Systems

The reorganization of the personnel function was due, in part, to the rapid and continuing growth of personnel data systems. We talk now in terms of "near real time" data, which essentially means the movement of personnel information from the CBPO to USAFMPC in twenty-four to thirty-six hours. We can't achieve this now, but the goal is attainable within the near future. And, of course, we're concerned not only about the speed with which this data moves, *but also with its accuracy.*

The initial backlash to the computer era—"I don't want a computer running my life"—continues to some extent today. The computer is blamed for all sorts of misunderstandings, poor decisions, and the "impersonality" of "the system." Yet, the computer does nothing more than to *mechanically collate, rearrange, analyze, and predict what humans tell it.* We must blame ourselves if we rely too much on its output, while showing a lack of concern for its input. Today all sorts of edits, purges, validations, and other means of determining the reliability of the data are "in the system," but our one-half percent error rate may still cause us to make wrong decisions; consequently, "decisions" from computers must be tempered with judgment.

Management has always realized that judgment must prevail. Systems analysis, linear programming, modeling, and simulation techniques are excellent ways to help management make sound, logical decisions, but they're still only tools and must be used in that way.

Besides helping us to make decisions, these tools—the computers—have freed us to do more things for people. They perform many of the tasks that it took an extra 10,000 people to do twenty years ago. Now we have more time to work on "people" programs and to develop a more personalized approach to solving people problems. In the 1950s, we were highly personalized in terms of an individual's ability to communicate his problems to a personnel manager. But we didn't have very good information with which to make decisions or counsel people. In the 1960s, we began to develop that information capability, but we became relatively more impersonal because we consolidated our personnel offices. In the 1970s, we hope to provide both a personalized approach to the personnel processes, and proper, timely information to back it up.

Motivation and Retention

Under the decreasing stimulus of the draft, the problem of attracting and retaining qualified people becomes increasingly difficult. Making an Air Force career desirable, rather than tolerable, is a prime objective of Air Force motivation and retention programs. Even our best efforts to make the Personnel Plan work will lose their effectiveness if people in the know (commanders, supervisors, top three NCOs, and career advisers) do not become actively involved in the retention effort. It was for this reason that we embarked on an all-out retention campaign in January of this year. As General Ryan has said, "Every ONE Is Our Business."

This slogan is our continuing campaign theme. It highlights the individual involvement that we know is essential in reaching our volunteer force objectives. During the first three months of 1971, we began a concentrated counseling effort. Palace Gold and Palace Leader were unit-level programs designed to ensure that unit commanders and top three grade NCOs provided career guidance to qualified officers and first-term airmen who planned to leave the Air Force. The positive results of

this effort demonstrated that individual involvement and counseling are the essential ingredients for a successful retention program. More than 14,000 officers and 89,000 first-term airmen were counseled, and about ten percent changed their Air Force career intent from "out" to "in." First-term airman reenlistment rates jumped from 16.2 percent in January 1971 to thirty percent in May 1971.

The motivation and retention effort also concentrates on other areas of people involvement, such as the Junior Officer Councils (JOCs) and NCO/Airmen Advisory Councils, as well as accumulating data on attitudes of our young people. Positive Air Force career decisions are not influenced by gimmicks. That is why we have positive people programs—positive in the sense that these programs attempt to satisfy our officer and airman psychological and physiological needs as *they* perceive them.

People Programs

The personnel processes today have taken the form of "things we do for people." Many programs are designed specifically for career development, others to better satisfy indi-



Through the Palace Flicks program, Air Force people can get the word on personnel matters from film cartridges, prepared by the Personnel Center and kept at base personnel offices.

USAF Military Personnel Center Checklist

IF YOU'RE CONCERNED

ABOUT . . .	CHECK WITH
Data in your records	CBPO Records Section
Promotion programs	CBPO Quality Control MAJCOM Career Development MPC Career Development Division MPC Officer/Airman Promotion Division
Assignments	CBPO Career Control MAJCOM or MPC Career Development
AFIT, training	CBPO Career Control MAJCOM or MPC Schools Section
SWAP Program	CBPO Airman Assignments
* ASTRA Program, Palace Vista	CBPO Officer Assignments
Career opportunities (information and counseling)	MAJCOM—Asst. for Career Motivation CBPO Career Assistance and Counseling Office

* ASTRA (Air Staff Training Assignment) is a program for assigning selected junior officers, usually captains, to Air Staff duty for a period of one year. Under Palace Vista, aircrew and some nonrated personnel are given three-year tours away from their parent commands to familiarize them with weapon systems of other commands.

viduals. All meld together to meet the basic requirement—manning the Air Force to do its job. For example:

- **Palace Blueprint:** Initially, this program brought together the career-development monitors and the assignment officers at USAFMPC in the civil-engineering career field. Together, and in coordination with the major commands, they monitor the end assignments on all civil-engineering officers. Before Palace Blueprint, civil-engineering officers were monitored only when a move was required *between* major commands, and the end assignment was often left solely to a major command without regard to the total engineering resource of people or jobs. The program is now operational, and the concept has spread to other functional areas such as personnel, administration, and logistics.

- **Palace Fuse:** This provides immediate assignments to airmen stationed overseas whose tours were curtailed, or whose new assignments were not received within sixty days of scheduled return. The airman should normally receive an assignment within seventy-two hours from the time that USAFMPC is asked to take assignment action.

- **SWAP Program:** Airmen oversea returnees who have not received a CONUS assignment of their choice can request an assignment "swap" with another returnee of the same grade and specialty who is returning in the same month. These requests are processed by the Personnel Center in a second attempt to satisfy assignment preferences and still meet Air Force requirements.

The programs described above are designed to help resolve one of the most basic management concerns in the personnel system today—

the conflict between Air Force requirements and individual desires. It's obviously impossible to satisfy everyone. If we did so in the area of geographical assignments, ninety percent of our people would be concentrated at a handful of bases in geographically desirable areas. Career-development programs such as Palace Blueprint help both the individual by satisfying his career objectives and the Air Force by making the best use of the individual's interests and talents. In order to make these programs function successfully, there must be communication between the Air Force and the individual.

Communication—A Two-Way Street

The Personnel Center communicates with individuals in many ways. Officer Career Newsletters, Career Advisory News, USAFMPC briefings, "The Air Force Now" film series, and the new "Palace Flicks" program, a CBPO information and counseling service are a few. But we need feedback from the individual so we can make good decisions, counsel properly, and build realistic programs.

Each officer and airman must communicate his assignment preferences and career-develop-

ment goals to the career control section of the CBPO. Desires must be expressed honestly and effectively. If we are told what an individual thinks we want to hear, we may never surface his problem. For example, the results of sample surveys, if not an accurate reflection of a member's opinion, might alter improperly the route we would take.

When officers fill out Career Objectives Statements, they should respond in a straightforward manner. Each officer should develop a game plan by describing individual plans based on performance and desires; asking about relative standing with contemporaries; using the CBPO (if they can't help, they'll find someone who can); checking records annually, carefully, in detail, and correcting what isn't right; and ensuring that the facts are straight, accurate, proper, and timely.

If the USAF Military Personnel Center communicates effectively with our members—and they talk back—we can be successful in building the type of force described in the USAF Personnel Plan. That optimum structure, in turn, is designed to help each individual achieve his own personal career objectives through a sound, logical career pattern. And today there are people who are listening and responding. ■

STOPPING THE CLOCK

Gen. Emmett "Rosie" O'Donnell achieved a measure of fame as a football player, and later as coach of the West Point team. This fame was enhanced by his wartime association with the Commanding General, Army Air Forces. General "Hap" Arnold brought O'Donnell, then a colonel, back to Washington from the CBI in 1943 because—among other virtues—he was honest and outspoken. Rosie became one of the "Old Man's" special favorites because, also, he didn't take himself or anybody else too seriously. Rosie had the ability to tell a ridiculous story to puncture a spuriously solemn occasion, or to pull off a wildly absurd stunt with just the right aplomb.

For a year Colonel O'Donnell served on General Arnold's "Advisory Council," a ministry without portfolio, which at one time or another also included "Pre" Cabell, Larry Norstad, Jake Smart, and Fred Dean, every one of whom ultimately made three stars or better.

One day, Rosie was ushered into the great presence with a proposed solution to a sticky problem involving the new B-29s, which were catching fire in the air. While the General was reading through it, the Pentagon air-raid alarm system, which operated through the clocks, sounded off in its daily test proclaiming the arrival of high noon. The alarm was loud, incessant, and abrasive in tone.

"Goddam it, Rosie, can't you stop that thing!" the General wailed. Whereupon, O'Donnell grabbed the glass inkwell off the General's desk and flung it at the offending clock on the wall. The inkwell missed the clock but penetrated the wallboard partition separating the General's office from the rest of his suite, shattering in splinters on both sides while the ink dripped down each side of the wall, a grotesque double-Rorschach.

General Arnold exploded in uncontrollable laughter, while his dubious staff, still shaking from the effects of the shock wave, politely joined in the mirth.

I asked General O'Donnell during a recent interview whether he had thought through the possible negative consequences of his overwhelming impulse. Suppose it had backfired? He said that if there had been time to think about it, he never would have done it.

—CONTRIBUTED BY DR. MURRAY GREEN, OFFICE OF AIR FORCE HISTORY

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

Moderi



Aircraft of Turkey's 1st Tactical Air Force salute the visiting NATO nations during final ceremonies of Best Hit '71, AIRSOUTH's Annual Tactical Weapons Meet won by Turkish Air Force's 111th Squadron from Eskisehir AB.

INTERNATIONAL cooperation and competitive zeal went hand-in-hand as aircrews from three of NATO's Southern Region nations responsible for the defense of the all-important Southern front, plus a combined US Navy/Air Force guest team, took part in "Best Hit '71," AIRSOUTH's Annual Tactical Weapons Meet—this year held in July at Eskisehir Air Base, Turkey.

After a lapse of fifteen years, the 1971 meet brought together pilots from the air forces of Greece, Italy, and Turkey competing for the AIRSOUTH Commander's Trophy. In previous meets, each of the nations scored a victory for the AIRSOUTH Challenge Trophy during the years 1954 through 1956.

Last year a meet was scheduled at Istrana Air Base, Italy. Only the Italian and Turkish Air Force teams competed, representing the 5th and 6th Allied Tactical Air Forces respectively, plus a USAF guest team.

Although 114 sorties were flown, the meet was ruled incomplete because inclement weather forced a cancellation of the events needed to select a winner.

The aim of this year's meet, which was open to all assigned forces of Allied Air Forces Southern Europe, was to serve as an incentive for the continual improvement in the overall weapons-delivery ca-

This year, aircrews of NATO's Southern Region nations met at Eskisehir AB, Turkey, to compete in AIRSOUTH's tactical weapons meet. The host team clung to its early lead, and emerged the winner of . . .

Best Hit '71

Weapons in an Old-World Setting

By Lt. Col. Harold A. Susskind, USAF

pability of AIRSOUTH's air forces.

Best Hit '71, conducted at Eskisehir Air Base—home of the 1st Turkish Tactical Air Force—ran for four days, with each of the teams alternately flying afternoon and morning missions over the Osmaniye Range, eighty-five miles south of the Black Sea.

A unique aspect of the meet was

that it showed five different air weapon systems in operation. The Turkish team flew North American Rockwell F-100s; the US team used Ling-Temco-Vought A-7As and McDonnell Douglas F-4Es; the Hellenic team piloted Northrop F-5As; and the Italian team used Fiat G-91s.

Competition, as expected, was keen. Suspense mounted as the meet

moved toward its final hours. On the second day, the Turkish team overcame the slight first-day lead held by the Greek team. Building what appeared to be an insurmountable lead through the second and third days, the Turkish team had to scramble to stave off the last-minute rally of the US guest team.

Passing high over shepherds



Opening-day ceremonies of Best Hit '71 were attended by aircraft and aircrews of the participating nations. A unique feature of the meet was the competition among five different types of aircraft: Italy's Fiat G-91s, Greece's Northrop F-5As, Turkey's North American Rockwell F-100s, and the US Navy's Ling-Temco-Vought A-7As and USAF McDonnell Douglas F-4Es (the last three shown above).

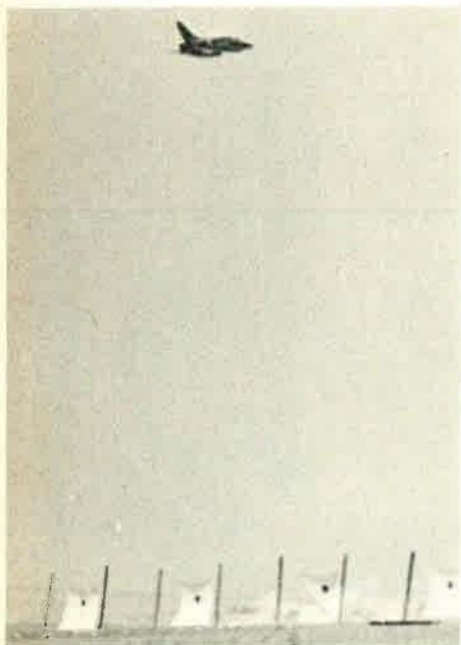


Col. J. P. Finch, USAF, chief judge of AIRSOUTH's Best Hit '71, briefs members of the Hellenic Air Force and US guest team prior to an afternoon mission on Osmaniye Range 85 miles south of the Black Sea.

It is landing gear up as a Fiat G-91 of the Italian Air Force takes off from Eskisehir Air Base on one of the navigation missions during the meet.



Sleek-looking Northrop F-5As of the Hellenic Air Force line up on the ramp as if for inspection, their canopies at "present arms."



A Turkish Air Force F-100 pulls up after blasting a target during a strafing run. The Turks won the meet with a final score of 596 points.

guarding their flocks as in ancient days, and then dipping low over the fields of golden grain surrounding the range, the F-4Es of the USAF element kicked up the dust as their rapid-firing Vulcan cannons zeroed in on the white cloth targets. But the Phantoms' bid for victory fell short.

Final standings showed the Turks with 596 points. The US guest team had 538, the Italians 464, and the Greeks 422. By winning, the Turks moved one up on their Southern Region allies.

US pilots won two of the three individual awards. Air Force Maj. Harvey Kimsey took strafing honors, and Navy Lt. John Sherm was first in rocketry. Capt. Omero Cominato, of the Italian Air Force, won the dive-bombing trophy.

High-scoring pilot of the meet was USAF Maj. Roger Jacquith with 129 points, followed by Turkish pilots Capt. Dincer Adar, with 116, and Lt. Yildiary Celik with 108.

Also ready for inspection and at "present arms" are the F-4E Phantoms of the US Air Force contingent. The combined USAF/Navy team placed second in the meet.





The meet champions, members of the Turkish Air Force's 111th Squadron, pose with their trophies. Overcoming an early lead taken by the Greeks, the Turks thereafter never lost their edge, despite an eleventh-hour bid by the determined US guest team.



Officiating brass, from left, are Colonel Finch, USAF; Colonel Volcan, TAF, meet project officer; Brig. Gen. Vecdi Ozgul, TAF, meet chairman; Colonel Hizel, TAF, Deputy Commander, Eskisehir AB; Lt. Gen. Fred M. Dean, USAF, Commander, AIRSOUTH; Lt. Gen. Irfan Ozaydinli, TAF, 1st Turkish Air Force Commander; and Brigadier General Ugur, Commander of Eskisehir AB.

Participants had high praise for the meet, which had representatives from ten NATO nations operating in some official capacity. They also praised the hospitality of Gen. Muh-sin Batur, Commander of the Turkish Air Force—this year's host.

"The best range we have seen," said Lt. Col. G. D. Stathopoulos, captain of the Hellenic Air Force team. "And the meet was well organized and well run."

Chairman for Best Hit '71 was Brig. Gen. Vecdi Ozgul, Senior Turkish Representative to AIRSOUTH. Col. J. P. (Doc) Finch, USAF, was chief judge, and Maj. E. P. Thurlow, USAF, was one of the meet project officers.

In discussing the meet, Lt. Gen. Fred M. Dean, who has been instrumental in reviving the weapons competition since he assumed command of AIRSOUTH in August 1968, said: "Since the NATO strategy has moved from one of all-out nuclear retaliation to one which

includes conventional operations, the emphasis is once again on the ability of each individual pilot to improve his accuracy in the delivery of various weapons. I have long recognized the value that competition plays in increasing the overall ability of a command to accomplish its mission.

"I believe that this meet served as a good yardstick to measure the progress we have made in making the pilots of the air forces of the Southern Region combat-ready. It also demonstrated that the pilots of the four nations can work together to solve common defense problems."

Best Hit '72 will be held in Greece. ■

Top strafing in AIRSOUTH's weapons meet was Maj. Harvey Kimsey, USAF, trophy in hand. Major Kimsey is with the 353d Squadron, 401st Tactical Fighter Wing, stationed at Torrejon AB, Spain.



Lt. John Sherm, USN, Attack Carrier Wing 3, displays the trophy he was awarded for chalking up the high score in the Best Hit '71 rocketry competition. In the background is the Navy flyer's A-7A.

International cooperation is the theme as ground crew members of the US Air Force's 353d Squadron, 401st TFW, discuss maintenance with one of their counterparts in the Turkish Air Force.



High scorer in both the meet and on the US guest team was Maj. Roger Jacquith, USAF, who racked up 129 points. He's with the 401st Tactical Fighter Wing, Torrejon AB, Spain.



The Housing Boom at George AFB



USAF, teamed with General Electric and various construction firms, is pioneering new ways of building high-quality, low-cost homes for military families. What's going on at George AFB and Norton AFB, Calif., is being watched "with keen interest" by the US Department of Housing and Urban Development.

THE AIR FORCE has helped bring major, welcome changes to the way houses are built. An innovative technique, pioneered under Air Force contract and involving industrialized (factory mass-produced), modular housing, is providing low-cost, high-quality, durable, attractive, individualized, and comfortable homes for military families. In addition, it has direct and significant application to the civilian housing market.

The first stage of the project involves constructing a complete residential community

composed of a variety of homes—ninety three-bedroom and ninety four-bedroom town houses, nineteen two-bedroom apartments, and four four-bedroom ranch-style houses—at George AFB, Calif. The first twenty-four units are now ready for occupancy.

General Electric's Reentry and Environmental Systems Division, teamed with a conventional building firm (Del E. Webb Corp. of Phoenix, Ariz.), is producing and installing the new housing under a \$5.4 million contract. A follow-on contract of about \$5.5 million was

Progression from combined plaster mold/steel-frame wall panels to modules that can be erected at the site is swift under the USAF method.



awarded in July of this year to General Electric, and provides for a second project of 250 single-story and duplex homes at Norton AFB, Calif. There, GE will be working with the A-J Construction Co. of San Bernardino, Calif.

The basic modules for both projects are constructed at GE's housing factory in nearby Apple Valley, Calif., and trucked to the building site. Because the modules leave the factory in completed form, all that is necessary is to mate them at the building site—a process that requires only a small labor force.

Spokesmen for the US Department of Housing and Urban Development (HUD), which is monitoring the progress of the Air Force program "with keen interest," told AIR FORCE Magazine that the "George AFB project is breaking new ground in the field of housing technology of significant importance to the civilian housing field."

HUD is conducting a large-scale demonstration program—"Operation Breakthrough"—designed to stimulate industrialized housing. It incorporates some of the techniques developed for the Air Force.

The key feature of the Air Force project technology is that seven basic subassemblies,

or modules, are used in building a variety of high-quality homes, different in internal configuration and external appearance. The modules feature innovative construction techniques that include:

- One-piece, cast plaster walls and ceilings, rated by HUD as a significant advance in construction technology.
- Steel wall framing that provides close tolerance and easy assembly.
- Honeycomb floor panels that employ basic aerospace technology for good strength/weight ratios, rigidity, and compactness.
- A utility core unit, called a "chase," that contains all plumbing and heating pipes and vents, air conditioning, and wiring. Similar plug-in utility units have been used by European manufacturers, but this is believed to be their first use in the United States.

Construction costs vary from location to location because of different labor rates, but both Air Force and HUD officials are confident that the new technology will "at least neutralize the inflation in building costs, which are increasing at an annual rate of about seven percent."

—BY EDGAR ULSAMER



All that's needed to erect a town house at the building site is a small work force and a conventional crane. Modules, including the utility core units, leave the housing factory in finished form. Landscaping is the only remaining task before the homes can be occupied.



Ever tried to ship 165 pounds of black and white spots from Washington, D. C., to Naples, Italy? Sounds simple, but when the black and white spots encase a large and rambunctious Harlequin Great Dane, then your troubles begin to multiply—fast!



Commander and his "FLY"

By Lt. Col. Harold A. Susskind, USAF

CARTOONS BY "JAKE" SCHUFFERT

IT ALL started when I got orders transferring me to AIRSOUTH at Naples. When I broke the news to my family, Rae, my wife of twenty-one years and nineteen different houses, was enthusiastic; son Mike, a sophomore at Rice University, said, "So what else is new, Dad?"; teen-age Susan had visions of those exciting Italian clothes; Christine, our eleven-year-old walking encyclopedia, asked, "Who wants to live near all those old volcanoes?"; hungry John, the precocious six-year-old, said, "Oh boy, spaghetti for breakfast!"

Then came the moment of truth. "What will we do with Fritz?" they wailed in unison.

"We'll take him," I said bravely but reluctantly. Instead of thanking me, the kids hugged Fritz.

"Naples, Fritz?" they asked, waving my orders under his nose.

Fritz reacted quickly. He ate the orders.

Have you ever tried to ship 165 pounds of black and white spots from Washington, D. C., to Naples, Italy?

Sounds simple, but when the black and white spots encase a large and rambunctious Harlequin Great Dane, then your troubles begin to multiply—fast.

For starters, I called a friendly aviation editor. He said dogs were out of his line unless they were pilots. He told me to call the Washington, D. C., Public Relations Director for Trans World Airlines. This I did, and received sympathy and help. He sent me a "doggie kit" with all the dope on shipping dogs to Europe by air. It had information on fares and even listed the sizes of available crates. But the biggest crate was only thirty inches high. Fritz stands thirty-four inches—at the shoulders.

Now what? My cowardly mind went to work.

"Why don't we send Fritz up to New York to stay with your father? He can ship him on to us once we get settled," I casually suggested to my wife.

My father-in-law was the comedian who thought the dog would be a great birthday present for my wife.

He arrived one Saturday, unannounced, accompanied by "Commander Fritzgerald" himself. I was relaxing in the living room of our home in Virginia, gazing out the glass doors in a sleepy haze from which I quickly emerged.

"I don't believe it!"

"You don't believe what?" my wife replied.

"First, your father is out on the patio. Second, he is leading what looks like a spotted calf!"

With that, the doors slid open and the monster pranced into the living room. With a joyous wag of his tail, he cleared the coffee table—ashes, ash trays, butts, and all.

Eventually he settled down, stretched out on the floor, and went fast asleep. It was my first experience with a wall-to-wall dog.

And now I had to ship him all the way to Europe.

A custom-built crate seemed the only answer so I started my fingers walking through the Yellow Pages.

I began with carpenters, but their estimates sounded more like the Taj Mahal than a dog crate.



itzgerald NG CRATE"

My wife had an idea. Why not try a kennel that specializes in shipping dogs?

Back to the Yellow Pages.

"Yes, we ship dogs. What kind

do you have?" was the reply to my first ring.

"A Great Dane," I said and then sprang Fritz's outsize measurements on them. They didn't have a crate that would fit but could recommend a man who built them.

I called him. With the aplomb that can only come from years of dealing with dog owners, he asked, "What are the measurements?"

"Thirty-four inches at the shoulder."

"How long?"

"Fifty inches from nose to rear end."

"How big when he lies down?"

"Wait a minute . . . I'll measure him," I replied. Then to Fritz: "Lie down!"

I was lucky. In a rare fit of obedience he collapsed on the floor.

"He is sort of lying down and he measures forty-eight inches, but if you count his paws stretched out over his head, you need another twelve inches."

I persuaded Fritz to roll over on his side and chalked his outline on the rug. That measured thirty-four

by forty-eight inches, but his tail stuck out another seventeen inches. I passed these figures on to the craftsman.

By this time the rug was starting to resemble a sidewalk finger painting.

Ultimately, my ark maker made his command decision: "The crate will have to be fifty-three inches long, thirty-five inches wide, and thirty-five inches high. It will cost \$45." I told him it was a lot of money. I'd call him back.

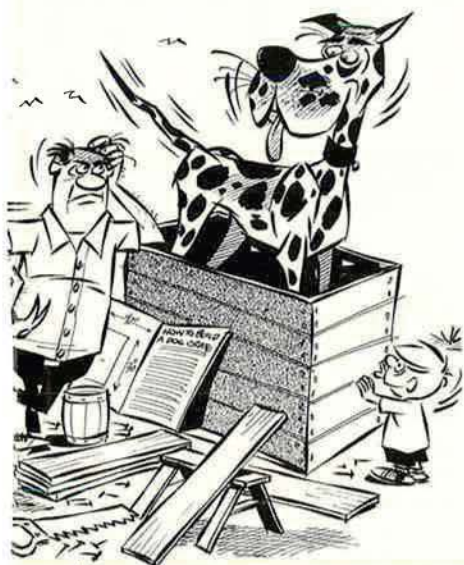
My wife is a comparison shopper. She called another kennel, one near Dulles Airport.

We were in luck. The kennel was an experienced dog shipper. They were shipping a German shepherd to Naples that night. They had a large crate on hand that had been used to ship a St. Bernard to Newfoundland and a Newfoundland back to Washington.

They suggested a fitting.

The next day we packed Fritz in the back of the station wagon and set out for the kennels.

Fritz liked the kennel—or at least



"A CUSTOM-BUILT CRATE SEEMED TO BE THE ONLY ANSWER . . ."

the way it smelled. While Fritz was checking other things, we checked the crate.

"It's great, but you'll never get him in it," I told the manager.

He opened the door. Fritz walked right in, turned around, and sat down.

I beckoned him out. He came, but reluctantly.

"Okay. See if he will go in again. That was an accident."

I knew Fritz like a book. He walked right back in, turned around, lay down, and yawned.

"Call TWA and tell them they've got a sleepy passenger," I said.

The woman dialed TWA Market-air and reserved space for Fritz to arrive in Naples one week following our scheduled departure.

She gave TWA the size and weight of the crate. Then she turned and asked, "What does Fritz weigh?"

"A lot," I said.

But that wasn't close enough. If the combined weight of the dog and crate exceeded 210 pounds, Fritz was in trouble.

Putting down the phone, she asked her assistant to bring out the scale.

Out came a bathroom scale, and they told me to get on and weigh myself.

"One sixty-four," I called.

"Okay, now pick up Fritz and get back on," she told me.

"I'll get a hernia," I sputtered.

"But we need his weight."



The real-life Fritz poses with the Susskind children before the flight to Naples.



THE FIRST TIME WE TOOK HIM OUT OF THE PENSIONE GROUNDS, HE BOLTED AND BROKE HIS CHAIN---

"But do I need a hernia?" I roared.

I grabbed Fritz under the chest and he went limp, a dead weight in my arms. A lot of dog drooped over at both ends as I struggled to get on the postal-size scales.

"Wait a minute," the helper yelled. "The scale only goes to 250!"

We tried balancing the crate on the scale, but it was too big. All this time the airline people were waiting on the phone.

We were getting nowhere fast.

By this time Fritz had had enough of this nonsense and made a flying leap. I wound up on my back.

"Use my weight. Put him down for 164," I said. "If he weighs more than that, I'll go in the crate and he can have my seat."

"The dog weighs 164," the kennel manager told the airline people, and Fritz had his reservation for a flight to Naples.

The next evening, the Susskind family, sans Fritz, took off from Dulles in a summer thunderstorm, bound for Rome. After a few days there, we moved to Naples—our new home for the next three years.

Our pensione was on a main thoroughfare, and the traffic noises were maddening. We told the manager we had a large dog coming and asked if he would mind if the dog stayed with us until we found permanent housing?

He liked dogs, he said. No problem.

The following Sunday afternoon we set out for Naples' Capodichino Airport, with the Brooklyn-born sergeant who worked for me. He knew Naples and also spoke Italian fluently. We figured we had all the angles covered.

All but one. The Alitalia jet Fritz was scheduled to be on pulled up and cut its engines. All the passengers and baggage came off, but no Fritz.

My eleven-year-old started to cry, then the older girl, then John.

The author, Lt. Col. Harold A. Susskind, is a veteran USAF Information Officer, now based at Naples, Italy, at Hq. Allied Air Forces Southern Europe (AIRSOUTH). In that capacity, he describes, elsewhere in this issue, the tactical weapons meet held this summer at Eskisehir, Turkey. Colonel Susskind is also the author of the article "World War II Revisited—Memories of Molesworth," that appeared in AIR FORCE in the November '70 issue. The cartoons accompanying "Commander Fritzgerald and His Flying Crate" are the work of "Jake" Schuffert, creator of "No Sweat," who learned his art by sketching the lighter side of the Berlin Airlift. He is now retired from USAF and is a member of the staff of Airman Magazine.



"WHEN THE MANAGER SAW FRITZ, HE WAS SPEECHLESS..."

"He's dead," they wailed, "and they don't want to tell us!"

My wife was beginning to cloud up, too.

My sergeant moved in. Grabbing an airline employee by the arm, he spouted Italian at him. Off went the employee to look for Fritz.

When he returned, he said, "Your dog is in Rome. TWA realized that there was no vet on duty on Sunday in Naples so they are keeping him overnight in their hangar in Rome. He'll be in sometime tomorrow afternoon."

The next afternoon, we were back at Capodichino.

Fritz, still in his crate, was already there. But there were customs papers to be filled out before we could see him.

Upstairs to customs I went, with my sergeant. Even after five years in the Pentagon, I never knew what paperwork really could be.

"I'd like to get my dog," I said.

"Do you have the 400-lire piece of paper?" I was asked.

My sergeant and I exchanged blank looks.

"Where do we get that?"

"Downstairs."

After we finally found the "400-lire piece of paper," we began the rounds. Fifteen offices in sequence, where fifteen people signed and stamped the 67¢ document.

Two hours and 9,000 lire (\$15) later, I was cleared to let my dog onto Italian soil.

By that time my wife and children had found Fritz in a hangar. His crate was surrounded by curious Italian airline employees, two of whom were trying to give him a drink. One rapped at one end of the crate to get Fritz's attention while another opened the door and slipped in a bowl of water.

I showed them the paper that entitled me to possession of the dog. I talked soothingly to Fritz through the screened opening, then opened the door of the crate.

The hangar suddenly became a place whence all but us had fled. Fritz rocketed out of the crate like a brahman bull coming out a rodeo

chute. The more he pranced and jumped, the further the airline employees backed away.

When he had calmed down enough to get into the car, we were off to the *pensione*. When the manager saw Fritz, he was speechless. And a speechless Neapolitan is the Eighth Wonder of the World. A big dog was one thing, but this was ridiculous. The housekeeper took one look at Fritz and fled in terror.

As long as we walked Fritz outside the fence enclosing the grounds and kept him off our beds, there would be no problem, the manager told me, with obvious misgivings.

But the first time we walked Fritz outside the *pensione* grounds and into the roar of the traffic, he bolted and broke his choke-chain collar.

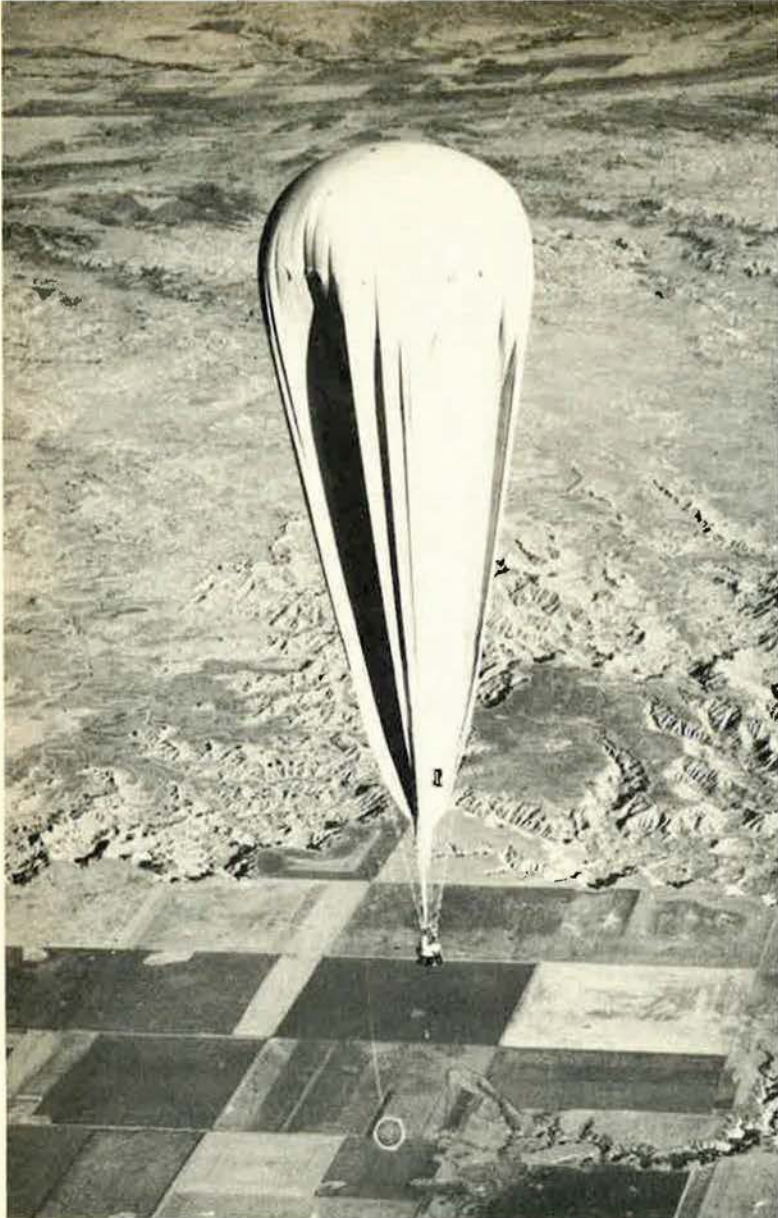
If we left him in our rooms, the housekeeper wouldn't come in to clean. One day a painter arrived, unannounced, to do our shutters. He climbed up the ladder, put his hands over the sill, and was eyeball to eyeball with a very large beast whose hot breath was singeing the hair on his arm. The fact that the beast had one brown eyeball and one blue didn't help. Our shutters never got painted.

While I sit here recovering from my hernia operation and think back, it has been quite a year since Fritz landed in Italy.

Fritz has learned to like Italians. But we try to limit him to one a day. ■



"FRITZ HAS LEARNED TO LIKE ITALIANS -- BUT WE TRY TO LIMIT HIM TO ONE A DAY!!"



—National Geographic Society photo

November 11, 1935: The Explorer II lifts Capt. Orvil Anderson and Albert Stevens and their scientific instruments above the rugged Badlands of South Dakota to the edge of earth's atmosphere.

After a terrifying near-disaster in the National Geographic Society's Explorer I balloon, two Army Air Corp officers penetrated the stratosphere to a record height in November 1935. Their scientific investigation of the upper atmosphere was . . .

Our First Into

By the early 1930s, specially equipped aircraft were beginning to penetrate the atmosphere almost to the lower limits of the stratosphere. In those days, the only means to go any higher in order to accumulate data that would be needed for high-altitude flight was by balloon. In 1933, US Navy Lt. Cmdr. T. G. Settle and Marine Corps Capt. Chester L. Fordney soared to 61,237 feet. A Russian team reached a record altitude of 72,182 feet the following January, only to be killed during their descent.

At the Army Air Corps's Wright Field, Dayton, Ohio, high-altitude research had been under way for some time. The Air Corps and the National Geographic Society announced, in the spring of 1934, that they would jointly

sponsor a stratosphere balloon flight to study cosmic rays, the ozone layer, and the effects of high altitude on man. The Society agreed to finance the expedition; the Air Corps would provide pilots and ground personnel.

For this task, the Air Corps chose three of its most experienced balloonists: Maj. William E. Kepner, flight commander; Capt. Albert W. Stevens, scientific observer; and Lt. Orvil A. Anderson, operations officer.

Goodyear-Zeppelin Corp. of Akron, Ohio, was commissioned to manufacture a 3,000,000-cubic-foot balloon—more than three times as large as any previously built. Dow Chemical Co., Midland, Mich., constructed the magnesium alloy gondola. A committee of scientists, headed by Dr. Lyman J.

Briggs, Director of the National Bureau of Standards, determined what experiments would be performed and selected the 3,000 pounds of scientific equipment that would go aloft to a hoped-for altitude of 75,000 feet.

The partially inflated balloon would tower to a height of 307 feet. It had to be inflated in some deep depression that would protect it from the wind. After surveying several areas, Kepner and Anderson selected a natural bowl near Rapid City, S. D.

The flight generated national interest almost comparable to that of an Apollo mission today. By June 20, 1934, Army troops from nearby Fort Meade had set up a camp for more than 100 people near the Strato Bowl. Medical facilities, telephones, teletype,



Suited up for the stratosphere flight of Explorer I in the summer of 1934 are, from left, Capt. Albert W. Stevens, the scientific observer; Maj. William E. Kepner, flight commander; and Lt. Orvil A. Anderson, operations officer. Explorer I came to grief after reaching 60,613 feet, but the crew survived a harrowing descent.

Long Step Space

by Lt. Col. John H. Scrivner, Jr., USAF

and a weather station were ready. The National Broadcasting Co. began its radio coverage of the event.

On July 9, the wife of the governor of South Dakota christened the balloon *Explorer*, and the "countdown" was on. A "hold" for the necessary weather conditions—clear skies and calm winds—lasted until the night of July 26, when a high pressure system moved in from the west, promising two days of cloudless, calm weather.

The following account of the stratospheric expedition has been adapted from Lt. Col. John H. Scrivner's doctoral dissertation, "Pioneer Into Space: A Biography of Major General Orvil Arson Anderson," submitted to the graduate faculty of the University of Oklahoma in 1971.


AT NOON on July 27, 1934, Major Kepner announced that inflation could begin. Anderson—recently promoted to captain—took complete charge of all ground operations. The camp became a flurry of activity. The balloon was unboxed and the endless folds of material stretched out on the sawdust-padded circle. Busloads of soldiers arrived from Fort Meade, took off their shoes, and waded into the cloth to toss it around and loosen any folds that might trap the hydrogen gas.

Miles of handling ropes were attached to the catenary band, while the inflation hoses were connected to the hydrogen cylinders that were stacked like cordwood just outside the inflation circle.


Slowly the long anchor ropes, looped through eyelets attached to the balloon, were let out and the balloon was allowed to rise from the ground until it floated upright in the gathering shadows of late afternoon.

Apparently as a last-minute decision, Captain Anderson was notified by Kepner that he was being added to the crew for the flight. From the beginning Stevens had planned the flight around a two-man crew, with Anderson a backup in case of emergency. But, as more and more experiments were added, it became evident to Kepner that two men would have more than they could safely handle. And since Stevens was not a qualified balloon pilot, he might have difficulty in handling the big bag in case of an accident incapacitating Kepner.

The gondola was large enough to hold all three in addition to the instruments, and Anderson had participated in all of the testing exercises to ensure his readiness in case he was needed. When he was added to the crew, late

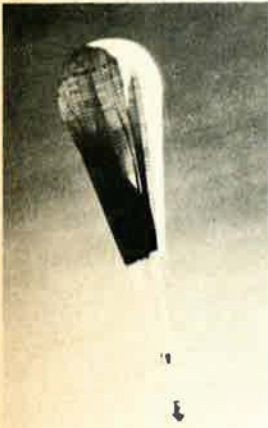


in the afternoon of the 27th, he was unprepared only to the extent that he had to call his wife and send her scurrying out to purchase a set of long underwear before the Rapid City stores closed.




Excitement mounted as darkness fell. The circle of floodlights bathed the floor of the bowl in near-daylight brightness, illuminating the teardrop-shaped balloon suspended motionless above it. During the night the black and white gondola was wheeled from its shelter and fastened by ropes and straps to the balloon.

At dawn, when all was in readiness, Kepner and Anderson kissed their wives and, with Stevens, walked out to the gondola. Anderson and Stevens climbed inside while Kepner stood on top to supervise the castoff. Eighty pounds of ballast were released, the final constraining ropes were dropped, and *Explorer I* lifted off at 5:45 a.m.



The huge bag rose more rapidly than had been expected. With no previous experience in the handling of balloons of this size, Kepner and Anderson were kept busy outside securing equipment and lowering instruments that were to dangle beneath the gondola. Captain Stevens, still inside, had to set his instruments at a much more rapid rate than had been anticipated and to valve hydrogen on instructions from the two pilots outside. In thirty minutes the balloon had reached 14,500 feet, forcing the accompanying chase planes to climb at near maximum rate to keep up with the *Explorer*.

The balloon was leveled off temporarily and Kepner finished work on the outside, ordering Anderson inside. The Major followed and the gondola was sealed and made ready for altitude. Liquid oxygen was poured into its evaporation container and the cabin, except for the lower temperatures, became reasonably comfortable. More ballast was released and the balloon resumed its ascent to the stratosphere. Stevens was busy recording instrument readings and handling the cameras.



The trip up was unbelievably smooth. All instruments functioned perfectly. Then suddenly, at 57,000 feet, things began coming apart—literally. Anderson, looking up through the vertical porthole, saw huge rips in the balloon's fabric. Alongside a triangular tear about thirty feet long were three other rips of varying lengths. The planned height of 75,000 feet was now out of the question. The problem became, instead, one of staying below 65,000 feet where the envelope would reach a fully inflated state.

Anderson began to valve hydrogen to stabilize the balloon at 60,000 feet. But the big bag continued to rise as the superheated hydrogen carried the gondola past the planned leveling altitude and up toward certain disaster. Then, at 60,613 feet the balloon leveled off. At

1:40 p.m., it began to descend at between 500 and 600 feet a minute.

While Stevens continued with the experiments and Anderson controlled the descent, Kepner attempted to answer the flood of questions that were coming in from radio stations, from Washington, and from the base camp.

Anderson was valving with one hand and controlling the ballast release with the other, while he watched through the top porthole as the rips increased. Kepner was in contact with Brig. Gen. Oscar Westover in Washington and reported to the General: "The bottom of the balloon is pretty well torn out and it is just a big hole. . . . I don't know how long she is going to hold together. But there is nothing to do about it but come down as long as we can, and come down as easy as we can."

While the rips in the fabric gradually lengthened, they did stay below the critical catenary band. The balloon seemed to stabilize itself during the descent and the crewmen felt increasingly confident that it would be possible to ride the torn bag down. The first objective—40,000 feet—was reached with a major part of the envelope intact. Anderson suggested, and Kepner agreed, that the gondola be kept sealed until they reached 30,000 feet.

At 20,000 feet Kepner ordered the manhole and emergency doors opened. There was enough liquid oxygen remaining inside the gondola to permit a quick gulp of almost pure oxygen if needed. The opened doors allowed a closer inspection of the bag, which had now begun, as Anderson described it, to "breathe." As it alternately expanded and contracted, the strain on the fabric caused the lower portion of the bag below the catenary band, which held the ropes that ran to the gondola, to rip off and fall down the load-carrying hawsers onto the top of the gondola.

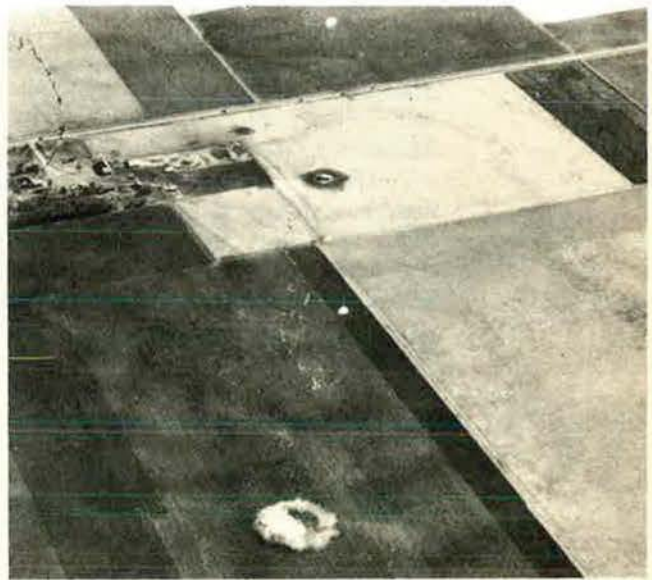
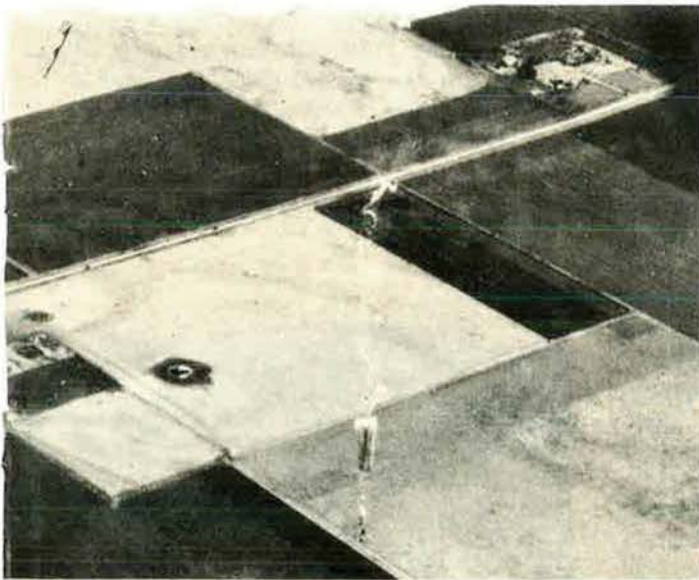
Anderson climbed out and began to cut away the fabric—almost an acre of it—with a rigger's knife, throwing the pieces overboard. The "breathing" process had torn away all of the thinner bottom part of the bag in which the initial tears had been observed. Only the top half of the envelope remained, now open to the air at the bottom but still full of rapidly cooling hydrogen gas and acting much like a parachute for the gondola suspended beneath it.

Anderson was for staying with the damaged balloon, but Kepner decided it was safer to abandon the *Explorer*. Stevens gave the final altitude reading at 5,000 feet and strapped on his parachute. Kepner, by prearrangement, climbed on top of the gondola, and Anderson started to follow him, only to discover that Stevens had inadvertently caught his foot in the pull ring of Anderson's parachute and popped it open. The life-saving white silk now lay in a crumpled heap at his feet.

Anderson picked up the cloth folds and climbed out of the gondola. Gathering the silk



On its way to a planned altitude of 75,000 feet, Explorer I began ripping apart, and the balloonists had to valve hydrogen to start their descent. At left, the balloon is at 8,000 feet, falling at about 700 feet per minute. The torn fabric hangs down all the way to the gondola, 100 feet below. In the background is the Platte River. Lower left: The remaining hydrogen in the torn envelope has exploded, and what's left of the balloon is now about 800 feet above the ground. One parachute is visible just above the remains of the balloon and another is near the top of the picture. Below: The gondola craters a drought-parched cornfield near Loomis, Neb., ending the ten-hour, thirty-five-minute flight of Explorer I. The gondola is covered by the sleeve of the balloon fabric, which remained attached after the explosion. Two of the balloonists' parachutes are still in the air, above and slightly to the right of the gondola.



to his chest, he fell backward off the gondola, now less than 3,000 feet above the ground. Just as he did so, the remaining hydrogen trapped in the torn envelope above him exploded.

Stevens, still inside the gondola, was unable to get out of the manhole on his first try as the sphere began to spin crazily and pick up speed in its almost-unhindered fall. On his second try he dived through the opening only to find that his speed of fall exactly matched that of the gondola.

He ripped open his parachute, which billowed above him, but huge pieces of the balloon cloth fell on top of the chute, threatening to collapse it. Fortunately, they quickly slid off and Stevens looked down in time to see Kepner's parachute open at about 500 feet. Almost immediately the gondola smashed into the drought-parched earth on the farm of Reuben Johnson, four miles north of Loomis, Neb. It was 3:40 p.m. The flight had lasted ten hours and thirty-five minutes and ended in near disaster. In hope that the balloon would hold together long enough to land, the eighty-foot

parachute attached to the side of the gondola was not deployed. By the time the explosion occurred, it was too late to use it.

Across the nation, millions of radio listeners joined those at the Strato Bowl in waiting out the silence from the gondola. There was no doubt in anyone's mind that the balloon had crashed. As suspense grew almost unbearable, the three crewmen landed safely close by the stricken balloon and dashed to it, barely beating the gathering crowd of souvenir hunters who had watched the balloon's descent from miles away across the level plains. Kepner immediately telephoned the nearest military installation. His report was flashed to the Strato Bowl, and from there to the listening nation.

The three men had soared to an altitude just 624 feet below the record set earlier by Settle and Fordney. A bit more than two balloon lengths remained between them and the world's record. Instead, at their feet lay the gondola "... squashed like an eggshell." The largest piece was barely four feet square.

Of the instruments inside hardly anything remained except the barograph, which recorded



November 1935: Army Air Corps Capts. Orvil Anderson (left) and Albert Stevens pose before the gondola that on November 11 they would ride to a record-breaking altitude of 72,395 feet. The photo was made at their encampment near Rapid City, S. D.

the exact height reached as 60,613 feet. But none of the instruments or the gondola had failed at a crucial time, and much valuable experience in handling larger balloons had been gained. With a better, stronger balloon, it was certain that man could safely go higher.

A New York *Times* editorial soon after the flight summed up the feelings of the nation despite the failure of *Explorer I*. "Never was there drama like this . . ." the writer began. It was not luck that saved the men, the editorial went on to say, but experience, and this fact vindicated the Air Corps's selection of the three men, showing not only "soundness of judgment but the quality of its officers." The same curiosity that led men like Columbus to venture across the seas sent these men into the stratosphere. "As Kepner, Anderson and Stevens have proved, the satisfaction of scientific curiosity still calls for the physical courage and the fiber that we associate with true argonauts."

Almost immediately after the crash of the *Explorer I*, a Board of Review was appointed to investigate the cause of the accident. The balloon had cost less than \$60,000 for the envelope, the gondola, and the instruments. Much of the equipment had been donated or furnished at cost, and most of the expense was borne by the National Geographic Society. The entire apparatus was insured by Lloyds of London.

The Board's report, filed less than a month later, found that there had been no negligence on the part of the three crewmen. The rips in the balloon envelope were caused by improper packing, which allowed the thin fabric to stick together in such a way that stress, above the level of tolerance, was placed on the thinnest sections of the material. Once this was ripped away during the descent, the final explosion was caused by a spark of static electricity igniting the highly volatile hydrogen-oxygen mixture still in the parachute-like remnant of the balloon. On the basis of this finding, the insurance company paid close to \$40,000. It was enough, along with some additional contributions from individuals, to build another balloon

for a second flight. The Air Corps/National Geographic expedition, planned for two or possibly three flights, would go on.

[A second flight, with a slightly larger balloon and gondola, was planned for June 1935. While preparations were under way, both Kepner and Anderson were selected to attend the Air Corps Tactical School at Maxwell Field, Ala. Major Kepner accepted and withdrew from the Explorer II crew. Captain Anderson asked to remain with the project. Captain Stevens now became the flight commander, with Anderson as pilot of the two-man crew.

Launching Explorer II was delayed by weather for nearly a month. On July 11, the weather improved. The ground crew, under the direction of Capt. Randolph P. Williams, began inflating the 3,700,000-cubic-foot envelope. At 3:00 a.m. on July



On November 11, 1935, Explorer II is readied at the Strato Bowl camp—a natural depression in the earth that served to protect the balloon from winds before launch. The record-setting flight began at 7:00 a.m.

12, as nearly 50,000 people watched from the rim of the Strato Bowl, an explosion ripped the fabric so badly that the flight had to be abandoned, and the envelope returned to the Goodyear-Zeppelin plant for repair.]

In September 1935, the crew, scientists, their families, and the military detail were reassembled and the Strato Bowl camp established a third time. By the first day of October, the camp was ready to launch the repaired balloon. Once again the long wait for the right weather conditions began, this time with the added handicap of temperatures that dropped at times to six below zero and snowstorms that kept the ground crew busy clearing the launch area.

Early in November, the weather began to improve. Preparations for inflating the huge bag were begun on the morning of November 10. The envelope was removed from its air-sealed crate, and, despite the thirteen-degree cold, the inflation proceeded without incident. The fabric became appreciably stiffer in the cold air and Anderson watched with concern as the gas was released into the cloth folds.

Barely 20,000 cubic feet of helium had flowed from the cylinders into the balloon when there was a muffled explosion somewhere beneath the already-bulging top of the bag. The helium was shut off and a search begun for the torn section. It took an hour to discover the spot where the helium, trapped in the stiff fabric, had caused a seventeen-foot rip. On-the-spot repairs, while possible, carried an element of risk with them since the rubber cement used would not have time to cure properly before launch. But Anderson would not accept cancellation of the flight without a thorough try. The rip was just below the "equator" of the bag, a place where stress on the material was not great until the bag was fully inflated at close to 60,000 feet.

Anderson grabbed his repair crew and dashed into the folds of the balloon. Army personnel held up the material all around them to form a smooth surface for the repair and to give protection from the cold during the crucial work. With a roll of fabric, a can of rubber cement, and two 500-watt light bulbs to warm the cement while it dried, the repair crew com-

pleted its work in an hour. The delay put the inflation schedule two hours behind; takeoff time slipped to 7:00 a.m.

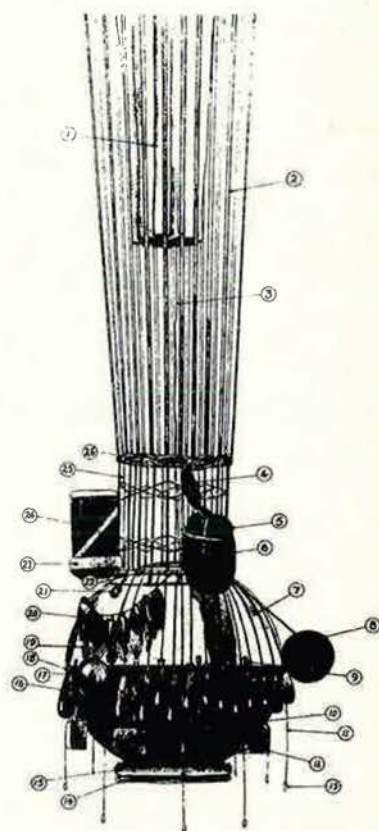
To compensate for a slight wind that had arisen during the delay, the *Explorer II* was ground-walked to one side of the Strato Bowl. It was balanced off and the signal given to the maneuvering crew to release the ropes holding the 15,000-pound balloon. The band struck up the National Anthem and thousands of chilled people who rimmed the bowl watched breathlessly as the silver-colored bag rose rapidly, clearing the rim of the bowl by an ample margin.

As the crowd cheered, *Explorer II* appeared well on its way when a sudden wind current hit the top of the bag, forcing it toward the ground. Anderson rapidly jettisoned more than 800 pounds of ballast, tiny lead pellets that rained down on the upturned faces below. The ballast release was enough to check the descent of *Explorer II* and to allow it to resume its climb.

At 16,500 feet, Anderson valved the balloon to a stop for a final outside inspection, then climbed in and sealed the manholes. With the gondola checked for pressurization, ballast was released and *Explorer II* continued its rise—though, because of the earlier launch delay, not stopping at the 60,000-foot mark as planned. This time the bag unfolded smoothly and at

EXPLORER II

- 1 APPENDIX
- 2 SHROUD LINES
- 3 VALVE CORD
- 4 PARACHUTE SHROUDS
- 5 PARACHUTE
- 6 TOP PORTHOLE
- 7 GONDOLA
- 8 DRAG ROPE
- 9 RELEASE FOR BATTERY
- 10 BATTERY CABLE
- 11 HANDLING LINE
- 12 BATTERY BOX
- 13 HAND HOLD
- 14 UNINFLATED BUMPER
- 15 INFLATED BUMPER
- 16 LEAD DUST BALLAST
- 17 MANHOLE
- 18 BALLAST BAG RELEASE
- 19 PARACHUTE ATTACHMENT
- 20 EQUIPMENT PARACHUTE
- 21 VISION PORT
- 22 CAR LOAD RING
- 23 PADDING
- 24 SPECTROGRAPH BASKET
- 25 CAR SUSPENSION ROPES
- 26 ROPE LOAD RING



The author, Lt. Col. John H. Scrivner, Jr., a distinguished AFROTC graduate of the University of Kansas, was awarded a Regular Air Force commission in 1950. After more than a decade in the logistics field, he earned a Master's degree in history at the University of Oklahoma, and, this May, his Ph.D. From 1963 to 1968 he was a member of the Air Force Academy's history faculty. Before assuming duties as Chief of History, Hq., MACV, in August 1971, he was Associate Editor of the Air University Review.

65,000 feet was fully inflated to a nearly round shape. More ballast was dropped and the balloon rose to an indicated altitude of 73,000 feet. The balloon was capable of going higher, but since a considerable amount of ballast would be needed to control the descent, Anderson elected to take no chances. The ascent was checked at what appeared to be a new altitude record.

During the ascent, Stevens had been busy exposing samples of spores, charting infrared and cosmic radiation, collecting air samples, and talking on the NBC radio network to Washington, New York, and London. As soon as possible, he turned the radio over to Anderson.

While Anderson described to the nation below the intensity of the sun's brightness above the earth's haze, the blackness of the sky above, and the vivid blue of the horizon, Stevens took man's first picture showing the division between the troposphere and the stratosphere and clearly demonstrating the curvature of the earth. He snapped the shutter at 10:50 a.m., at the *Explorer's* actual maximum height, 72,395 feet. An altitude record had, in fact, been set. The balloon remained at or near that altitude for an hour and a half



Stevens and Anderson win the MacKay Trophy for the Explorer II flight. From left: Anderson; Charles Horner, President of the National Aeronautic Association; Stevens; Maj. Gen. Oscar Westover, who received his second star in December 1935; and Dr. John La Gorce and Dr. Gilbert Grosvenor of the sponsoring National Geographic Society.

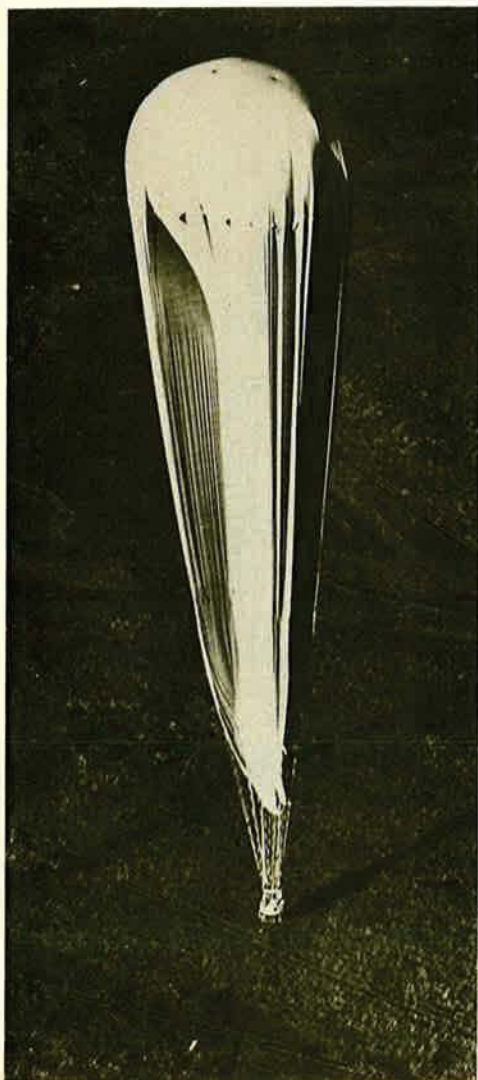
before Anderson began to valve off the heated helium to start the descent.

The balloon began its descent at a rate of about 300 feet a minute. As Anderson valved more helium, and the temperature of the gas decreased somewhat, the speed picked up to 500 and then to 700 feet a minute. By releasing ballast, Anderson slowed the balloon's descent. Gondola ports were opened at 16,000 feet, and since the flat farmland over which the balloon was passing seemed satisfactory for a landing, more gas was valved to increase the rate of descent.

As the balloon neared the ground, Anderson and Stevens put on football helmets, which they had borrowed from a Rapid City high school team for protection from the sharp edges of the instruments. For the sake of those delicate devices, Anderson had to land the balloon as gently as possible.

Now the rapid descent again was checked. The 315-foot craft floated slowly over South Dakota farms at about 100 feet—a sight that brought hundreds of pursuing cars racing down dirt roads. Anderson dropped an anchor rope to the people on the ground, but they were so interested in watching the balloon that no one grabbed hold to check the balloon's drift. There was nothing to do but let the bag settle of its own accord, which it did on a farm south of White Lake, S. D., at 3:15 p.m., eight hours and thirteen minutes after takeoff.

Just as the gondola touched ground, Anderson yanked a steel cable, ripping open the top of the bag. The fabric collapsed in a heap without dragging the gondola an inch. *Explorer II* rolled gently over on its side and came to a rest. The two balloonists climbed out, holders of an altitude record that would not be broken by another balloonist for almost twenty-two years. ■



Back safely from the fringe of space: Explorer II lands softly on a farm south of White Lake, S. D., in mid-afternoon on November 11, 1935, after a record-setting flight of eight hours and thirteen minutes. The record set by balloonists Stevens and Anderson was not broken until 1957.

JANE'S

ALL THE WORLD'S AIRCRAFT SUPPLEMENT



Model of the Panavia MRCA with wings fully extended

PANAVIA

PANAVIA AIRCRAFT GmbH; Head Office: 8000 München 86, Postfach 860629, Arabellastrasse 16, German Federal Republic

Panavia Aircraft GmbH is an international European industrial company formed on 26 March 1969 to design, develop, and produce a multi-role combat aircraft (MRCA) for service from 1977 with the

air forces of the United Kingdom, the Federal Republic of Germany, and Italy. This programme is Europe's largest aerospace project and one of the largest industrial programmes ever undertaken. The three component companies of Panavia are British Aircraft Corporation (42½%), MBB (42½%), and Aeritalia (Fiat) (15%).

The German, British, and Italian governments have set up a joint organisation

known as NAMMO (NATO MRCA Management Organisation). This has its executive agency NAMMA (NATO MRCA Management Agency) in Munich in the same building as Panavia Aircraft GmbH.

The project was the subject of a feasibility study which ended on 1 May 1969, when the project definition phase began. This ended in April 1970 and saw the completion of the detailed design work and costing.

On 22 July 1970 the UK and the German Federal Republic signed a Memorandum of Understanding. In statements published simultaneously in London and Bonn, the Defence Ministries of the two countries said that, following the satisfactory outcome of the project definition phase, it had been decided to proceed with the first major development phase of the aircraft, at a cost in the order of £250 million.

The British statement went on to say that total aircraft requirements for the UK, Germany, and Italy would be about 900, the British share being 350-400. Costs of the total programme were to be shared according to the relative numbers of production aircraft. The German Defence Minister had announced on 6 May 1970 that Germany was to have 420 MRCA's "at the most". To these will be added the Italian requirement (at present unstated) following the announcement, on 1 October 1970, that Italy was to continue as a full partner in the programme.

The development phase is expected to last about three and a half years and lead to the flight of the first of several prototypes. A thorough review of progress was to be made at the end of the first year in the light of the more refined assessments of cost, time-scale, and performance then available.

In addition to the MRCA, Panavia is also undertaking, as a joint private venture, studies of a range of other military aircraft complementary to the MRCA.

PANAVIA MRCA

The MRCA is a twin-engined two-seat supersonic aircraft capable of fulfilling the full range of operational requirements of its three sponsoring countries. The use of a variable-geometry wing gives it the necessary flexibility to achieve this.

The aircraft is intended to fulfil five major requirements, some of which are shared by more than one of the partners. These are, in order of importance:

- (a) Close air support/battlefield interdiction
- (b) Interdictor strike
- (c) Air superiority
- (d) Naval role
- (e) Reconnaissance

In addition, a trainer version will be needed by all three countries.

For the RAF, the intention is that the MRCA should, in the first instance, replace the Vulcan and Buccaneer in the overland strike and reconnaissance roles. Later, the air defence version will succeed the Phantom; and finally it is envisaged that the MRCA will replace the Buccaneer for maritime strike tasks.

Seven prototypes of the MRCA are to be built—three in the UK, three in Germany, and one in Italy. The first of these is scheduled to fly at Manching in Germany in the latter part of 1973, and will be flown by a BAC test pilot. The prototypes will be followed by a batch of pre-production aircraft in advance of the main production stream, and the MRCA is expected to enter service in 1977. By 1972 it is expected that the three VAK 191B prototype V/STOL military aircraft, built jointly by VFW-Fokker in Germany and Aeritalia (Fiat) in Italy, will be available for use as system test-beds in connection with the MRCA programme.

Two mock-ups have been completed, and metal for the first MRCA prototype was cut in both Germany and the UK on 25 November 1970. By mid-1971 the manufacture of many parts had been completed and the construction of major components, such as whole sections of the fuselage, had begun. Building of the nose section began in May 1971, and assembly of the rear fuselage was due to begin in August 1971. Material for all critical structural parts of the wing has been delivered.

TYPE: Twin-engined multi-purpose military aircraft.

WINGS: Cantilever shoulder-wing monoplane. All-metal wings, of variable geometry, having a sweep of approx 25° in the fully-forward position and approx 65° when fully swept. The wings each pivot from a point on the fuselage centre-section. High-lift devices include leading-edge slats (three sections on each side), trailing-edge flaps (four sections on each side, over almost whole span) and hydraulically-actuated spoilers (two on upper surface each side). There are no ailerons. Entire outer wings are Italian-built, Aeritalia (Fiat) having prime responsibility for assembly and production of these units, assisted by Aeritalia (Aerfer), Aermacchi, Aeronavali Venezia, Piaggio, Saca, and SIAI-Marchetti as sub-contractors.

FUSELAGE: Conventional all-metal semi-monocoque structure, built in three main sections. MBB in Germany is prime contractor for the centre fuselage section, including the engine air intake trunks and wing pivot mechanism. Responsibility for the front fuselage, including both cockpits, and for the rear fuselage, including the engine installation, is undertaken by the Military Aircraft Division of British Aircraft Corporation. There is a large door-type air-brake on each side at the top of the rear fuselage.

TAIL UNIT: Cantilever all-metal structure,

consisting of single sweptback fin and rudder, and low-set all-moving horizontal surfaces ("tailerons") which operate together for pitch control and differentially for roll control. Rudder and "tailerons" are actuated hydraulically. Entire tail unit is the responsibility of BAC's Military Aircraft Division.

LANDING GEAR: Hydraulically-retractable tricycle type, with forward-retracting twin-wheel steerable nose unit. Single-wheel main units retract upward into centre section of fuselage. Development and manufacture of the complete landing gear and associated hydraulics will be headed by the Dowty Group (UK), assisted by Magnaghi and Nardi (Italy) and Liebherr (Germany). Dunlop wheels and brakes.

POWER PLANT: Two Turbo Union (MTU 40%, Rolls-Royce 40%, Fiat 20%) RB-199-34R turbofan engines (each 8,500 lb; 3,855 kg st dry, and 14,500 lb; 6,577 kg with afterburning), installed in rear fuselage. Fuel cells will be of Uniroyal manufacture. The reheat fuel control system is being developed in the UK by Dowty Fuel Systems Ltd. The aircraft will have provision for carrying externally-mounted auxiliary fuel tanks.

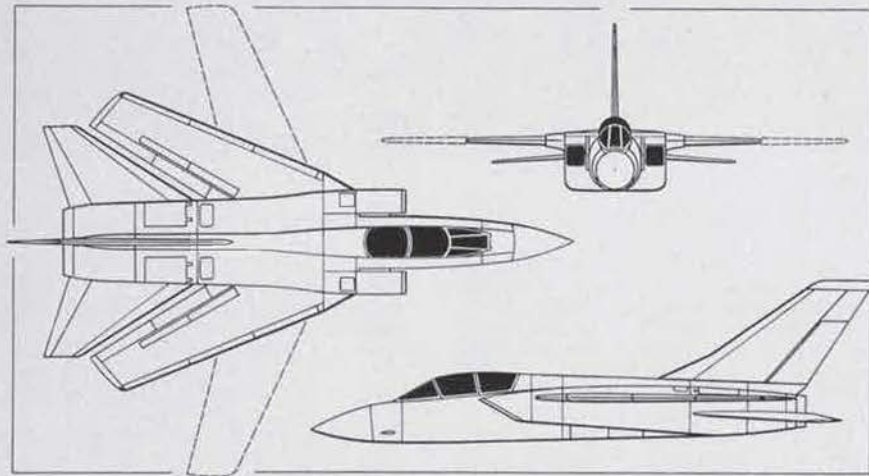
ACCOMMODATION: Crew of two on tandem ejection seats under moulded transparent canopy. Kopperschmidt canopy, with Rotax windscreen quarter-lights.

SYSTEMS, ELECTRONICS, AND EQUIPMENT: Air intake control system by Nord/Micro (Germany), assisted by Hawker Siddeley Dynamics (UK) and Microtecnica (Italy). Main hydraulic system includes Vickers pump, Dowty accumulators, and Teves power pack. System for hydraulic actuation of wing spoilers, rudder, and "taileron" control by Fairey Hydraulics (UK), assisted by Magnaghi (Italy). Electrical equipment includes Plessey power system controller and Ferranti transformer-rectifiers. Normalair-Garrett pre-cooler and cold-air unit, Marston Excelsior inter-cooler, and Teddington temperature control unit. Normalair-Garrett/Draegerwerk/OMI oxygen system. Klockner-Humboldt-Deutz gearbox and Rotax/Lucas/Siemens integrated drive generator. Klockner-Humboldt-Deutz / Microtecnica / Lucas APU. Elliott flow-metering system, Eichweber fuel gauging system, and Flight Refuelling flexible couplings. Rotax contactors. Other standard equipment includes VHF and UHF radio, horizontal situation indicator, ADF, air data computer, autopilot, and communications system. Selection of manufacturers for these and other items will be completed during 1971.

ARMAMENT AND OPERATIONAL EQUIPMENT: The MRCA will have an inertial navigation system, with Doppler monitoring. The aircraft's multi-mode nose radar is being designed, developed, and manufactured by a team set up by Ferranti Ltd and Elliott Automation Radar Systems Ltd (EARS) in the UK, with participation by other companies in Germany and Italy. The equipment will combine Ferranti's terrain-following radar capabilities with EARS high-definition radar mapping capabilities. Details of armament have not been released, and will vary according to version, but the emphasis will be on the ability to carry a wide range of advanced non-nuclear weapons.

DIMENSIONS AND WEIGHTS: No dimensional or weight data for the MRCA had been released up to mid-1971, but the aircraft has been described officially as "a medium-sized aircraft no larger than the Mirage G and substantially lighter than the Phantom". A maximum take-off weight in the region of 40,000 lb (18,140 kg) has been reported, though this will vary according

Three-view drawing of the Panavia multi-role combat aircraft



to version. The general appearance of the aircraft can be seen in the accompanying three-view drawing.

PERFORMANCE: No specific performance details have yet been released, but the MRCA has been stated officially to be capable of speeds in excess of Mach 2 at high altitude and transonic speeds at low altitude. It will be able to take off and land at very slow speeds on dispersed sites. With the wings at the optimum sweep for economical cruising, it will have a long range and/or loiter capability. The variable-geometry wing will also permit prolonged high-speed flight at very low altitude with low gust response, thus maintaining the crew's efficiency during long flights. The high power/weight ratio will give a high degree of specific excess power, thus ensuring great manoeuvrability, rapid acceleration, and high rate of climb.

Additional emergency and rescue equipment is installed on the Il-62M-200. The electrical, hydraulic, and radio equipment in the rear fuselage has been re-positioned. Together with the elimination of a wardrobe and transfer further aft of one central toilet and two rear toilets, this has permitted the installation of extra seats in the passenger cabin and optional provision of a compartment for buffet serving trolleys.

Unlike the Il-62, this new version has a containerised baggage and freight system, with mechanised loading and unloading, to reduce turn-round time at airports.

The Il-62M-200 exhibited in Paris in May-June 1971 was the prototype (CCCP-86673). Production models are expected to enter service on Aeroflot's Moscow-New York route in early 1972 and will be used eventually on all of the airline's long-distance services.

The basic structural description of the

PERFORMANCE: (at max T-O weight):

Normal cruising speed
458-486 knots (528-560 mph;
850-900 km/h)

Normal cruising height
33,000-39,400 ft (10,000-12,000 m)

Balanced T-O distance (ISA, S/L)
9,845 ft (3,000 m)

Landing run (ISA, S/L) 9,185 ft (2,800m)

Range with max payload, with reserves
4,315 nm (4,970 miles; 8,000 km)

Range with 22,045 lb (10,000 kg) payload,
with reserves
5,555 nm (6,400 miles; 10,300 km)

ILYUSHIN II-76

Flown for the first time on 25 March 1971, the Il-76 prototype (CCCP-86712) made its public debut at the 29th Salon de l'Aéronautique et de l'Espace in Paris in May 1971.



Prototype Ilyushin Il-62M-200 high-density four-turboprop airliner, displayed at the 1971 Paris Air Show (Brian M Service)

ILYUSHIN

SERGEI VLADIMIROVICH ILYUSHIN,
USSR

A new high-density version of Ilyushin's Il-62 four-turboprop rear-engined commercial transport made its public debut at the 1971 Paris Air Show, together with the entirely new Il-76 heavy freighter. Additional information, received subsequently from Moscow, has made it possible to produce the following detailed descriptions of each type.

ILYUSHIN II-62M-200

NATO Code Name: "Classic"

Flown in prototype form during the first half of 1971, the Il-62M-200 is a developed, high-density version of the Il-62 able to seat up to 198 passengers, with no dimensional changes to the airframe. It is fitted with more powerful turboprops, of a different type, with clam-shell thrust reversers on the outboard engine of each pair, offering a lower approach speed and improved airflow over the rear of the nacelles. An additional fuel tank is installed in the vertical tail-fin, contributing (with the improved specific fuel consumption of the engines) to the longer range of this version.

Revised layout of the flight deck equipment, and new navigation and radio communications equipment, are features of the Il-62M-200. Control wheels of new design improve the pilots' field of vision; and the aircraft's automatic flight control system permits automatic landings in ICAO Category II conditions, with extension to Category III conditions envisaged later. The wing spoilers of this version can be utilised differentially to enhance roll control.

Il-62 applies also to the Il-62M-200. The main innovations are as follows:

POWER PLANT: Four Soloviev D-30KU turboprop engines, each rated at 25,350 lb (11,500 kg) st, mounted in horizontal pairs on each side of rear fuselage. Clam-shell-type thrust reverser on each outboard engine. Remainder of power plant installation basically as for Il-62, but additional fuel tank in tail-fin with capacity of 1,100 Imp gallons (5,000 litres).

ACCOMMODATION: Alternative configurations for up to 198 economy class, 186 tourist class or 161 mixed class passengers. In the economy class version there are two toilets opposite the forward door, on the starboard side, aft of the flight deck. The forward cabin contains 72 seats, all six-abreast in threes with centre aisle. Galley-pantry amidships as on Il-62. Rear cabin contains 126 seats, six-abreast in threes with centre aisle. Toilet and wardrobe areas to rear of this cabin. Doors as on Il-62. Forward under-floor baggage and freight hold accommodates nine containers, each weighing approximately 100 lb (45 kg) empty and with a capacity of 1,322 lb (600 kg) and 56.5 cu ft (1.6 m³). Rear hold accommodates five similar containers. Two compartments for non-containerised cargo.

SYSTEMS AND EQUIPMENT: See introductory notes.

DIMENSIONS AND AREAS:
Same as for Il-62.

WEIGHTS:
Max payload 50,700 lb (23,000 kg)
Max T-O weight 363,760 lb (165,000 kg)

It is a high-performance pressurised heavy transport of conventional layout, powered by four turboprop engines of similar basic type to those installed in the Il-62M-200. The clam-shell thrust reversers, fitted to all four engines, are of different configuration, stowing above and below the nozzle when not in use, instead of to each side.

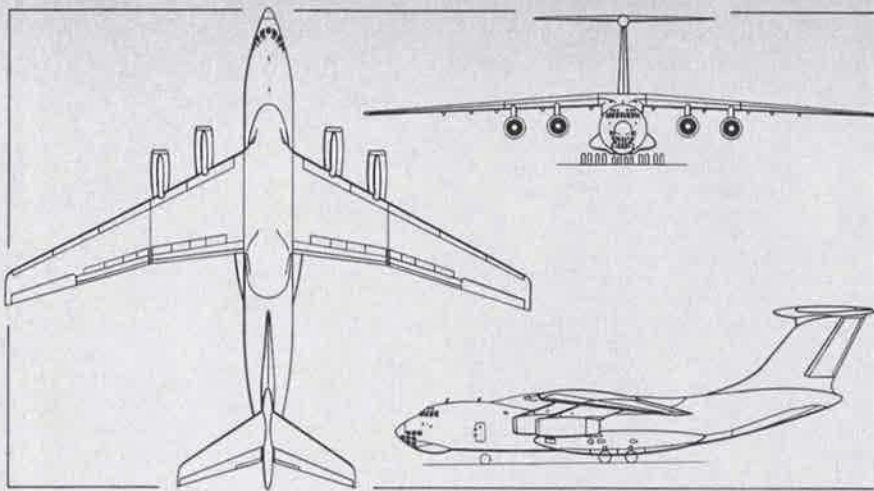
Nominal task of the Il-76 is to transport 40 tonnes of freight for a distance of 5,000 km (2,700 nm; 3,100 miles) in less than six hours. It can take off from short unprepared airstrips, and an official statement has said that it will be used first during the period of the current five-year plan (1971-75) in Siberia, the north of the Soviet Union, and the Far East, where operation of other types of transport is difficult. Clearly, however, it also has considerable potential as a military transport aircraft.

TYPE: Four-turboprop medium/long-range freight transport.

WINGS: Cantilever monoplane, mounted above fuselage to leave interior unobstructed, and with marked anhedral from roots. Sweepback on leading-edge approx 28°. All-metal structure. Two-section double-slotted flaps over full span from wing root to inboard edge of aileron each side. Spoilers forward of inboard flaps. Leading-edge flaps over almost entire span. Tabs in each aileron.

FUSELAGE: All-metal semi-monocoque structure of basically circular section. Under-side of upswept rear fuselage made up of two outward-hinged clam-shell doors, upward-hinged central door, and downward-hinged loading ramp.

TAIL UNIT: Cantilever all-metal structure, with tailplane mounted at tip of fin. All



Three-view drawing of the Ilyushin Il-76 freighter

surfaces sweptback. Tabs in rudder and each elevator.

LANDING GEAR: Retractable tricycle type designed for operation from prepared and unprepared runways. Nose unit made up of two pairs of wheels, side-by-side with central oleo. Each main-wheel bogie made up of four pairs of wheels in two rows. Low-pressure tyres, size 1300 × 480 on main wheels, 1100 × 330 on nose-wheels. Main units retract inward into two large ventral fairings under fuselage, with an additional large fairing on each side of lower fuselage over actuating gear. During retraction main-wheel axles rotate around leg, so that wheels stow with axles parallel to fuselage axis (*i.e.*, wheels remain vertical but at 90° to direction of flight).

POWER PLANT: Four Soloviev D-30KP turbofan engines, each rated at 26,455 lb (12,000 kg) st, in individual underwing pods. Each pod is carried on a large forwardly-inclined pylon and is fitted with a clam-shell thrust reverser.

ACCOMMODATION: Conventional side-by-side seating for pilot and co-pilot on spacious flight deck. Station for navigator below flight deck in glazed nose. Forward-hinged door on each side of fuselage forward of wing. Cabin loaded via rear ramp. Entire accommodation is pressurised, and advanced mechanical systems handle containerised and other freight.

ELECTRONICS AND EQUIPMENT: Full equipment for all-weather operation by day and night, including a computer for automatic flight control and automatic landing approach. Large ground-mapping radar in under-nose radome. APU in port side landing gear fairing.

DIMENSIONS, EXTERNAL:

Wing span 165 ft 8 in (50.50 m)
 Length overall 152 ft 10½ in (46.59 m)
 Height overall 48 ft 5 in (14.76 m)

WEIGHTS:

Max payload 88,185 lb (40,000 kg)
 Max T-O weight 346,125 lb (157,000 kg)

PERFORMANCE:

Normal cruising speed 458 knots (528 mph; 850 km/h)
 Normal cruising height 42,650 ft (13,000 m)
 Nominal range with max payload 2,700 nm (3,100 miles; 5,000 km)

ILYUSHIN II-86

Mr Genrikh Novozhilov, successor to the semi-retired Sergei Ilyushin as chief of the Ilyushin design bureau, told visitors to the 1971 Paris Air Show that a new wide-bodied transport aircraft known as the Il-86 was in the early project design stage. No final decision on the configuration, or number of engines, had been taken at that time, but the Il-86 is expected to carry at least 350 passengers over short/medium stages, and to fly for the first time in the mid-seventies.

TRANSAVIA

TRANSAVIA CORPORATION PTY LTD;
 Head Office: Transfield House, 102-106
 Arthur Street (PO Box 470), North Sydney
 2060, New South Wales, Australia

TRANSAVIA PL-12 AIRTRUK

The Airtruk was designed by Mr Luigi Pellarini, and was originally type-certificated on 10 February 1966, for spreading fertiliser and for seeding. Swath width is up to 35 yd (32 m) and of unusual uniformity. A liquid-spraying conversion, developed in 1968, is capable of covering a 33 yd (30.2 m) swath. This version has an engine-driven spray pump and a liquid chemical capacity of 180 Imp gallons (818 litres). The PL-12's unconventional layout keeps the tails clear of chemicals, and also permits rapid loading by a vehicle which approaches the aircraft between the tails.

The three-seat prototype Airtruk flew for the first time on 22 April 1965. Delivery of production Airtruks began in December 1966, and a total of 45 PL-12s had been built by February 1971, for customers in Australia, New Zealand, and Africa.

Production of the PL-12 was continuing in 1971, together with that of the PL-12-U, a multi-purpose cargo/passenger/ambulance/aerial survey version of which a prototype flew for the first time in December 1970. Certification of this version was granted in February 1971, by which time two production aircraft had been completed, and deliveries were due to begin later in the year.

The description below applies to both the PL-12 and PL-12-U, except where a particular version is indicated.

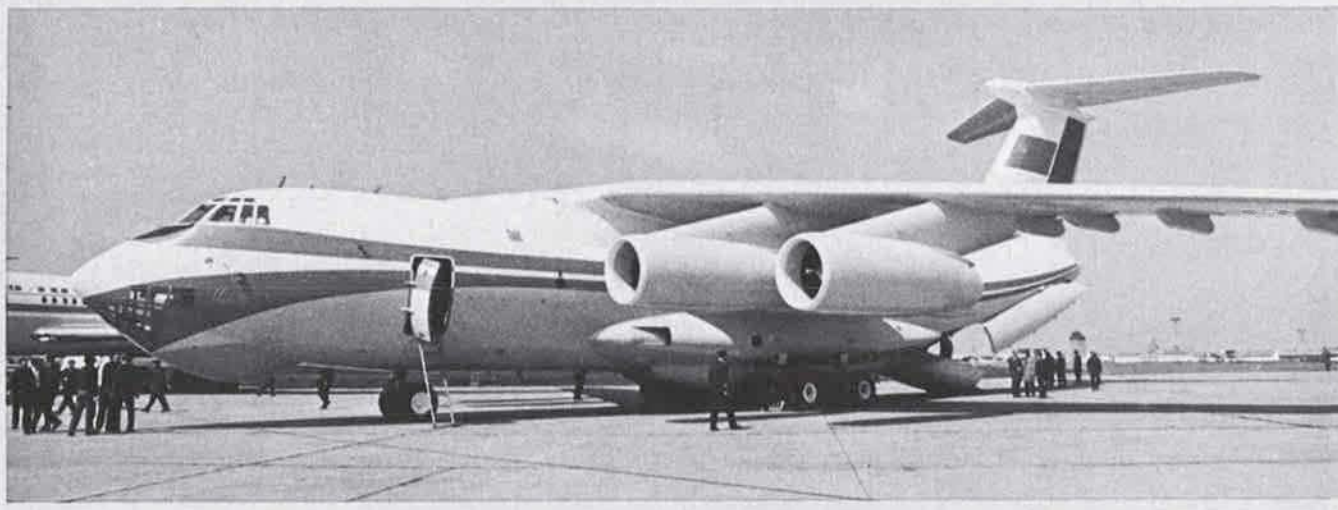
TYPE: Single-engined agricultural (PL-12) or multi-purpose (PL-12-U) aircraft.

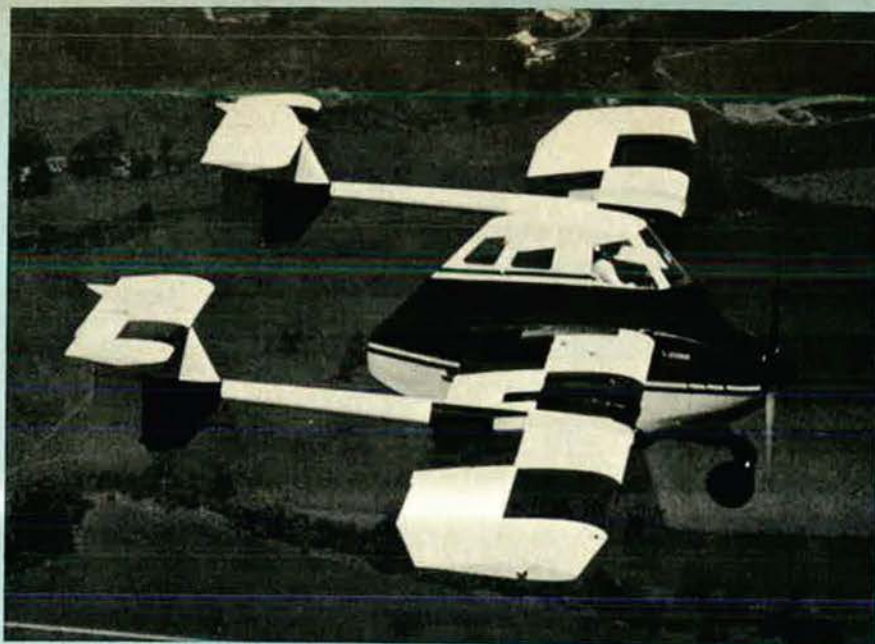
WINGS: Strut-braced sesquiplane. Wing section NACA 23012. Dihedral 1° 30' on upper wings. Incidence (upper wings) 3° 0'. Conventional all-metal structure, covered with Alclad sheet. All-metal trailing-edge flaps and ailerons, covered with ribbed Alclad sheet, and operated manually. Small stub-wings below fuselage, braced to cabin by a single strut and to upper wings by a Vee-strut each side.

FUSELAGE: Pod-shaped structure, of 4130 welded steel tube construction with 2024 Alclad covering and glass-fibre tail-cone.

TAIL UNIT: Twin units, each comprising a fin, rudder and separate tailplane and elevator, and each carried on a cantilever tubular Alclad boom extending from the upper wings. Small bumper fairing underneath each fin. Manually-operated control

Ilyushin Il-76 medium/long-range freight transport (four Soloviev D-30KP turbofan engines) (Tass)





The new PL-12-U multi-purpose version of the Transavia Airtruk

surfaces. Adjustable tab in each elevator. No tabs on rudder.

LANDING GEAR: Non-retractable tricycle type, each of the three wheels being carried on a pivoted trailing leg. Shock-absorbers of Transavia patented type, of bonded rubber block moulded within four hinged plates forming a diamond shape, loaded at the long axis and deformed by loads to exchange long and short axes. All wheels and tyres same size, 8.00 x 6. Nose-wheel tyre pressure 20 lb/sq in (1.41 kg/cm²); main-wheel tyre pressure 32 lb/sq in (2.25 kg/cm²). Cleveland brakes.

POWER PLANT: One 300 hp Continental IO-520-D six-cylinder horizontally-opposed air-cooled engine, driving a McCauley D2A34C58/90AT-2 two-blade constant-speed metal propeller, diameter 7 ft 4 in (2.23 m). Standard fuel in two upper-wing tanks, total usable capacity 41.5 Imp gallons (189 litres). Optional long-range installation of second tank in each upper mainplane, increasing total capacity to 82 Imp gallons (373 litres). Refuelling point above each upper wing. Oil capacity 2.5 Imp gallons (11.4 litres).

ACCOMMODATION (PL-12): Single-seat cockpit for pilot, entered by door on starboard side. Two-seat cabin aft of chemical hopper/tank for carriage of ground crew, with access via door at rear on lower deck. Accommodation heated and ventilated.

ACCOMMODATION (PL-12-U): Single-seat cockpit for pilot, as in PL-12. By removing the hopper or tank in the centre fuselage, passenger cabin is enlarged to seat one passenger on upper deck (back-to-back with pilot's seat) and four more passengers on lower deck. Doors on upper deck (starboard side) and lower deck (port side). Lower-deck cabin is heated.

ELECTRONICS AND EQUIPMENT: Optional equipment for PL-12-U includes VHF (also available optionally for PL-12), HF, ADF, artificial horizon, and directional gyro.

DIMENSIONS, EXTERNAL:

Wing span 39 ft 10½ in (12.15 m)
Wing chord (constant) 5 ft 9 in (1.75 m)
Length overall 20 ft 10 in (6.35 m)
Length of fuselage 13 ft 0 in (3.96 m)
Height overall 9 ft 2 in (2.79 m)

Tailplane span (each) 7 ft 0 in (2.13 m)
Distance between tailplanes

11 ft 5 in (3.48 m)
Wheel track 10 ft 0 in (3.05 m)
Wheelbase 6 ft 3 in (1.91 m)
Min propeller ground clearance

1 ft 0 in (0.30 m)

Passenger door (PL-12, rear):

Height 3 ft 2 in (0.97 m)

Passenger doors (PL-12-U, stbd upper and port lower, each):

Height 3 ft 0 in (0.91 m)

DIMENSIONS, INTERNAL (PL-12):

Rear passenger cabin:

Length 6 ft 0 in (1.83 m)

Max width 3 ft 2 in (0.97 m)

Max height 6 ft 8 in (2.03 m)

Floor area 4 sq ft (0.37 m²)

Volume 30 cu ft (0.85 m³)

DIMENSIONS, INTERNAL (PL-12-U):

Passenger cabin:

Length 9 ft 0 in (2.74 m)

Max width 3 ft 2 in (0.97 m)

Max height 6 ft 11 in (2.11 m)

Floor area 18 sq ft (1.67 m²)

Volume 74 cu ft (2.10 m³)

AREAS:

Wings, gross 252.7 sq ft (23.48 m²)

Ailerons, total 18.0 sq ft (1.67 m²)

Trailing-edge flaps, total

18.0 sq ft (1.67 m²)

Fins, total 14.0 sq ft (1.30 m²)

Rudders, total 6.0 sq ft (0.56 m²)

Tailplanes, total 28.0 sq ft (2.60 m²)

Elevators, total, incl tabs

14.0 sq ft (1.30 m²)

WEIGHTS AND LOADINGS:

Weight empty:

PL-12 1,800 lb (816 kg)

PL-12-U 1,830 lb (830 kg)

Max T-O weight:

PL-12 4,090 lb (1,855 kg)

PL-12-U 3,800 lb (1,723 kg)

Max landing weight (both)

3,800 lb (1,723 kg)

Max wing loading:

PL-12 16.2 lb/sq ft (79 kg/m²)

PL-12-U 15.0 lb/sq ft (73 kg/m²)

Max power loading:

PL-12 13.7 lb/hp (6.21 kg/hp)

PL-12-U 12.7 lb/hp (5.76 kg/hp)

PERFORMANCE (at max T-O weight):

Max level speed at S/L, ISA:

PL-12 103 knots (119 mph; 192 km/h)

PL-12-U

112 knots (129 mph; 208 km/h)

Max permissible diving speed:

PL-12 180 knots (207 mph; 333 km/h)

PL-12-U

150 knots (172 mph; 276.5 km/h)

Max cruising speed (75% power) at S/L, ISA:

PL-12 95 knots (109 mph; 175 km/h)

PL-12-U

102 knots (117 mph; 188 km/h)

Stalling speed, flaps up:

PL-12 55 knots (64 mph; 103 km/h)

PL-12-U 52 knots (60 mph; 97 km/h)

Stalling speed, flaps down:

PL-12 52 knots (60 mph; 97 km/h)

PL-12-U 50 knots (58 mph; 94 km/h)

Max rate of climb at S/L:

PL-12 600 ft (183 m)/min

PL-12-U 800 ft (244 m)/min

Service ceiling (both versions)

10,500 ft (3,200 m)

***T-O run:**

PL-12 1,095 ft (334 m)

PL-12-U 900 ft (274 m)

***T-O to 50 ft (15 m):**

PL-12 1,850 ft (564 m)

PL-12-U 1,500 ft (457 m)

Landing run (both versions, at max landing weight)

600 ft (183 m)

Range with max payload

650 nm (748 miles; 1,203 km)

Range with max fuel

700 nm (806 miles; 1,297 km)

**DCA Australia technique*

PÖSCHEL

PÖSCHEL AIRCRAFT GmbH; Address: D-7901, Ulm-Allewind, German Federal Republic

Pöschel Aircraft GmbH has built the prototype of a six/eight-seat light executive STOL amphibian known as the P-300 Equator. All available details of this aircraft appear below.

In 1971, Pöschel also had under development two new designs, known as the P-400 Meridian Turbo-Stol-Amphibian and the P-600 Twin Turbo-Stol-Amphibian.

PÖSCHEL P-300 EQUATOR

The Equator is a pressurised light executive STOL amphibian with standard accommodation for six to eight persons. The single Lycoming engine is installed aft of the passenger cabin and drives a two-blade tractor propeller mounted on a fairing at the top of the vertical tail assembly. Exclusive use is made in the construction of epoxy resins and glass-fibre, which give an exceptionally clean aerodynamic exterior finish. In its production form the Equator will be fully amphibious, the land undercarriage retracting into the fuselage, which is completely watertight. When not in use, the outboard stabilising floats retract to form streamlined wingtip fairings. The Equator will be capable of operating from water with a wave height of up to 3 ft 3 in (1.00 m).

Construction of a prototype was begun in 1968, and this aircraft flew for the first time on 8 November 1970.

A number of options to purchase eventual production models have been received.

TYPE: Six/eight-seat light executive STOL amphibian.

WINGS: Cantilever high-wing monoplane. Wings of Wortmann laminar flow section. Conventional single-spar structure, with outer skin of resin-bonded glass-fibre.

FUSELAGE: Conventional semi-monocoque structure, with outer skin of resin-bonded glass-fibre.



Prototype Pöschel P-300 Equator light executive STOL amphibian (310 hp Lycoming TIO-541 engine)

TAIL UNIT: "T" tail surfaces, the fin being integral with the fuselage. At the top of the fin is a streamlined "acorn" fairing, on which the tailplane and balanced elevators are mounted and whose forward section is formed by the spinner encasing the hub of the propeller. Construction similar to that of wings.

LANDING GEAR (production version): Retractable tricycle type, with single wheel on each unit. All units retract into fuselage. Streamlined stabilising floats, for use during operation on water, are mounted on single unbraced struts and retract, when not in use, to form wingtip fairings.

POWER PLANT: One 310 hp Lycoming TIO-541 turbocharged six-cylinder horizontally-opposed air-cooled engine, mounted in the fuselage aft of the cabin and driving, by means of extension shafts, a two-blade Hartzell constant-speed reversible-pitch propeller, of 7 ft 10½ in (2.40 m) diameter, mounted at the forward end of a small "acorn" fairing at the intersection of the fin and tailplane. Fuel in single main tank in fuselage, capacity 176 Imp gallons (800 litres).

ACCOMMODATION: Side-by-side seating for pilot and one passenger in front of pressurised cabin, with seats behind them to accommodate from four to six additional passengers. Access to cabin via large car-type door on each side, forward of wing. Cabin heating, lighting and air-conditioning standard. De-icing of wings, tailplane and windshield standard.

ELECTRONICS AND EQUIPMENT: Optional equipment includes IFR panel, autopilot, and weather radar.

DIMENSIONS, EXTERNAL:

Wing span (over floats) 40 ft 8¼ in (12.40 m)
 Length overall 28 ft 0 in (8.53 m)
 Height overall 10 ft 2 in (3.10 m)
 Wheel track 8 ft 2½ in (2.50 m)
 Wheelbase 11 ft 2 in (3.40 m)

AREA:

Wings, gross 193.75 sq ft (18.0 m²)

WEIGHTS:

Weight empty 1,984 lb (900 kg)
 Max T-O weight 3,968 lb (1,800 kg)

PERFORMANCE (at max T-O weight, ISA conditions):

Max level speed at S/L 208 knots (240 mph; 387 km/h)
 Cruising speed (75% power) at S/L 186 knots (214 mph; 345 km/h)
 Cruising speed (75% power) at 23,950 ft (7,300 m) 242 knots (279 mph; 450 km/h)
 Stalling speed 49 knots (56 mph; 90 km/h)
 Max rate of climb 1,705 ft (519 m)/min
 Service ceiling 29,525 ft (9,000 m)
 T-O run 380 ft (116 m)
 T-O to 50 ft (15 m) 655 ft (200 m)

Landing from 50 ft (15 m) 520 ft (159 m)
 Landing run 165 ft (51 m)
 Max range (75% power) at 23,950 ft (7,300 m) 2,910 nm (3,355 miles; 5,400 km)
 Max endurance (75% power) 12 hr 0 min

PARTENAVIA

PARTENAVIA COSTRUZIONI AERONAUTICHE SpA; Head Office: PO Box 2179, Via Rettifilo al Bravo 3, 80022 Arzano, Naples, Italy

As a follow-up to its P.64/P.66 Oscar range of two/four-seat light single-engined aircraft and P.68 Victor six-seat light twin, Partenavia is developing a low-cost trainer designated P.70.

PARTENAVIA P.70

Design of the P.70 light trainer was started in August 1970 by Prof Luigi Pascale, and construction of a prototype began in January 1971. This aircraft was scheduled to make its first flight in the Summer of 1971.

The P.70 has been designed as a low-cost training aircraft of simplified metal and plastics construction. All metal parts are of box section, plastics being used for curved components. The wings, of NACA 3412 (modified) section, are of single-spar type, utilising the same kind of plastics construction forward of the main spar as that developed for the Oscar series. Flap, aileron, and rudder hinges are also of simplified type, and the flaps can be set to a negative angle to improve cruising performance.

The P.70 will be fully aerobatic (+9 g to -6 g), and will have a 3 ft 5 in (1.04 m)

wide cabin under a transparent sliding canopy.

The following details have so far been announced:

POWER PLANT: One 100 hp Rolls-Royce/Continental O-200 four-cylinder horizontally-opposed air-cooled engine, driving a Sensenich 76 AK-2-46 fixed-pitch metal propeller, diameter 6 ft 2 in (1.88 m).

DIMENSIONS, EXTERNAL:

Wing span 27 ft 10¼ in (8.50 m)
 Wing chord 4 ft 7 in (1.40 m)
 Wing aspect ratio 6.2
 Length overall 23 ft 3½ in (7.10 m)
 Height overall 9 ft 2¼ in (2.80 m)
 Tailplane span 10 ft 2 in (3.10 m)
 Wheel track 7 ft 4½ in (2.25 m)

AREA:

Wings, gross 125 sq ft (11.60 m²)

WEIGHTS AND LOADINGS:

Weight empty 881 lb (400 kg)
 Max T-O and landing weight 1,433 lb (650 kg)
 Max wing loading 11.4 lb/sq ft (56 kg/m²)
 Max power loading 14.3 lb/hp (6.5 kg/hp)

PERFORMANCE (estimated, at max T-O weight):

Max level speed at S/L 124 knots (143 mph; 230 km/h)
 Max permissible diving speed 182 knots (210 mph; 338 km/h)
 Max cruising speed (75% power) 113 knots (130 mph; 210 km/h)
 Stalling speed, flaps down 42.5 knots (49 mph; 78 km/h)
 Rate of climb at S/L 787 ft (240 m)/min
 Service ceiling 14,000 ft (4,275 m)
 T-O run 770 ft (235 m)
 Landing run 500 ft (152 m)
 Range with max fuel 564 nm (650 miles; 1,046 km)
 Endurance (75% power) 5 hr

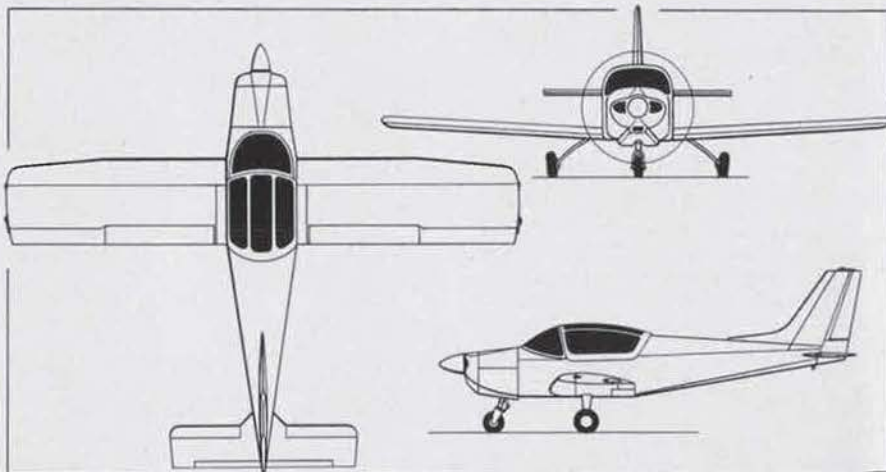
REIMS

REIMS AVIATION SA; Address: Aerodrome de Reims-Prunay, BP 533, 51-Reims, France

REIMS-CESSNA FTMA-MILIROLE

Reims Aviation assembles and markets in Europe a wide range of Cessna light aircraft, including the twin-engined Cessna Model 337 Super Skymaster. The Reims version is known as F 337 when fitted with 210 hp Rolls-Royce/Continental IO-360-C fuel-injection engines and FT 337 when fitted with the 210 hp turbocharged TSIO-360-A version of this engine. Fuel capacity of both versions is 131 US gallons (496 litres). By June 1971 Reims had assembled 42 F 337/FT 337 aircraft, with output continuing at the rate of two per month.

The Partenavia P.70 trainer (100 hp Rolls-Royce/Continental O-200 engine)



Also undergoing flight testing is a modified STOL version of the FT 337, a prototype of which flew for the first time on 26 May 1970. This is known as the FTMA-Milirole, the initials standing for France Turbo Militaire ADAC (Avion de Décollage et Atterrissage Court), and is intended for a variety of applications. The cabin accommodates a crew of two with 84.75 cu ft (2.4 m³) of space to the rear for four passengers or cargo. As an alternative to passenger or cargo operation, the aircraft can be equipped for use on aerial photography, casualty evacuation (with two stretcher cases), or navigation and IFR training duties.

The FTMA-Milirole retains the basic airframe of the Super Skymaster/FT 337, but is fitted with high-lift trailing-edge flaps which, it is claimed, give up to 40% improvement in the take-off and landing performance. These flaps can also be fitted to the standard F 337 and FT 337, which are then designated FA 337 and FTA 337 respectively. In addition, the FTMA-Milirole can perform light attack duties, carrying rocket or machine-gun pods or small bombs on four underwing attachment points. Dual controls are standard; HF radio and SSB can be installed if required.

Production of the FTMA-Milirole is scheduled to begin late in 1971.

DIMENSIONS, EXTERNAL: As Cessna Model 337

AREA:

Wings, gross 202.5 sq ft (18.81 m²)

WEIGHTS AND LOADINGS:

Weight empty:

FA 337 2,755 lb (1,250 kg)

FTA 337 2,915 lb (1,322 kg)

FTMA-Milirole 3,384 lb (1,535 kg)

Max T-O weight 4,630 lb (2,100 kg)

Max wing loading

22.9 lb/sq ft (111.6 kg/m²)

Max power loading 22.05 lb/hp (10 kg/hp)

PERFORMANCE (at max T-O weight):

Max level speed at S/L:

FA 337 173 knots (199 mph; 320 km/h)

FTA 337 201 knots (231 mph; 372 km/h)

FTMA-Milirole 153 knots (176 mph; 284 km/h)

Cruising speed (75% power):

FA 337 at 5,500 ft (1,675 m) 165 knots (191 mph; 307 km/h)

FTA 337 at 5,500 ft (1,675 m) 194 knots (224 mph; 360 km/h)

FTMA-Milirole at 10,000 ft (3,050 m) 167 knots (193 mph; 311 km/h)



High-lift trailing-edge flaps of Reims-Cessna FTMA-Milirole general-purpose military aircraft

FTMA-Milirole at 20,000 ft (6,100 m)
188 knots (216 mph; 348 km/h)

Rate of climb at S/L:

FA 337, FTMA-Milirole 1,100 ft (335 m)/min

FTA 337 1,105 ft (337 m)/min

Rate of climb at S/L, one engine out:

FTMA-Milirole 375 ft (114 m)/min

Service ceiling:

FA 337 18,000 ft (5,486 m)

FTA 337 29,300 ft (8,930 m)

FTMA-Milirole 29,000 ft (8,840 m)

Service ceiling, one engine out:

FA 337 7,100 ft (2,164 m)

FTA 337 17,200 ft (5,243 m)

FTMA-Milirole 17,000 ft (5,182 m)

STOL T-O run 660 ft (200 m)

STOL T-O to 50 ft (15 m) 1,150 ft (350 m)

STOL landing from 50 ft (15 m) 1,115 ft (340 m)

STOL landing run 495 ft (150 m)

Max range:

FA 337 at 10,000 ft (3,050 m) 1,116 nm (1,285 miles; 2,068 km)

FTA 337 at 10,000 ft (3,050 m) 1,346 nm (1,550 miles; 2,494 km)

FTMA-Milirole 1,303 nm (1,500 miles; 2,410 km)

NAMC

NIHON AEROPLANE MANUFACTURING CO LTD; Address: Toranomon Daiichi Building, No 1 Kotohira-cho, Shiba, Minato-ku, Tokyo, Japan

NAMC C-1

The C-1 is a medium-sized troop and freight transport designed to meet the JASDF's C-X requirement for a replacement for its present fleet of Curtiss C-46 transports during the early 1970s. Preliminary design work was started by NAMC in 1966, and in 1968 a prototype development contract was awarded. Following the completion of a full-sized mock-up in March 1968, construction began in the following Autumn of two XC-1 flying prototypes and one airframe for static tests. The first flying prototype, assembled at Kawasaki's Gifu factory, made its first flight on 12 November 1970, followed by the second aircraft on 16 January 1971. The first prototype was handed over to the Japan Defence Agency for further testing on 24 February 1971. Two pre-production aircraft are due to be ordered during FY 1971. The first flight of a production aircraft is scheduled for 1972, and first deliveries to the JASDF in 1973. The total number of production aircraft, which will be designated C-1, is expected to be about 50.

Prime contractor in the C-1 programme will be Kawasaki, who will build the front fuselage and wing centre-section and undertake final assembly and flight testing. Major sub-contractors will be Fuji, who will be responsible for manufacturing the outer wing panels; Mitsubishi (who also built the mock-up), who will manufacture the centre and aft fuselage sections and the tail surfaces; and Nihon Hikoki (Nippi), who will produce the flaps, ailerons, pylons, and engine pods.

Prototype Reims-Cessna FTMA-Milirole (two 210 hp Rolls-Royce/Continental TS10-360-A engines)





NAMC XC-1 military transport (two Pratt & Whitney JT8D-9 turbofan engines)

The palletised cargo loading system is to be produced by Shin Meiwa, and the landing gear by Sumitomo.

TYPE: Twin-turbofan medium-range transport.

WINGS: Cantilever high-wing monoplane.

Wings have moderate sweepback, with slightly increased leading-edge sweep inboard of the engine pylons. Sweepback 20° at quarter-chord. Thickness/chord ratio 12% at root, 11% at tip. Anhedral 5° 30' from centre-section. Conventional two-spar fail-safe structure of aluminium alloy, including control surfaces. Two quadruple-slotted flaps on each trailing-edge, with 75° travel. Forward of these, on each wing, are three flight spoilers and a ground spoiler. Drooping leading-edge slats, in four sections, on each wing. Aileron outboard of each outer flap, each with trim-tabs. Flaps are operated hydraulically, ailerons manually. Two fences on each outer wing panel. Thermal anti-icing of leading-edges, using engine-bleed air.

FUSELAGE: Conventional semi-monocoque fail-safe structure of aluminium alloy, with a circular cross-section.

TAIL UNIT: "T" type cantilever structure, of aluminium alloy, with sweepback on all surfaces (30° at fin quarter-chord, 25° at tailplane quarter-chord). Tailplane has 5° anhedral. Variable-incidence tailplane, fitted with elevators, mounted at top of fin. Trim-tabs in elevators (one each) and rudder (two). Elevators and rudder are

each operated by two independent hydro-actuator systems; the elevators can be operated manually in an emergency. Thermal de-icing of tailplane, using electric heater mat.

LANDING GEAR: Hydraulically-retractable tricycle type, of Sumitomo design. Each main unit has two pairs of wheels in tandem, retracting forward into fairings built on to the sides of the fuselage. Forward-retracting nose unit has twin wheels. Oleo shock-absorbers. Kayaba wheels with Dunlop tyres, which on main units have pressure of 75 lb/sq in (5.27 kg/cm²). Kayaba hydraulic brakes and anti-skid units.

POWER PLANT: Two 14,500 lb (6,575 kg) st Pratt & Whitney JT8D-9 turbofan engines, installed in pylon-mounted underwing pods and fitted with thrust reversers. Fuel in four integral wing tanks with total capacity of 3,344 Imp gallons (15,200 litres). Single pressure-refuelling point for all tanks, plus overwing gravity refuelling point for each tank.

ACCOMMODATION: Crew of five, comprising pilot, co-pilot, navigator, flight engineer, and load supervisor. Escape hatch in flight deck roof on starboard side. Flight deck and main cabin pressurised and air-conditioned. Standard complements are as follows: troops (max) 60, paratroops (max) 45, litters 36 plus attendants. As a cargo carrier, loads can include a 2½-ton truck, a 105-mm howitzer, two ¾-ton trucks or three jeeps. Up to three pre-loaded freight

pallets, 7 ft 4 in (2.24 m) wide and 9 ft 0 in (2.74 m) long, designed by Shin Meiwa, can be carried. Floor is stressed for loads of up to 100 lb/sq in (7 kg/cm²). Access to flight deck via downward-opening door, with built-in stairs, on port side of forward fuselage. Paratroop door on each side of fuselage, aft of wing trailing-edge. For air-dropping, the rear-loading ramp-door at the rear of the cabin can be opened in flight to the full cabin cross-section.

SYSTEMS: Pressurisation and air-conditioning system utilises engine-bleed air. APU in front section of starboard landing gear fairing. Three independent hydraulic systems, with pumps driven by two engine-mounted French Air Equipment/DBA accessory gearboxes. One APU-driven and two engine-driven AC generators for electrical power.

ELECTRONICS AND EQUIPMENT: Standard equipment includes autopilot, Doppler radar, radio altimeter, HF, VHF, and UHF radio, ADF, UHF/DF, marker beacon, VOR/ILS, TACAN, SIF, dual compass system, and flight director system. Optional equipment includes LORAN and weather radar.

DIMENSIONS, EXTERNAL:

Wing span	100 ft 4¾ in (30.60 m)
Wing chord at root	20 ft 8 in (6.30 m)
Wing chord at tip	6 ft 6¾ in (2.00 m)
Wing aspect ratio	7.8
Length overall	95 ft 1¾ in (29.00 m)
Length of fuselage	86 ft 11¼ in (26.50 m)
Height overall	32 ft 9¼ in (9.99 m)
Tailplane span	37 ft 1 in (11.30 m)
Wheel track	14 ft 5¼ in (4.40 m)
Wheelbase	30 ft 7¼ in (9.33 m)
Rear-loading ramp-door:	
Length	8 ft 9 in (2.67 m)
Width	8 ft 10¼ in (2.70 m)
Height to sill	4 ft 1¼ in (1.25 m)

DIMENSIONS, INTERNAL:

Cabin: Max length	34 ft 9¼ in (10.60 m)
Max width	11 ft 9¾ in (3.60 m)
Max height	8 ft 4½ in (2.55 m)
Floor area	308 sq ft (28.6 m ²)

AREAS:

Wings, gross	1,297 sq ft (120.5 m ²)
Ailerons (total)	36.6 sq ft (3.4 m ²)
Trailing-edge flaps (total)	246.5 sq ft (22.9 m ²)
Spoilers (total)	95.8 sq ft (8.9 m ²)
Fin	170.1 sq ft (15.8 m ²)
Rudder, including tabs	68.9 sq ft (6.4 m ²)
Tailplane	197.0 sq ft (18.3 m ²)
Elevators, including tabs	70.0 sq ft (6.5 m ²)

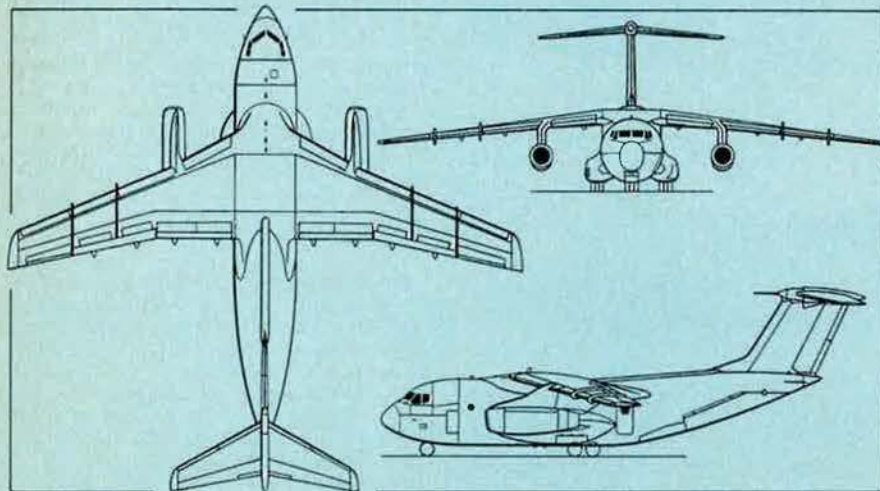
WEIGHTS:

Weight empty	50,465 lb (22,890 kg)
Weight empty, equipped	53,130 lb (24,100 kg)
Normal payload	17,640 lb (8,000 kg)
Max T-O weight	85,320 lb (38,700 kg)

PERFORMANCE (at max T-O weight, except where indicated):

Max level speed at 25,000 ft (7,620 m) at 78,150 lb (35,450 kg) AUV	445 knots (512 mph; 824 km/h)
Econ cruising speed at 35,000 ft (10,670 m) at 78,150 lb (35,450 kg) AUV	370 knots (426 mph; 685 km/h)
Rate of climb at S/L	3,880 ft (1,173 m)/min
Service ceiling at 78,150 lb (35,450 kg) AUV	42,500 ft (12,950 m)
T-O run	2,210 ft (674 m)
T-O to 50 ft (15 m)	3,030 ft (924 m)
Landing from 50 ft (15 m) at 81,280 lb (36,870 kg) AUV	2,350 ft (716 m)
Landing run at 81,280 lb (36,870 kg) AUV	1,200 ft (366 m)
Range with max fuel and payload of 5,730 lb (2,600 kg)	1,855 nm (2,140 miles; 3,440 km)
Range with 17,640 lb (8,000 kg) payload	730 nm (840 miles; 1,350 km)

Three-view drawing of the NAMC XC-1 twin turbofan medium-range military transport aircraft



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.

10/71

THE SAFE DRIVING HANDBOOK

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

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BLUE ZOO

The Pointy-Heady Navigator

He knows the world is big and round,
And on its surface seas abound,
And in the seas, land may be found.
He is a navigator.
There is no greater.

To far-off fields he shepherds MAC
And obscure targets finds for TAC
And penetration routes for SAC.
He is a calculator.
There is no greater.

When will he be, like old Lysander,
An operational commander?

The Thinkers

Far off, a gentle tinkling peal.
Could it be a glockenspiel
That sounds through halls—brave,
unafraid—
Leading a Pentagon parade,
Replete with uniforms and banners?
Or crystal balls, complete with
Planners?

The Large - Mouth Pilot

Pilots come in lots of sizes—
Some foreheads low, and some high rises.
Some are rotund—not obese.
Some are thin as sliced Swiss cheese.
Some drive bombers, some are MAC's,
Some fighter pilots, and some FACs.
But whether jet or Goon they fly,
All the pilots pile it high.

—J.L.F.

Airmail

(Continued from page 13)

You're right about the ambivalence of a lot of people, including some fighter jocks, toward the relative morality of deliberately exterminating civilians from the air and from the ground. As a conscious choice of tactics, both are equally reprehensible. The point is that killing civilians as a terror tactic has been a policy of the North Vietnamese. Regardless of what individuals in and out of US uniforms may advocate, indiscriminate killing of civilians in Southeast Asia has not been a matter of policy so far as this country is concerned.

Dresden, Hiroshima, and Nagasaki (which, incidentally, have to be judged in the context of their time—especially the latter two) have not been repeated in this war, when that kind of tactic might have been quickly decisive. This says something to us about the human condition, if civilization is judged solely in terms of man's conduct toward his fellow man. Who can say that the North Vietnamese would have refrained from using nuclear weapons if they had had them and we had not?

You have studied military history at the Academy. We're sure you're aware that even in simpler days civilians were hardly immune from the horrors of war. And to suggest that it would be preferable for leaders to fight to their deaths to establish a decision where great issues are at stake seems quixotic in the extreme. Would you, for example, have had Hitler and a crippled Roosevelt or an aging Churchill decide the future of Europe and the fate of millions of Jews by hand-to-hand combat?

Judgments about morality and propriety as they relate to Vietnam have become so emotionally charged that it's almost impossible to discuss these issues with profit. In any war, the taking of human life—either military or civilian—is immoral if considered in isolation from the alternatives. But the alternatives do have to be considered, and part of the tragedy is that they sometimes don't look the same in retrospect as they did before history revealed them.

As you well know, the purpose of US military forces in our time has been to maintain peace on terms that are consistent with our national interests and concepts of morality. That we have not been entirely successful

CORRECTION

Through an unfortunate oversight, on page 64 of the August '71 issue of AIR FORCE Magazine, it was not noted that the article "Levy's 9 Laws of the Disillusionment of the True Liberal," by Marion J. Levy, Jr., was reprinted by special permission of the copyright owner.—
THE EDITORS

is indicative of the fact that the plans and institutions of men seldom work perfectly, and almost never in isolation from counterforces.

The only acceptable long-range goal is the total eradication of war. Inevitably, that will be a long-range venture, for it's not one that can be accomplished unilaterally by the United States. We will continue to support that goal. We hope that you and other young men of moral conscience will not leave the services before the job is done.—THE EDITORS

Accuracy in News

Gentlemen: I have noted with great interest your coverage of "The Wayward Press" in Claude Witze's column "Airpower in the News." Congratulations on your efforts to stir some interest in media accuracy.

In a free society, impartial criticism of government agencies, private institutions and, yes, even the news media, is necessary for the continued growth of that society. No organization is exempt from it. Those who criticize must be willing to accept criticism.

One of the greatest threats to our nation is the failure of the public to get the facts—the truth about what is happening to our country. The voter in a democracy can only make

an unbiased decision at the polls when he has all the facts at hand.

Just as with government agencies, businesses, and similar groups, the media must help develop a national consciousness by placing the needs of America above personal gain. Accuracy in reporting is an essential step in reaching that goal.

Keep up the good work!

CAPT. G. R. CHRISTMAS, USMC
Washington, D. C.

Dream World or Nightmare?

Gentlemen: In the June '71 AIR FORCE Magazine article "Threats: At Home and Abroad," in Claude Witze's "Airpower in the News," I see that Chairman of MCPL [Members of Congress for Peace Through Law] Sen. Mark O. Hatfield says "... and the pursuit of a disarmed world under enforceable world law" (p. 14).

My question is: What force will there be to enforce such law? Whose force in this Kingdom of Heaven?

In the August issue, the nine laws of Marion J. Levy, Jr., are a joy.

FRANKLIN J. HOPPMAN
Croton, N. Y.

Anglo/American Citizens

Gentlemen: I wonder if any readers include men who joined the British services before WW II and became British subjects, relinquishing their US citizenships? Roosevelt and Churchill returned American papers and status to these men during the summit meeting aboard the USS *Augusta*. I think there were about 500 servicemen involved in all British services.

Perhaps some of these men will contact me, as I have a couple of thoughts concerning this group, of which I am a proud member.

JOHN T. KUNTZ
1810 Broadway
San Francisco, Calif. 94109

Helped Eighth Air Force Flyers

The Air Force Association has learned, from the US Army Attaché at the US Embassy in Prague, Czechoslovakia, of a man named Jan Svarny who, at the risk of his own life, helped a number of Eighth Air Force personnel evade the Germans in Slovakia from February to May 1945. After the war, Mr. Svarny received a certificate from President Eisenhower, acknowledging Mr. Svarny's exceptional heroism. But at no time has Mr. Svarny received any compensation for his gallantry. Now seventy-seven years old, Mr. Svarny is living on a pension equal in dollar value to \$65 per month. Any AFA member who was assisted by Mr. Svarny during the latter days of World War II and who may now wish to contact him may do so through:

COL. JACK CRANFORD, USA
Army Attaché
Embassy of the USA
AmConGen (Prague)
APO New York 09757

The Bulletin Board

By Patricia R. Muncy

ASSISTANT FOR MILITARY RELATIONS

ADCO Program

A workshop for twenty-three newly appointed AFROTC Admissions Counselors was held recently at AFROTC Headquarters, Maxwell AFB, Ala. James A. McDonnell, Jr., AFA's Director of ROTC Affairs, participated in the two-day meeting, which was designed to stimulate an exchange of ideas on enrolling students in AFROTC.

The Admissions Counselor (ADCO) Program is a new Air Force approach toward maintaining a high level of motivated applicants in the AFROTC program, particularly those qualified for flying training. The operating philosophy of the ADCO is that motivation begins with information.

The mission of the twenty-three ADCOs, each assigned to a specific geographical region, is to provide this information to qualified potential AFROTC enrollees.

In the course of their duties they will visit secondary and junior high schools, attend college and career counseling programs, appear on radio and television, and work closely with civic groups to carry their message to the public. The ADCO's function is separate and distinct from that of the Air Force recruiter, but their efforts will complement each other.

Local AFA units provide a most

valuable contact for these Admissions Counselors. A listing of the counselors' names and addresses is being furnished each Chapter and State President, and a list of AFA contacts is being furnished to each ADCO. All AFA members are encouraged to actively support this program.

Legislative Wrap-Up

"From the military man's point of view, this Session of the 92nd Congress so far is one of promise rather than accomplishment." So stated a recent article in *Air Force Times*.

Air Force Times went on to say that "The Congress . . . is one vote away from enacting the biggest military pay raise in American history. The bill to boost basic pay and allowances by \$2.4 billion a year has been approved in final form by the House, and it becomes the order of business in the Senate on September 13."

Other legislative items include H.R. 9844, the military construction authorization bill, passed by both the House and Senate (in slightly differing versions), which would authorize funding for 10,000 new sets of family quarters; Public Law 92-58, which would allow continued active-duty, medical care benefits for the retarded and physically handicapped children of servicemen who die as a



Eric Paul Dahl of Memphis, Tenn., received AFA's Outstanding Cadet of the Year trophy at the CAP National Convention in Denver, Colo., on September 25. He has a brilliant record of service with CAP and is currently a Cadet lieutenant colonel serving with the Whitehaven (Tennessee) Cadet Squadron.



Gen. William W. Momyer, Commander of TAC, receives a brief rundown on the two-week, tactical system training program dubbed "Guard Thunder," from acting battle commander Col. Curtis J. Irwin, Commander of the 174th Tactical Fighter Group, New York ANG. Looking on is Brig. Gen. Joseph D. Zink, Chief of Staff for Air, New Jersey ANG and acting commander of Guard Thunder, which involved fifteen Air National Guard units from nine states and the District of Columbia and was coordinated from Otis AFB, Mass.

result of combat-zone service; H.R. 4726 and H.R. 6724, which would expand ROTC scholarships and double subsistence allowances to ROTC students from \$50 a month to \$100; and, passed by the House and now awaiting Senate action, a bill to extend the power of the Service Secretaries to waive erroneous overpayments. This measure would reduce considerably the number of private bills introduced in Congress each year to alleviate individual hardships.

Unit Vacancy Promotions

The Office of the Chief of Air Force Reserve has announced two major changes in the Air Force Reserve unit vacancy promotion program.

Effective July 1, unit vacancy pro-

motions to the Reserve grade of colonel were discontinued. Henceforth, promotions to the O-6 grade are made only under the ROPA (Reserve Officer Personnel Act) selection system.

Also effective July 1, unit vacancy selection boards for the Reserve grades of captain through lieutenant colonel are, for the first time, held in conjunction with the annual ROPA selection boards for the same grades.

Elimination of colonels from the unit vacancy promotion program will not penalize outstanding officers coming up for consideration, since the time-in-grade criterion is the same under the annual ROPA program as it was under the old unit vacancy system, according to Reserve officials. However, the change will allow all Reserve officers to compete for promotion to O-6 on the same basis.

Convening unit vacancy selection boards for the grades of captain through lieutenant colonel in conjunction with annual ROPA boards for the same grades will provide the



Col. John A. Everhard, AFRes, will be Chairman of the Reserve Officers Association's Air Force Section for 1971-72. A civilian attorney for the USAF, Mr. Everhard is Chief of the Administrative Law Division in the Office of the Judge Advocate General, Hq. USAF.

Veterans Day—1971

Last year, Miss Tanya Womer, a Becker Elementary School teacher in Cincinnati, Ohio, telegraphed President Nixon asking what she could tell her second-grade students about Veterans Day. She asked the President:

"My name is Tanya. I'm a second-grade teacher in charge of the Veterans Day assembly. I wanted my father to give a talk on what Veterans Day means but he can't because he died in the Korean War. Since the President is supposed to be our guiding light and father of the country, would you take the place of him now and give some fatherly advice on what to do and say as if you were on that stage in his place?"

On behalf of the President, Donald E. Johnson, head of the Veterans Administration, and Chairman of the President's Veterans Day National Committee, replied, in part:

"Dear Tanya: Your father desired and deserved to live as much as any American and any father. No man, however much he cares for his country and his family, willingly wants to die to save them. That some do is the tragedy of humankind. It is a deeper tragedy for those he loved and left in sorrow.

"What I would say in your father's place, Tanya, is that November 11 is a day for all Americans—every man and woman whose heart beats with pride and love—to stay strong in search of peace. I would say that every man who defended his country is a patriot of freedom, of peace and faith in America. I would say that your father paid the highest price man can pay for freedom, not because he wished it but because he had the courage to face the total consequence of his country's call to duty without flinching.

"I would say, Tanya, I honor your father in full today, as a man and on behalf of his country. We owe him much. We honor him and your own spirit and courage to endure his loss. His valor helped save freedom.

"In saving it he provided you—all of us—with the freedom to ask questions today about the blunders of our past that permitted his death in Korea.

"He was a man, as were all who walked beside him in battle.

"In remembering his sacrifice, let all Americans remember the need to keep alive the spirit of unity in America, to help revitalize our sense of one nation, one people, dedicated to Peace with Honor for all mankind."

(Veterans Day will be observed this year on Monday, October 25, and on the fourth Monday of October in future years.)

Air Force Reserve with a promotion system similar to that used for secondary zone selections in the active-force temporary promotion system. This will enhance the Reserve selection process by allowing boards to compare the records of those recommended for the faster unit vacancy promotions with records of those being considered for normal progression to the same grade.

Reenlistment Rates

The Air Force reports that the FY '71 first-term airman reenlistment rate was 20.3 percent, highest in six years; and the number reenlisted, 19,635, was the highest in twelve years, missing the FY '71 objective by only 472. The second-term reenlistment rate of 71.6 percent was the highest in seven years.

While reenlistment rates are affected by many factors, the major favorable influence was aggressive command support, according to Air Force sources. This was translated into increased retention at the unit level through such special career counseling programs as Palace Leader and Top-cap.

It is estimated that a thirty-two percent first-term reenlistment rate will be required in FY '72 to meet Air Force objectives.

Briefly Noted

- Civilian husbands of female members of the Air Force can now



Air Academy Cadet Second Class William C. Culbertson, 20, of Opelousas, La., has earned the seventh highest military award, the Airman's Medal, for saving a young boy who had fallen in the North Platte River last May. He is the third Cadet to receive the Airman's Medal while still attending the Academy.

The Bulletin Board

obtain AF identification cards and enjoy service benefits normally granted Air Force wives—except for medical care—even though they don't qualify as dependents. New rules give husbands full BX eligibility and theater privileges, which were denied before unless proof was forthcoming that the husbands were legally dependent on their military wives. Husbands have long been designated agents for commissary patronage.

• For the first time, the Air Force has adopted a suggestion that has warranted the maximum allowable cash award amount under the Military Suggestion Program.

The Assistant Secretary of Defense (Manpower and Reserve Affairs) recently approved the payment of \$25,000 to be divided equally between Sgts. Michael L. McMullen and Charles Raskin for their suggestion, submitted while they were assigned to the Pacific Air Forces. It concerned the modification of the F-105 Weapons Control System to greatly improve the combat capability of the

aircraft and is estimated to have resulted in first-year tangible benefits of \$25.8 million.

• Veterans in training under the G.I. Bill this year totaled 1,585,000. This Veterans Administration program



John B. Walsh, former Deputy for Research to the Assistant Secretary of the Air Force (R&D), was named Air Force Civilian of the Year and received AFA's Citation of Honor at the recent National Convention. A native New Yorker, he recently assumed new duties with the National Security Council.

showed a thirty-one percent increase over 1970 and is the highest rate since 1952.

• The Air Force Reserve's newest unit, the 919th Tactical Airlift Group, was officially activated on July 30 at Field No. 3, Eglin AFB, Fla., with Lt. Col. Donald F. Haugen as Commander. Participating in the activation ceremonies were Rep. Robert L. F. Sikes of Florida; Maj. Gen. Homer I. Lewis, Chief of Air Force Reserve; Brig. Gen. William J. Crandall, Commander of the 919th's parent Air Force Reserve unit, the 459th Tactical Airlift Wing, Andrews AFB, Md.; and Col. William D. Baxter, Vice Commander of the Armament Development and Test Center.

• The ban on Air Force enlistment by wives and mothers was quietly lifted in late July. The Air Force now will accept applications from married women and mothers with minor children, but the odds are that few will be accepted, particularly those with children. Applicants must still be high school graduates and, even though they are technically eligible, like other WAF applicants they must be screened by a central selection agency and approved individually. Presumably, it is at this point that the Air Force would turn down a woman with a husband and minor children if it looked as if her family life might create problems in her future duties.

Senior Staff Changes

B/G Winston P. Anderson, from Dep. Dir., J-3 (NMCC), Joint Staff, OJCS, to IG, Hq. PACAF, Hickam AFB, Hawaii . . . **Mr. Richard J. Camp**, from Dep. Chief, Ops Analysis, to Scientific & Technical Adviser, Ass't Chief of Staff/Studies and Analysis, Hq. USAF . . . **M/G Roland A. Campbell**, from C/S, Hq. PACAF, Hickam AFB, Hawaii, to Cmdr., 21st AF, MAC, McGuire AFB, N. J., replacing M/G Gilbert L. Curtis . . . **M/G Gilbert L. Curtis**, from Cmdr., 21st AF, MAC, McGuire AFB, N. J., to C/S, Hq. MAC, Scott AFB, Ill.

B/G (M/G Selectee) Salvador E. Felices, from Ass't DCS/M, to DCS/M, Hq. SAC, Offutt AFB, Neb., replacing M/G Pete C. Sianis . . . **B/G James O. Frankosky**, from Dep. Dir., Strategic Forces, Hq. USAF, to V/C, 13th AF, PACAF, Clark AB, Philippines, replacing M/G Lawrence F. Tanberg . . . **B/G Robert H. Gaughan**, from Cmdr., 14th Strategic

Aerospace Div., SAC, Beale AFB, Calif., to Ass't DCS/M, Hq. SAC, Offutt AFB, Neb., replacing B/G (M/G Selectee) Salvador E. Felices.

M/G Ernest C. Hardin, Jr., from V/C, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, to C/S, Hq. PACAF, Hickam AFB, Hawaii, replacing M/G Roland A. Campbell . . . **B/G Edgar S. Harris, Jr.**, from Ass't Dir., The Joint Staff, OJCS, to Cmdr., 14th Strategic Aerospace Div., SAC, Beale AFB, Calif., replacing B/G Robert H. Gaughan.

M/G (L/G Selectee) Gerald W. Johnson, from DCS/Ops, Hq. SAC, Offutt AFB, Ohio, to Cmdr., 8th AF, SAC, Anderson AFB, Guam . . . **M/G Oris B. Johnson**, from Cmdr., 313th Air Div., PACAF, Kadena AB, Okinawa, to DCS/M, Hq. ADC, Ent AFB, Colo. . . . **L/G (Gen. Selectee) David C. Jones**, from Vice CinC, to CinC, Hq. USAFE, and Cmdr., 4th ATAF, Lindsey AS, Germany . . . **M/G (L/G Selectee) William V. McBride**, from C/S, Hq. MAC, Scott AFB, Ill., to Vice CinC, Hq. USAFE, Lindsey AS, Germany, replacing L/G (Gen. Selectee) David C. Jones.

Mr. Robert F. Robinson, from Chief, Limited War Division, Ops

Analysis, to Scientific & Technical Adviser, Ass't Chief of Staff/Studies and Analysis, Hq. USAF . . . **M/G Pete C. Sianis**, from DCS/M, to DCS/Ops, Hq. SAC, Offutt AFB, Neb., replacing M/G (L/G Selectee) Gerald W. Johnson . . . **M/G Lawrence F. Tanberg**, from V/C, 13th AF, PACAF, Clark AB, Philippines, to Cmdr., 313th Air Div., PACAF, Kadena AB, Okinawa, replacing M/G Oris B. Johnson.

Mr. Clayton J. Thomas, from Chief, Research Group, Ops Analysis, to Ass't, Ops Research, Ass't Chief of Staff/Studies and Analysis, Hq. USAF . . . **Mr. Carroll L. Zimmerman**, from Ass't, Special Studies, Ops Analysis, to Chief, Special Studies Group, Ass't Chief of Staff/Studies and Analysis, Hq. USAF . . . **Mr. Howard A. Zwemer**, from Chief, Combat Evaluation Div., Ops Analysis, to Scientific & Technical Adviser, Ass't Chief of Staff/Studies and Analysis, Hq. USAF.

PROMOTIONS: Nominated to be **General:** David C. Jones. To be **Lieutenant General:** Gerald W. Johnson; William V. McBride.

RETIREMENTS: B/G John R. Dyas; Gen. Joseph R. Holzapple; M/G Vincent G. Huston. ■

THE LANGLEY CHAPTER, VA. . . .

By Don Steele

AFA AFFAIRS EDITOR

cited for consistent and effective programming in support of the mission of AFA, most recently exemplified in their dinner observing the Twenty-fifth Anniversary of the Tactical Air Command.

One of the highlights of the Tactical Air Command's Silver Anniversary year was held recently at Langley AFB, Va., and sponsored by AFA's Langley Chapter. A star-studded array of more than 500 persons, including distinguished military, government, and community leaders, joined Gen. William W. Momyer, TAC Commander, and former TAC Commanders Gen. G. P. "Gabe" Disosway and Gen. Frank F. Everest, both now retired, in celebrating the anniversary.

Addresses by Jess Larson, Chairman of AFA's Board of Directors,

and Congressman Thomas N. Downing (D-Va.) highlighted the evening. Sharing Master of Ceremonies duties were Chapter President Paul Ericson; Col. Barney Rawlings, USAFR, President of AFA's Las Vegas, Nev., Chapter; and Col. John Anderson, USAF (Ret.), Past Commander of Nellis AFB, Nev.

Entertainment was provided by the Air Force's world-renowned Strolling Strings and Singing Sergeants, and TAC's concert band, which presented an outstanding twenty-five-year musical review, and provided music for



R. L. Devoucoux, President of AFA's Pease, N. H., Chapter, here presents the Air Force Association's Silver Medal to AFROTC Cadet James Barry in recent ceremonies conducted in College Hall at Dartmouth College.

At the Langley Chapter's dinner observing the Twenty-fifth Anniversary of the Tactical Air Command, TAC's Commanders, past and present, enjoy posing with their ladies. From left, retired Gen. G. P. "Gabe" Disosway; Mrs. Momyer and Gen. W. Momyer, TAC's Commander; Mrs. Everest and retired Gen. Frank F. Everest; and Mrs. Disosway.



dancing until the small hours of the morning.

In recognition of the Chapter's accomplishments, we are proud to name the Langley Chapter as "AFA's Unit of the Month" for October.

Orlando's Hilton Inn was the site of the Florida AFA's 1971 Convention. The highly informative and enjoyable program included a tour of the Kennedy Space Center, a poolside "get-acquainted" party, a business session, a "Family" Awards Reception and Luncheon, a tour of the Disney World Preview Center, an evening Awards Reception and Banquet, and an AFA Leaders' Workshop.

Maj. James F. Low, Base Operations Officer, McCoy AFB, Fla., a former prisoner in North Vietnam, was the luncheon speaker. In his address, Major Low, who is one of only nine men who have been released to date, told what it is really like in the North Vietnam POW camps.

The Convention banquet featured an address by G. Merritt Preston, Director of Center Planning and Fu-



Jess Larson, Chairman of AFA's Board of Directors, delivers the keynote address at the Langley Chapter's dinner observing TAC's Twenty-fifth Anniversary. On the left is Gen. W. W. Momyer, current TAC Commander. On the right is Chapter President Paul Ericson.

AFA News

ture Programs, Kennedy Space Center. Mr. Preston spoke on "Looking Forward to the Space Shuttle."

During the banquet program, the Florida AFA's **Jerome Waterman Award** was presented to **Capt. John M. Beakley**, 4424th Combat Crew Training Squadron, MacDill AFB. The State AFA's **General Lewis H. Brereton Award** was presented to **Steven Puffer**, Minuteman III Program Director, Honeywell, Inc., Aero-Florida, St. Petersburg. The Jerome Waterman Award is presented annually to the outstanding military aerospace man in Florida, and the General Lewis H. Brereton Award goes to the outstanding civilian aerospace man in the state.

Brig. Gen. Leroy J. Manor, Commander, 1st Special Operations Wing and Special Operations School, Hurlburt Field, Fla., received a Special Citation in recognition of his efforts in leading the recent raid on the POW camp in North Vietnam.

Col. Harry Howton, USAF (Ret.), a member of the Eglin Chapter, was named the Florida AFA's "Member of the Year." Two chapters—the Cape Canaveral Chapter and the Central Florida Chapter—shared "Chapter of the Year" honors.

"Exceptional Achievement" awards were presented to **David J. Anderson**, **George J. Burrus, III**, **Alvin F. Mason**, and **Herbert "Bud" West, Jr.**

The State AFA's "Sustained Superior Service" award was presented to **Dan Callahan**, **Robert D. Coward**, **Taylor Drysdale**, **Charles J. Tanner, Jr.**, **Lee R. Terrell**, and **Frank E. White**. Citations for "Specific Service" were presented to **Mary Burrus**, **Gerald C. Frewer**, **Gerald E. Halker**, **Jere Hudson**, **Charles Jones**, **Wiltz P. Segura**, and **Hq. Air Defense Weapons Center (ADC)**, Tyndall AFB.

During the business session, delegates elected **Maj. Gen. Dan Callahan**,

USAF (Ret.), to succeed **Col. Taylor Drysdale**, USAF (Ret.), as the State President for 1971-72.

Golf, swimming, aerial sightseeing, water skiing, sailing, and just relaxing in the abundant Florida sunshine were available to all. A unique feature of the Convention was a free baby-sitting service offered by the Florida AFA and carried out by cadets of the **Florida Civil Air Patrol**.

More than 300 AFAers and guests registered for the entire convention—a new high for the Florida AFA.

A Sunday morning breakfast and the Florida AFA's Annual Workshop for State and Chapter Officers rounded



Jack Reid, left, representing the Columbus, Ohio, Chapter, presents a desk set to Ohio State University's "Outstanding Angel," Miss Sally Shannon, a member of the Curtis E. LeMay Angel Flight at the university.



Lyle Ganz, left, President of the Wisconsin AFA, accepts a souvenir baton from Sgt. 1st Class Bryce Swindle of the Golden Knights Army parachute team. The baton was exchanged in free fall by Sergeant Swindle and Capt. Richard Hill, center, at the International Aerospace Exposition in Milwaukee.



Donald B. Diehl, current President of the Air Force Association's Tennessee Valley Chapter of Huntsville, Ala., congratulates Cadet Capt. James Akin with a handshake and a smile. Cadet Akin was awarded the Association's Bronze Medal for his work in a local AFJROTC program.

out a productive and most enjoyable convention.

AFA's **Charleston Chapter, S. C.**, recently presented a surplus CH-21 helicopter to the **Ladson Coastal Habilitation Center** at Ladson, S. C.

Chapter President **C. H. Goodwyn** welcomed community leaders and their wives, and then **Brig. Gen. Thomas B. Kennedy**, Commander, 437th Military Airlift Wing, Charleston AFB, made the dedication address. **Dr. Erbert F. Cecenia**, Superintendent of this center for retarded and handicapped children, accepted for the institution.

The helicopter was procured from USAF surplus through the efforts of

At an appreciation dinner held in his honor prior to his leaving Minneapolis to assume duties at Richards-Gebaur AFB, Mo., Col. A. J. Moser, left, accepts an AFA Citation from AFA National Director Dick Palen for his support and promotion of AFA's mission in Minnesota.



Maj. Gen. Kenneth W. Schultz, left, former Deputy for Minuteman at SAMSO, receives an AFA Life Membership from Ed Stearn, a member of the San Bernardino Chapter's Executive Council. General Schultz has been assigned to be Deputy for Systems, Hq. Air Force Systems Command, Andrews AFB, Md.



During the annual convention of the Tokyo Raiders, held recently in San Antonio, Tex., retired Air Force Gen. Jimmy Doolittle, left, leader of the World War II exploit and later AFA's first President, chats with Alamo Chapter President Arthur O. de la Garza. General Doolittle expressed his enthusiasm and wholehearted support for the Chapter's current Membership Promotional Campaign.

a Chapter Committee headed by **F. Burr Cramer**. It was flown into Charleston AFB and moved into place at the Habilitation Center by a group under the supervision of **Lt. Joseph B. Sarver, II**, President of the Junior Officers Council, 437th Military Airlift Wing, Charleston AFB.

The helicopter was formerly used to airlift troops and supplies and was last based at **Homestead AFB, Fla.** It will serve as recreational equipment on the Habilitation Center's playground.

Speaking to the members of AFA's **Fort Worth, Tex., Airpower Council**, **Gen. Seth J. McKee**, Commander in Chief of the North American Air Defense Command, said this nation urgently needs modernization of its strategic defensive system.

"Today we have fifteen computer systems in the NORAD Underground Combat Operations Center," he said,

Let's Keep it Going...



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IT'S EASY—

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AFA News

"each performing functions that were beyond the scope of man ten years ago. Subordinate control centers are computerized."

Man is left free, he said, for decision-making and the override or veto capability.

"Just as we moved in the early days of NORAD from the anti-aircraft gun to the Nike series of Army missiles, it is possible we will advance from the conventional or nuclear-headed missile to some exotic form of defensive force," the NORAD Commander predicted.

Airpower Council members re-elected incumbents **Sam E. Keith**, chairman; **Joe L. Shosid**, vice chairman; **John B. Long**, secretary; and named **Herman Stute** treasurer, to succeed M. R. Davis.

An Air Force general whose wing flies the world's largest aircraft was guest speaker at a recent luncheon meeting of AFA's **Grand Strand Chapter** of Myrtle Beach, S. C.

Brig. Gen. Thomas B. Kennedy, Commander, 437th Military Airlift Wing, Charleston AFB, S. C., briefed more than 100 Chapter members and guests on the **C-5A Galaxy**. The 437th is the first wing in the USAF to operationally fly this giant of the skies, which utilizes a twenty-eight-wheel landing gear and has a maximum payload of 265,000 pounds.

Special guests included **Gen. Frank F. Everest**, USAF (Ret.); Myrtle Beach Mayor **Mark C. Garner**; **Maj. Gen. James F. Hackler**, USAF (Ret.), who is President of the South Carolina AFA; **Maj. Gen. Don O. Darrow**, USAF (Ret.); **Brig. Gen. Richard T. King**, USAF (Ret.); and the USAF's Aerial Demonstration Team, the **Thunderbirds**.

Chapter President **Gilbert L. Meyers**, Maj. Gen., USAF (Ret.), presided.

COMING EVENTS . . . Alabama AFA Convention, Birmingham, October 9 . . . **New Jersey AFA Convention**, Seaside Hotel, Atlantic City, October 15-17 . . . **Pennsylvania AFA Convention**, Lewistown, October 29-30 . . . **Michigan AFA Convention**, Stouffer's Northland Inn, Southfield, November 6. Registration fee \$12. Checks payable to Michigan AFA should be sent to **Mary Gill Rice**, P. O. Box 422, Farmington, Mich. 48024. ■

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-View 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.

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Air Force Association Silver Anniversary Medal

10/71

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
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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.

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Low-Cost Protection for your Wife... All of Your Children... Can Be Included in Your AFA Life Insurance Coverage

For only \$12.50 per month, AFA's FAMILY PLAN insures you, your wife and all of your children, regardless of number, between the ages of 6 months and 21 years. Additional children will be insured automatically as they become eligible.

Naturally, basic AFA Military Group Life Insurance is available where no family insurance requirement exists –

at a low premium of \$10 per month, unchanged since the program's inception in 1960 except for **cost reductions** by annual dividends in most years. Family Plan protection can be added later.

However, in today's uncertain world, **total** family insurance in one policy – for only \$2.50 per month more – is protection no Air Force family can afford to be without.

OTHER FACTS ABOUT YOUR POLICY

All certificates are dated and take effect on the last day of the month in which your application for coverage is post-marked. Coverage runs concurrently with AFA membership. AFA Military Group Life Insurance is written in conformity with the insurance Regulations of the District of Columbia.

The insurance will be provided under the group insurance policy issued by United Benefit Life Insurance Company to the Air Force Association. However, National Guard and Reserve members who are permanent residents of Ohio, Texas, Wisconsin, and New Jersey, will not be covered under the group policy, but will be eligible for individual policies providing somewhat similar benefits.

EXCLUSIONS – FOR YOUR PROTECTION

In order to provide maximum coverage at minimum cost for all participants, there are a few exclusions which apply to your coverage. They are:

Death benefits for suicide or death from injuries intentionally self-inflicted while sane or insane shall not be effective until your policy has been in force for twelve months.

The Accidental Death Benefit shall not be effective if death results: (1) From injuries intentionally self-inflicted while sane or insane, or (2) From injuries sustained while committing a felony, or (3) Either directly or indirectly from bodily or mental infirmity or poisoning or asphyxiation from carbon monoxide, or (4) During any period while the policy is in force under the waiver of premium provision of the master policy, or (5) From an aviation accident, military or civilian, in which the insured was acting as pilot or crew member of the aircraft involved.

EQUAL COVERAGE – AT THE SAME LOW PREMIUM – FOR FLYING AND NON-FLYING PERSONNEL

All policyholders are insured for the same basic amounts at the same low premium, whether or not they are on flying status. This eliminates the penalty of lower coverage for the men on flying status whose death is caused (as most are) by illness or ordinary accident. There is one exception* to this provision which is clearly stated below the benefit table on the opposite page.

Family in Air Force Association Insurance Protection

BIG, NEW FAMILY PLAN BENEFITS FOR MEMBERS AND THEIR FAMILIES

Insured's Age	Insured's Basic Coverage*	Extra Accidental Death Benefit*	Optional Coverage For	
			Spouse	Each Child**
20-39	\$20,000	\$12,500	\$6,000	\$2,000
40-44	17,500	12,500	5,250	2,000
45-49	13,700	12,500	4,050	2,000
50-59	10,000	12,500	3,000	2,000
60-64	7,500	12,500	2,250	2,000

* A flat sum of \$15,000 is paid for all deaths which are caused by an aviation accident in which the insured is serving as pilot or crew member of the aircraft involved. In this case, the accidental death benefit does not apply.

** Each child is covered in this amount between the ages of six months and 21 years. Coverage in the amount of \$250 is provided between the ages of 15 days — or upon leaving the hospital, if later — and six months.

UNRESTRICTED, WORLDWIDE COVERAGE AND OTHER VALUABLE BENEFITS MAKE THIS AFA PROGRAM YOUR BEST POSSIBLE PROTECTION!

- No War Clause
- No Hazardous Duty Limitation
- No Geographical Limitation
- \$12,500 Accidental Death Benefit
- Guaranteed Conversion to Permanent Insurance
- Waiver of Premium for Disability
- Full Choice of Settlement Options
- Coverage May Be Retained After Leaving Active Duty (provided you have been insured for at least 12 months prior to the time you leave active duty)

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Name _____ (please print)

Home Address _____

State _____ Zip _____

Date of Birth _____ Soc. Sec. Number _____

Beneficiary _____ Relationship _____

Please indicate below the form of payment you elect:

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|---|----------------------------------|----------------------------------|-------------------|-------------------------------|
| <input type="checkbox"/> Monthly government allotment. I enclose 2 month's premium (\$25 for Family Plan, or \$20 for Basic Plan) to cover the period necessary for my allotment to be established. | Family Plan | <input type="checkbox"/> \$12.50 | Basic Plan | <input type="checkbox"/> \$10 |
| <input type="checkbox"/> Quarterly. I enclose amount checked. | <input type="checkbox"/> \$37.50 | <input type="checkbox"/> \$30 | | |
| <input type="checkbox"/> Semi-annually. I enclose amount checked. | <input type="checkbox"/> \$75 | <input type="checkbox"/> \$60 | | |
| <input type="checkbox"/> Annually. I enclose amount checked. | <input type="checkbox"/> \$150 | <input type="checkbox"/> \$120 | | |

Category of eligibility. Please check appropriate box.

- Active Duty, Air Force
- Ready Reserve, Air Force
- Air National Guard

This insurance is available only to AFA members. I enclose \$10 for annual AFA membership dues (includes subscription (\$9) to AIR FORCE/ SPACE DIGEST.)

I am an AFA member.

I understand the conditions governing AFA's Group Life Insurance Plan. I certify that I am eligible for this insurance under the category indicated, that I am currently in good health, and that I have successfully passed, within the past two-year period, the last physical examination required by my branch of service. (Reserve and Guard personnel not on extended active duty must include with this application a copy of their most recently completed SF88.) I further understand that if I have requested family coverage, an additional application will be forwarded to me so that members of my family may be included in my policy.

Signature of Applicant _____ Date _____

Application must be accompanied by check or money order. Send remittance to:

INSURANCE DIVISION, AFA 1750 PENNSYLVANIA AVE., N.W., WASHINGTON, D. C. 20006

MIA / POW Action Report

League Initiates New Program

Many letters have been written and many petitions signed in the continuing campaign to secure decent treatment for those Americans held captive in Southeast Asia.

So far, the gains have been marginal. And the ultimate objective—the return of POWs to their families—seems as distant as ever.

Still, the work goes on, much to the credit of those who refuse to succumb to discouragement.

Now another program to spur Hanoi toward a more humane policy regarding MIA/POWs has begun. As part of the special emphasis AFA has placed on the plight of MIA/POWs and their families (for a full AFA Convention report, including further details on MIA/POW work, watch for our next issue), the following letter was distributed to participants at the AFA National Convention in Washington, D. C., in September. The letter was prepared by the leadership of the National League of Families of American Prisoners and Missing in Southeast Asia, and has been sent to past contributors to the League. (At this writing, the League was gearing up for its own convention to be held in Washington, D. C., September 26–29. A report on that event will appear in the November issue of AIR FORCE.)

The letter lists recent League activities and progress and then goes on to outline the new—and bold—undertaking the League has initiated:

Dear Concerned American:

Late last year, the families of American servicemen who are prisoners and/or missing in Southeast Asia (National League of Families) asked for your support and financial help in our work—and you responded. For that we will always be grateful.

The families, as a League, have been active. Some of the activities carried out or coordinated by the League are listed below:

- 173 members of the League, mostly wives and mothers, traveled to Geneva, Switzerland, to appeal for the support of provisions of the Geneva Conventions Relative to the Treatment of Prisoners of War. Legal experts from thirty countries attending an international meeting on the Geneva Conventions were contacted by families and, as a result of these efforts, the problem of prisoners and missing in the Indochina conflict was taken up by the Conference. Other international contacts were made in an effort to enlist the help of other countries in asking Hanoi and its allies for humane treatment of the men they hold.

- Relatives of prisoners and miss-

ing have been better informed through the organization of state coordinators in all fifty states who disseminate information, initiate letter-writing campaigns and other efforts to focus attention on the POW/MIA problem.

- 2,700 billboards were produced and distributed carrying the message: "What would you do if this POW were your brother? Write Hanoi. . ."

- Many relatives of men missing in action were sent to North Vietnamese embassies in various countries in an effort to gain information about their husbands and sons.

- Through the efforts of a full-time, unpaid, volunteer staff of family members in the national headquarters, a great wealth of information has been disseminated to the Congress and to the general public to make them aware of the problem, resulting in more action by the Congress and governmental agencies.

- The United Nations was petitioned regarding the violation of fundamental human rights of Mrs. Wilmer H. Grubb, her children, and all similarly situated families of servicemen held captive by the North Vietnamese and their allies.

It is difficult to assess the results of each individual effort, but during the past year, the POW/MIA problem has been a focal point in the peace negotiations. The North Vietnamese

Dan Schinzing, president of the student council of Anchor Bay High, New Baltimore, Mich., accepts an AFA Certificate of Honor from Marge Hunt, then secretary of the Mount Clemens Chapter of AFA. The school's students were honored for an outstanding program on POWs. At the left are "Hap" Lutz and Byron Gave, student editors who received AFA Awards of Merit. They devoted an entire issue of the school paper to the MIA/POW situation.



have greatly increased the information they have given regarding the men they hold, including a list of 339 prisoners and new propaganda films which indicate some improvement in the living conditions of these men.

Even though, with your help, we have done all this and hope the end is in sight, we feel we must continue our efforts until our goal is achieved. In fact, there are some timely developments that necessitate our working even harder. For example, the mail from POWs has dropped off in the past few months, and some of the letters have been extremely distressing in the despair the men convey. The situation in South Vietnam, Laos, and Cambodia remains the same—no letters from the more than 800 men missing in these countries and virtually no information as to who is still alive.

Because of these facts, we have decided to embark on a nationwide campaign of public service (TV, radio, and newspaper) advertisements. These ads are being prepared by the nonprofit Advertising Council, and they will utilize time and space which will be donated by the media. However, the League must bear the costs of preparation and production of these ads, which we estimate will cost over \$100,000. [The estimate was later revised to \$125,000.]

The ads, in order to qualify for public service time, will be non-political and will urge Hanoi and its allies to open their prison camps to neutral observers. The main thought will be: "Who are they, where are they, and how are they?" We believe this is extremely important and timely, for neutral observation is a first step towards settlement of the prisoner problem. It is essential, also, to ensure that all available information concerning missing and dead is made available. The ads will include the statement: "While we all want the release of prisoners, there is no need for a day's delay by Hanoi and its allies in answering this plea for inspection."

This will be a big expenditure for the League, but one we feel will be justified. If public support can be marshalled behind this idea, the results must improve treatment for these men who have been imprisoned for as long as seven years and secure all available information on the missing.

We have sincerely appreciated your

help in the past, as well as the results it has produced. You can be sure it has been a great source of comfort to the families to feel that you have shared in their concern and that you care.

We hesitate to impose on you again, seeking your help in this new program, but we do feel it is extremely worthwhile and perhaps the most significant way we can help the men who are giving so much for our country.

Sincerely,

(Mrs.) Joan M. Vinson
National Coordinator

VFW Honors MIA/POWs

At their recent national convention in Dallas, Tex., the Veterans of Foreign Wars named US prisoners of war and those missing in action as the recipients in absentia of the VFW 1971 Armed Forces Award.

The MIA/POWs were cited "... for their truly outstanding contribution to national security through unparalleled sacrifice under the most hostile and inhumane conditions."

In his remarks of acceptance as honorary recipient of the award,

Adm. John S. McCain, Jr., USN, Commander in Chief Pacific, said: "I sincerely believe, in my area of professional competence and experience, that the American people must be given the facts. Only in this way will our people better understand why the prisoners of war and those missing in action affect our national interests in Southeast Asia.


"... The men who have been captured are still fighters for freedom. Their spirit, pride, and service to country are the foundation of our democracy and the fulfillment of America's promise of freedom for mankind. We owe them a debt that can only be paid with reasonable self-interest policies in Southeast Asia.

"Special recognition must go to the wives, children, and parents who bear the hardships of separation and anxiety. All are a credit to the unequaled and great traditions of our nation.

"... The patriotic support of your organization on the prisoners of war and missing in action issue has and will continue to do much to focus attention on this problem, which concerns all of our people. Let us honor these men now as heroes—and continue to press and pray for their safe and prompt return." ■

Aerospace Historian

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aerospace history
and affairs.*



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Bob Stevens'

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And say, if you can:
Did the man make the hat,
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FIRST SGTs AND CAMPAIGN
HATS WERE MADE FOR EACH
OTHER—



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LIKE THEY HAD A DISCUS
IN THE
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GREASE MONKEYS HAD
THEIR 'SKIPPY' MODELS



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WHY THESE *G!
DINKIES WERE
CALLED 'OVERSEAS'
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