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AIR FORCE MAGAZINE

Published by the Air Force Association

AEROSPACE REVIEW 71|72

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

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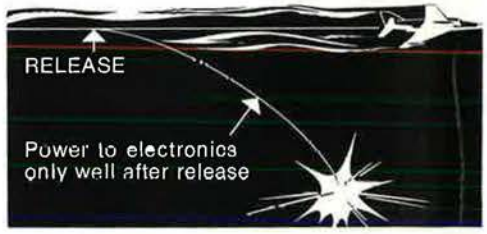

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AIR FORCE MAGAZINE

Published by the Air Force Association

VOLUME 55, NUMBER 1

JANUARY 1972

THIS MONTH

THIS MONTH'S COVER . . .

Sweden's SAAB Viggen in psychedelic colors suggests the international scope which John W. R. Taylor, Editor of Jane's All the World's Aircraft, brings to his 1971–72 aerospace roundup, page 24.

THE DEPARTMENTS

BPA Circulation audited by Business Publications Audit

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

An Editorial

Euphoria—The Unseen Enemy

By John L. Frisbee
SENIOR EDITOR, AIR FORCE MAGAZINE

eu-pho-ria *n* [NL, fr. Gk., fr. *euphoros* healthy]: an often unaccountable feeling of well-being or elation.

THE FACTS of the USSR's massive weapons buildup should be well known to readers of this magazine, but only now are these facts—though not necessarily their significance—beginning to have some impact on public euphoria.

Much of the credit for a public shift toward reality, glacially slow though it be, must go to two respected British publications that have been widely quoted by the US media—*Jane's Yearbooks (see the article by John W. R. Taylor on p. 24 of this issue),* and the current annual report of the International Institute for Strategic Studies, "The Military Balance 1971–1972," which we published in these pages last month.

Elsewhere in this January 1972 issue are articles by Col. Richard F. Rosser and Andrew Pierre *(p. 44 and p. 49)* dealing with probable motivations behind the Soviet buildup and with the usefulness of military power as it may be perceived by Soviet leaders.

We would like to add our own thoughts about the realities that confront the US in this new year. One of our greatest dangers lies in the euphoria generated by the SALT talks, the President's forthcoming visit to the USSR, and recent trade negotiations between the US and Russia. Euphoria obscures the potential dangers of growing Soviet military power.

Let's begin with SALT. It is impossible to oppose in principle the SALT objective—a reduction of tension through a mutually acceptable limitation of strategic forces. But only through the most charitable interpretation of the USSR's actions during the past few years can one believe that Soviet leaders are really pursuing the same goal as we.

During the three years of preparing for and participating in the SALT talks, the USSR has added some 1,000 ICBMs to its inventory, to gain a numerical lead of about 600 missiles over the US. In a December 5 interview on "ABC's Issues and Answers," Dr. John S. Foster, Jr., Director of Defense Research and Engineering, said that he suspects the Soviets are now deploying a new generation of large missiles and have already demonstrated a MIRV. Concurrently, they have speeded up construction of nuclear-armed submarines, and can, according to Dr. Foster, overtake the United States in that weapon category within the next twelve to eighteen months.

It may already be too late to prevent the USSR from attaining clear-cut strategic superiority if that i in fact its goal. Should the Soviets' strategic postur include a first-strike capability—and there is consider able reason to believe it will—a scenario in which the used their superiority to prohibit us from redressin the balance is not incredible. No reason for euphori here.

But is strategic superiority the Soviet goal? Appar ently it is. For the past decade, officially approved Soviet military writing has stressed the importance of strategic superiority to the USSR. Recently, as they approach that goal, Soviet military writers have dis cussed the feasibility of conventional operations con ducted under an umbrella of Soviet strategic superi ority—a new departure in their view of warfare.

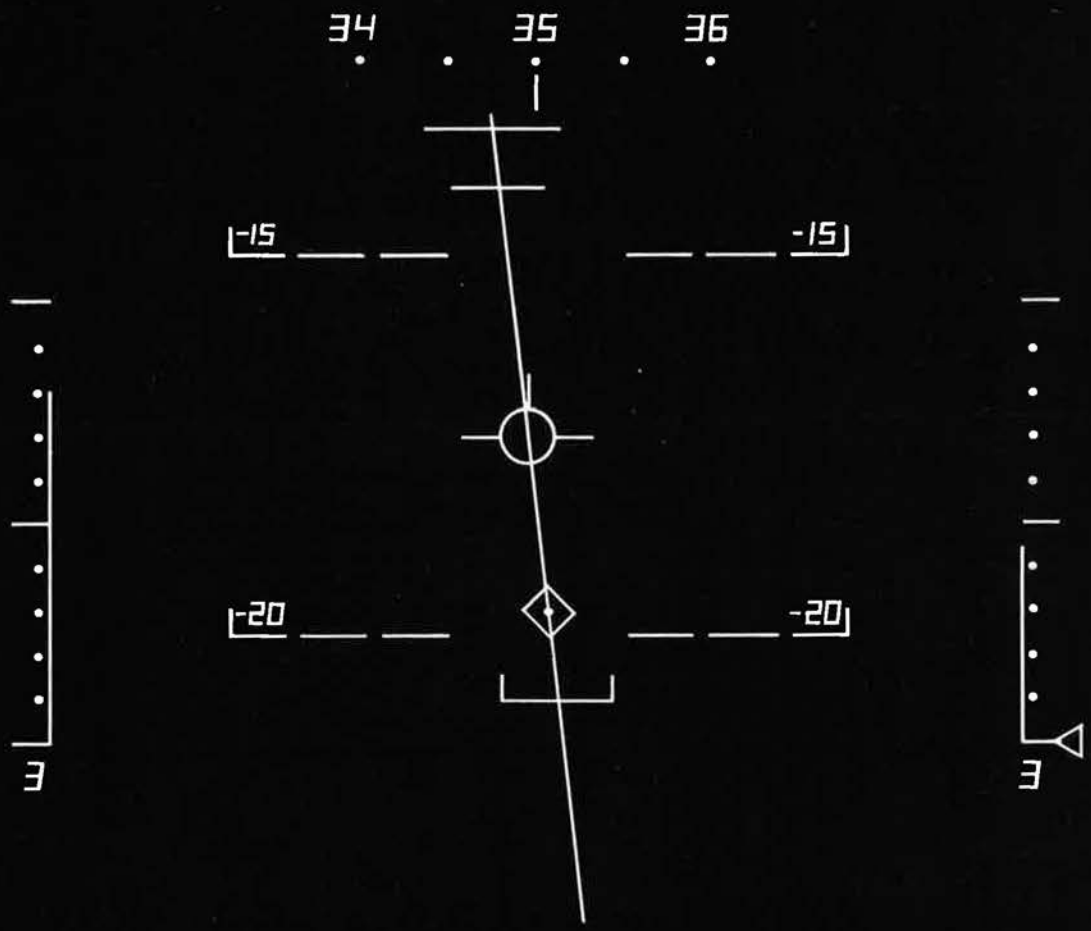
It is not comforting to recall that modernization, and in some cases—notably naval forces—expansion, of conventional forces has continued in parallel with the USSR's drive for strategic superiority. Still no reason for euphoria.

Does the USSR's current enthusiasm for expanding trade with the US signal a forced shift in priorities in order to produce more consumer goods at the expens of military budgets? We don't believe so. The averag Russian is more prosperous, and probably more free than he ever has been before. Without creating seriou internal unrest, Soviet leaders can continue to give to priority to military hardware if they choose to do so There is no evidence that they have abandoned, o greatly modified, that choice.

In Soviet eyes, foreign trade is exactly what it alway has been—a means of building the nation's power base No cause for euphoria here, either.

A genuine relaxation of tensions would be welcom to most people everywhere—perhaps most of all t Americans wearied by a quarter century of unsough responsibility for world peace. At home, unfulfille needs and promises cry out for a larger share of th nation's resources. At the same time, our armed force are beset by antimilitary sentiment, rising costs, and reduced budgets that require force reductions and delay modernization. They are in imminent danger of over commitment in support of a still-global foreign policy Only widespread understanding of the seriousness o our deteriorating defense posture will prevent it.

We see no evidence that this country can afford t relax its guard. Until clear and verifiable evidence is forthcoming from the USSR, the wish for a peaceful and lightly armed world must not become father to the thought that such a world already is here. ■



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

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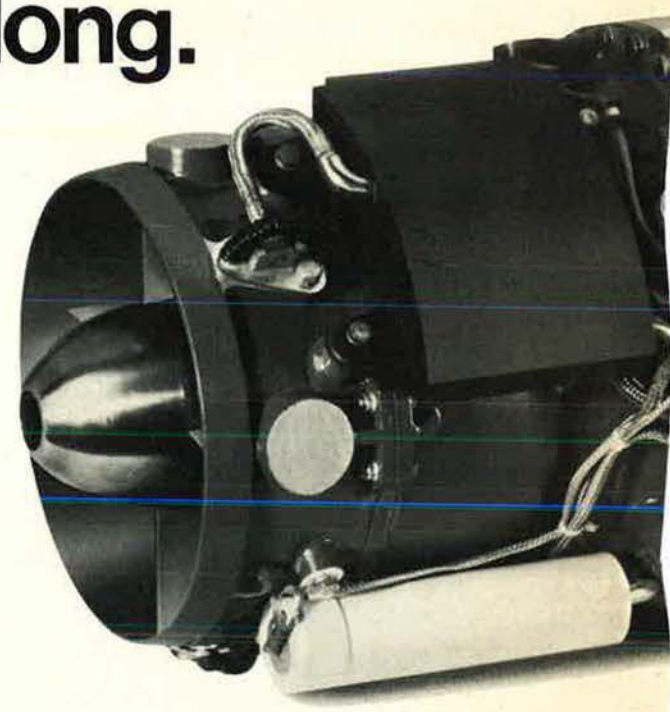


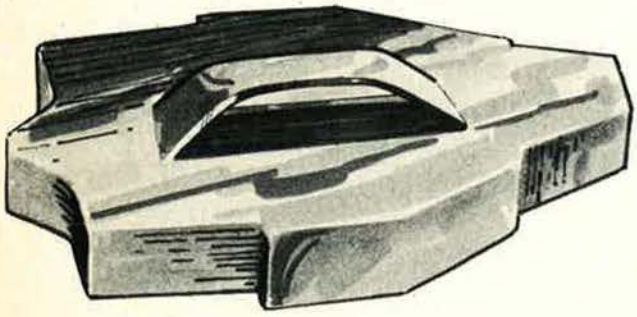
Two of the hottest concepts in turbine engines these days are expendable and limited life engines. They have to be as reliable as any other turbine engine even though they have a considerably shorter mission life. And, you have to build them for a fraction of the cost of ordinary turbine engines.

We've done it. What's more, we've proved it.

We're now flying low cost limited life engines on RPV aircraft. And we expect to further prove the expendable engine concept when Teledyne CAE's engine for the Navy's Harpoon anti-ship missile enters flight test.

Designing a highly reliable engine to meet short duration flight requirements was right up our alley. After all, we've been doing it since 1946. But, getting the costs down without sacrificing reliability was something else.

So, with all our years of experience in un-

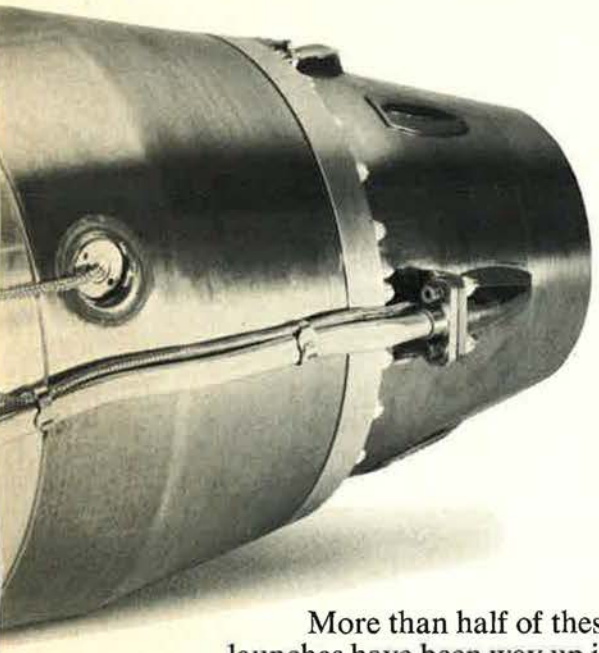


manned turbine engine design and manufacture, we started from scratch. Instead of designing components that required intricate three dimensional milling and 4- and 5-axis machining operations, we've made wide use of precision investment castings. As a result, there are no machined airfoil surfaces in our engine. A big savings. We've replaced many weldments with one piece brazements. Another big savings. And we've further stationized assembly operations. This allows workers to become extremely proficient in a narrower range of duties. This means improved assembly quality, fewer man hours, compact work area . . . result: more savings.

Just as important, we can easily produce engines in the quantities required by current and upcoming programs for expendable and limited life engines with an improved response time to boot.

But please don't get the impression we've gone Detroit on you. If you don't start out with a sound design, all the nifty manufacturing methods in the world won't bail you out.

We're fortunate because our engineers can draw on about 25 years experience in small turbine engine design and manufacture. Ours. Teledyne CAE engines in drones alone have been successfully launched over 20,000 times.



More than half of these launches have been way up in the air, too. Name a way to start a turbine engine and ours have been started that way. Including cool and hot gas impingement starts and very high altitude relight and restart. So we're not exactly beginners.

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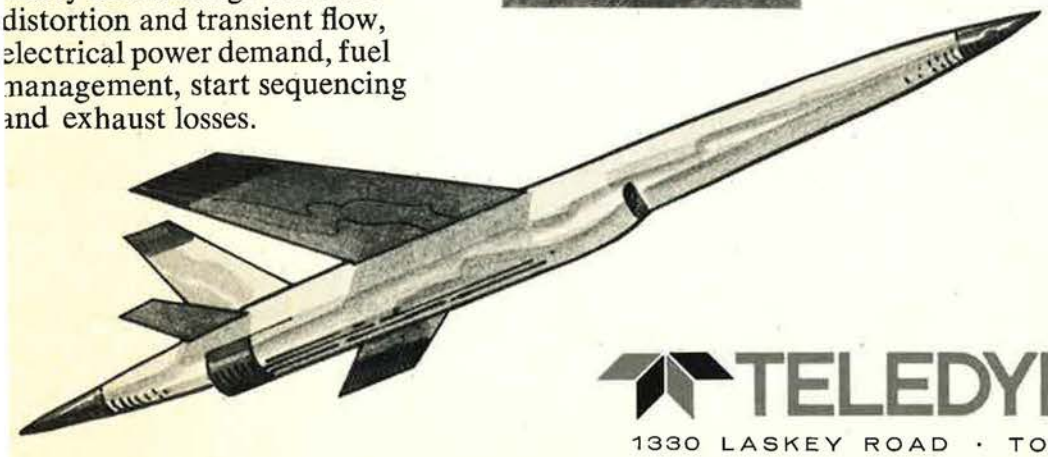

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Gentlemen: As a long-time member of AFA and an admirer of AIR FORCE Magazine, I was surprised to read the following in the November 1971 issue, on page 11 ["Airpower in the News," by Claude Witze]: "The level of the argument is illustrated best by a Fulbright assertion, at one point, that the earlier General Dynamics F-111B program was a failure, the airplanes having been grounded. Mr. Cannon was able to respond with the pronouncement that the F-111B never was built, which is true."

The above quote appears to be in error, at least in part. "Never was built" to me means no F-111B aircraft were manufactured and the F-111B got no further than the drawing board.

May I quote from the authoritative publication, *111 LOG*, Vol. 5, No. 1, 1971, page 7, "Facts and Figures" as of February 10, 1971, which states the F-111B prototype flew fifty-two flights for 117.6 flight hours and the non-prototype F-111B aircraft amassed 1,121 flights for a total duration of 1,630.1 flight hours.

Perhaps my closing statement should be a quote from the *111 LOG*, which is: "Published quarterly by the Logistic Projects Department–Logistic Support. All communications should be addressed to: Mr. C. W. Cecil, Director Logistic Support, Mail Zone 1846, General Dynamics, Convair Aerospace Division, Fort Worth Operation, P. O. Box 748, Fort Worth, Tex. 76101."

C. ROGER CRIPLIVER
Fort Worth, Tex.

• *Mr. Cannon was referring, of course, to aircraft that the Navy would consider operational. It is true that seven F-111Bs were built, mostly for research, development, test, and evaluation. No F-111Bs were built and used by the Navy to fulfill the prescribed mission.*—THE EDITORS

Ambivalence Reprise

Gentlemen: Something is gnawing Col. Frederick C. Thayer ("USAF's Organizational Ambivalence," November 1971 issue), but it is difficult to know what. He has tackled an important subject. He seems to be saying that centralization has gone much too far and that we should return to a more fluid arrangement.

But is this a proper point of departure? How do we consider this apart from a discussion of the forces we require and the communications we command *today?* And to perform what missions? What does unification mean *now?*

We are a long time removed from World War II. And there are compelling reasons why things have changed since then. Undoubtedly, our present establishment is far from perfect. Perhaps the kind of organization Colonel Thayer is apparently advocating might work better, to the nation's benefit. It is hard to judge until he puts his thoughts into a meaningful, understandable context, providing some useful insights. As for making decisions, is organization all that controlling a factor? One thing is certain: The President will continue to control the levers in the nuclear age. He will want an able Secretary of Defense. Also, one could, of course, make a case for even greater centralization.

Unfortunately, as it stands, Colonel Thayer's narrow view doesn't scratch the surface of a historically complex subject that cannot be approached in an isolation booth.

HERMAN S. WOLK
Silver Spring, Md.

Gentlemen: Col. Frederick C. Thayer strays off his theme to take a gratuitous whack at the US Strike Command. He is entitled to his opinions, but readers of AIR FORCE Magazine are entitled to facts. As the author of two AIR FORCE Magazine articles on Strike Command, written while I served on your staff (see "STRIKE: Newest Unified Command," May 1962, and "When the Iron Is Hot," December 1967), I find that Colonel Thayer's comments on Strike Command need considerable amending.

He says Strike Command is now "sliding gently into deserved oblivion." Strike Command was to be abolished on December 31, 1971, but to be immediately replaced on January 1, 1972, by the United States Readiness Command (USREDCOM), which carries on the principal mission for which Strike Command was formed in October 1961; namely, to provide a reserve of combat-ready general-purpose forces based in the continental US to reinforce other unified commands.

Colonel Thayer lists "three contradictory objectives" that he says led to formation of Strike Command. The first, he says, is that "the Army—especially its airborne generals—saw it as the vehicle for permanent possession of the airlift sought for two decades. . . ." Three airborne generals commanded Strike in its ten-year history. They exercised operational control over certain of the Tactical Air Command's airlift units for specific operations and exercises when so directed by the Joint Chiefs of Staff, but "permanent possession" was never contemplated nor would it be desirable from any point of view. The Commander of TAC was also Commander in Chief of Air Force forces under CINCSTRIKE and remains in the same capacity under CINCREDCOM. Whenever the latter needs TAC airlift or other TAC forces for a JCS-approved operation or exercise, the forces are made available. The necessary airlift is money in the bank.

The second "contradictory objective" he lists is that "the Air Force saw a cure-all for doctrinal disagreements. . . ." Before Strike Command was established, both the Air Force and the Army had been seeking a solution to their doctrinal disagreements. Strike Command's efforts may not have been a "cure-all," but in the large-scale exercises it conducted in the early '60s it did achieve notable gains in bringing the Army and Air Force together on close support and tactical airlift procedures. Fortunately, these issues were ironed out just prior to the commitment of major US forces to Southeast Asia, and both ground and air commanders in that theater have attested to their effectiveness. The US Readiness Command is charged with continuing to refine and improve air/ground cooperation.

Third, Colonel Thayer says, "McNamara wanted to remove all combat-ready units from the services (impossible, if the services are to be retained in any substantial capacity)." Colonel Thayer overlooks the fact that it was the 1958 DoD Reorganization Act, and not McNamara's edict, that called for placing operational control of all combat-ready forces under unified command. The establishment of Strike Command completed implementation of that phase of the 1958 Act.

Finally, in referring to military support in civil disturbances, he says "MacDill Air Force Base in Florida

hardly could be the operational command post for domestic deployments." Aside from the fact that MacDill is no more remote than Washington from many US urban centers, whatever connection he sees between Strike's mission and civil disturbances must surely have escaped those readers who know that historically the Department of the Army has been, and remains, the President's executive agent for civil disturbances.

ALLAN R. SCHOLIN
Tampa, Fla.

Gentlemen: Colonel Thayer's article . . . was interesting and thought-provoking.

I personally think what the Colonel really meant to say was that the present overcentralization is destroying the USAF's capability to fight!

We can rightfully blame Mr. McNamara for many of our problems, but the time has long since passed for us to take a hard look at our own *modus operandi*. The watchwords in the Air Force today are "professionalism" and "management." In actual fact, we practice neither, or at best sing them off key. The Air Force approach today is for the commander of an operation (normally the major Air Force commander) to command from his level. His guidance to the troops (the "how" to do it) is provided by a staff three thousand miles away, well versed in the "systems-management analysis" approach to problem-solving. This approach to management has resulted in a tremendous undercurrent of frustration throughout the Air Force at all levels; not to mention the nauseous amount of money it has wasted through extra reports, reporting systems, huge staffs, and perverted equipment.

Our country can no longer afford this waste of resources. As servants of our country, we have the responsibility to stop building egoism, and to start building a fighting force that does it better and cheaper. There is only one way to do this, and that is through faith and trust in people. Our present system tends to develop egocentric technocrats, isolated from the real world, and the people who survive their management are the ones who are willing to say "yes."

Command and *authority* must be given back to that person at the lowest level possible to accomplish the mission. When a commander at any level fails to produce, then we should get a new commander, not centralize the function. We need to listen to the people at the lowest level—not the ones who cry about quarters and pay, but the ones who want to make the Air Force a better fighting force for their country. (The place is full of them, by the way.) They really do know how to build a better mousetrap. Rank should not be a pay grade, but should carry with it *authority* and *responsibility*.

As a nation we have always bragged about the ingenuity of our people. We credited this ingenuity to the fact that we lived in a free society, and our people were allowed to think for themselves. In my eighteen years I have noted that we (the Air Force) are becoming more like our enemy each year. Our system now gives up the advantages that freedom gives, such as *esprit de corps*, the sense of accomplishment, and competition. If we don't start developing leaders now, then we won't have any in the future. The only way to train them is to let them "do." Very few have the opportunity to watch a commander in action. Schools and books are great, but, like the simulator, they never put the person in the position to face that moment of truth!

LT. COL. JAMES G. LACHANCE
Austin, Tex.

The author replies: I cheerfully admit it is difficult to argue *clearly* for a theory which emphasizes ambiguity, but it is my fault if the argument doesn't get through. Let me take up Mr. Scholin's points:

1. I was trying to analyze the historical factors which led to STRIKE, not its official objectives. The airlift problem involved, over time, not merely TAC airlift, but MAC's as well; this is why C-141s and C-5s were designed as they are, and it accounts for the complex TAC/MAC management agreements. Naturally, what the airborne generals sought (principally Gavin and Taylor) was unattainable, but it was important to their thinking. A whole command was built around an airborne concept that has contributed precious little over the years. My views are elaborated further in my book.

2. If Mr. Scholin feels that STRIKE solved doctrinal problems just in time for SEA, so be it. Had that been so, there would have been no need for extensive personal negotiations between Army and Air Force chiefs on aviation issues. STRIKE resolved unimportant things which could have been resolved without it. In the meantime, with the Air Force tied so closely to the airborne divisions, the Army developed massive aviation capabilities for the remainder of its divisions.

3. I tried to show that McNamara worked from the 1958 Act. Eisenhower, who virtually wrote it himself, was one of the best administrators we have had, in terms of *involving* others; it is a pity he fell victim of traditional theory in preparing the Act. The point is that STRIKE was immediately traceable to Kennedy's adoption of Taylor's programs.

4. Mr. Scholin demonstrates better than I the uselessness of STRIKE (or REDCOM). If the CINC doesn't *possess* forces, if he has no offshore responsibilities (farewell to MEAFSA and super airborne command posts), and if he can't handle domestic operations, then why bother with the command? If the services *prepare* and *maintain* combat-ready forces, what is gained by an overhead layer that is only a relay station?

Colonel Lachance and I agree to some extent, if I understand his aversion to overcentralization. In the field, though, commanders can become just as isolated if they concentrate on "command" and "authority," instead of the involvement of their people. Fortunately, the Air Force seems to be learning this, and speedily.

Apparently Mr. Wolk is among those who insist that organization and decision processes aren't very important. This is odd for an Air Force historian, given the original Mitchell implications that organization has much to do with what you get and how you use it. Yet, "communications" seem significant to Mr. Wolk for some reason; could it be that he has something in mind beyond the simplistic notion that the "President is in charge"? In any event, if Mr. Wolk wants more centralization, I respect his view; I simply don't agree with it.

COL. FREDERICK C. THAYER, USAF (Ret.)

UNIT REUNION

Ranch Hands

The annual reunion invitations with an updated roster have been mailed to all known members. If you have not received one please forward name and address to

Lt. Col. Charlie Hubbs
707 Concord Ct.
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Airpower in the News

By Claude Witze

SENIOR EDITOR, AIR FORCE MAGAZINE

Proxmire Picks a Sweet Lemon

WASHINGTON, D. C., DECEMBER 10

It was pointed out in this space last month that the aerospace industry faces a critical year in 1972 and that an increasing number of studies are being made in a hunt for a solution to the problems of the day. The focus is on the procurement system itself, which is getting attention from the manufacturers, in their current travail, and also from Congress, which has created a Commission on Government Procurement to examine the situation. Meanwhile, the Department of Defense continues the struggle to meet the requirements of national defense, the budget restrictions, and the soaring cost of weapon systems.

Up on Capitol Hill, the Senate Armed Services Committee, headed by Mississippi's John C. Stennis, has deplored "the present trend of manpower and weapon system costs." In his annual report on defense authorization, Mr. Stennis wrote that "if defense budgets are to remain more or less constant, as now seems likely, and consume an ever-smaller part of the nation's resources, then the present development and procurement policies are no longer open to us." He meant what he said, and the committee, in the past week, has launched a new inquiry into the subject of weapon costs.

Just as Mr. Stennis was launching his sober study, another Senator, William Proxmire of Wisconsin, took off on the subject in an article that was published on December 5 in *Potomac*, a Sunday magazine section distributed in the capital by the Washington *Post*. The article is not a study or discussion of the problem, such as the Armed Services Committee has undertaken. It is a diatribe, in the best Proxmire tradition, with little regard for the facts.

The headline sets the tone: "The US Navy Fighter Jet that Shot Itself Down, and Other Pentagon Lemons." Here is the first paragraph of Mr. Proxmire's article:

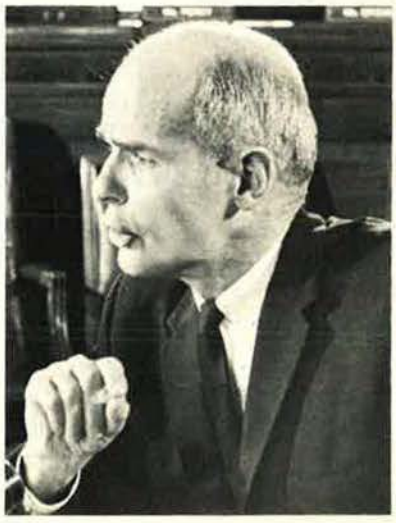
"Back in 1956 there was a news story about a new Navy fighter jet, the F11F-1 Grumman. It seems the jet managed to shoot itself down while flying over the Atlantic Ocean. A test pilot fired two bursts of shells from the plane's four cannon while flying along at 880 m.p.h. The jet was apparently going faster than the cannon shells, which pierced the windshield and knocked out the jet engine."

Mr. Proxmire's facts, in this case, were reasonably although not entirely correct, but he proceeded then to suggest that "such happenings" prove something about the sad state of weapons procurement. He is convinced that the F11F-1 incident is merely a 1956 example of aircraft performance from one of many "costly projects that ended up in Uncle Sam's trash heap."

Now, the F11F-1 Tiger was a highly successful Navy aircraft. Indeed, it was used for several years by the Blue Angels, the Navy's aerobatic team. The Blue Angels do not fly lemons. If Mr. Proxmire, or his staff, had an interest in the facts about this aircraft's history and the significance of the 1956 mishap, both are easy to obtain. One interesting way to do it is to put in a telephone call to the Grumman Aircraft Engineering Corp. plant at Bethpage, N. Y., and ask for Mr. Thomas Attridge. Today he is a Grumman executive. In 1956 he was the pilot who shot himself down. He can tell you exactly what happened and what was significant about it.

Test pilot Attridge, on September 21, 1956, took his test aircraft up for its forty-first flight. His mission involved armament development. His orders were to empty four 20-mm guns in two bursts, with a three-second delay between them to cool the guns. He went to 22,000 feet, turned on the afterburner, and went into a twenty-degree dive. At 13,000 feet he fired the guns for four seconds. His speed was 625 knots. He continued down, and at 7,000 feet and 670 knots he emptied the guns. At almost the same instant, his windshield burst and one engine failed to function correctly. He went back to 13,000 feet to slow the aircraft and then headed for his home field. He didn't make it. He crashed short of the runway. Examination showed he had been hit three times by shells from his first

An in-depth study of weapon systems acquisition, or procurement, has been launched by Senator John Stennis, Chairman of the Armed Services Committee.



Senator William Proxmire, Chairman of the Joint Economic Committee, continues his attacks on Pentagon procurement as a source of inefficiency and waste.

bursts, one of them having gone into the right engine intake.

What did this prove? We talked to Mr. Attridge, and it appears to be his opinion that it proved he was flying a high-speed airplane—the F11F-1 was the first Navy plane to utilize area rule in its configuration—and that the laws of gravity continue to prevail. That is all. The accident had nothing to do with the design or construction of the plane. It had nothing to do with procurement policies, the cost of the weapon system, or the performance of the manufacturers or contracting officers. The F11F-1 Tiger project was highly successful from the standpoint of the Navy, Grumman, and the American taxpayer. About 200 of the aircraft were built and used. The F11F-1 was not a lemon. It never went onto the trash heap, Mr. Proxmire's interpretations notwithstanding.

If we turn now to Mr. Stennis and his examination of the problems faced in 1972, we find he is not concerning himself with freak incidents. He launched his inquiry with a statement that stands in sharp contrast to the Proxmire approach. Chairman Stennis said he seeks to help both the Armed Services Committee and the public to understand how weapon systems are developed and procured. When the proceedings are published, they should be required reading for all members of the Senate, as well as the rest of us. Mr. Stennis made this clear when he said at the start that "the discussion of weapon systems in the Congress has seemed to me to be sadly deficient in its understanding of process and procedures." The chairman is a lawyer, and he points out that you can't understand the issues of criminal law without first understanding the procedures of arrest, indictment, arraignment, trial, and appeal. He added:

"No good lawyer or reasonable analyst of the criminal justice system would say that we could ignore all of these issues and focus exclusively on a few individual defendants. In a sense, however, this is what Congress and the public have been doing in the field of weapon system acquisition."

Initial witness at the Stennis hearing was Gilbert W. Fitzhugh, Chairman of the Board of the Metropolitan Life Insurance Co. and Chairman of the 1969–1970 Blue Ribbon Defense Panel. Mr. Fitzhugh was a pithy, blunt witness. Among other things, he recommended that Congress itself stick to the policy-making level, like a Board of Directors, and leave the Pentagon experts alone in the execution of their jobs. He also would raise the level of Pentagon expertise, in order to make this approach more attractive.

Mr. Fitzhugh says, "It is important that the Project Manager be high enough in the organizational structure to be permitted to manage the project, without spending an undue amount of his time clearing or explaining his actions to several higher levels of supervision within the Department of Defense and even outside the department, including Congress. Obviously, both Congress and the Secretary of Defense have proper responsibilities for general oversight, but it is important for the overseers not to get bogged down in detail."

Mr. Fitzhugh, and other witnesses, did not hold their fire in criticizing some of the innovations in the regime of Robert S. McNamara as Secretary of Defense. The Blue Ribbon chief testified that Pentagon policies have contributed to excess costs, time delays, and deficiencies in performance. He called for cutting risk by the use of prototypes and more flexibility in "acquisition strategy." He demanded more effort to build up the "military-related technological base." He called for more emphasis on hardware and less on paper studies. He was highly critical of fixed-price contracting, too often equated with competition. And competition is what has led to underbidding and cost overruns. In Mr. Fitzhugh's opinion, fixed-price contracting on development programs restricts flexibility.

Weapons and Toothpaste

Dr. Frederic M. Scherer put the major problem to the Stennis committee in these succinct words:

"Somehow, despite the best of will, the system for acquiring technologically advanced weapon systems seems to have gone off the tracks.

"We are pouring in enormous quantities of resources and obtaining disappointingly little output. To a certain degree, this is the inevitable consequence of operating in a third-generation environment following some spectacularly successful early performances. But there also have been avoidable errors.

"One has been a failure to recognize the evolving character of challenges in military technology and to adapt them in a suitable manner. A second has been the naïve belief that elaborate management is some kind of panacea, or worse, that success will follow from grafting onto the defense establishment the organization techniques which have been found to be effective in manufacturing toothpaste or compact cars. A third is the failure to understand the complex motivation of defense contractors and how it affects their behavior, and, given this failure, to attempt influencing behavior through Rube Goldberg contractual instruments while ignoring many of the more fundamental incentive dimensions."

Practically every witness took a dim view of Mr. McNamara's total package procurement program. Mr. Fitzhugh said it is the one approach his panel thought should be generally rejected, as entirely inconsistent with sound acquisition principles. Said he:

". . . it was found in practice that, in total package procurement, all of the undesirable features of weapons acquisition are combined or have the potential of being combined. It is difficult to imagine total package procurement of a large weapon system which would be either in the Government's interest or in the contractor's interest."

This was learned, of course, in the history of the Lockheed C-5A. Mr. Fitzhugh put his finger on some of the finer details, including the McNamara insistence, like that of Mr. Proxmire, on judging a system acquisition on the basis of cost estimates made before anyone knew just what would be built.

"Cost estimating for development programs has apparently been too widely credited in the Defense Department, in industry, in the Congress, and by the public with a potential for accurate prediction which is belied by the inherent technical uncertainties in developments," Mr. Fitzhugh said. "The precise problems which may be encountered in the process of attempting to convert a technological or scientific theory or experiment into practical, producible application cannot be foreseen with accuracy. It should be axiomatic that one cannot place a price on an unknown. . . .

". . . the use of precontractural cost estimates as a firm baseline for measuring performance throughout the life of the system, and the shock reaction which is forthcoming when cost overruns or growths are experienced, all evidence an unwarranted degree of confidence in cost estimates."

Another approach to this aspect of the problem was discussed before the committee by Frederic M. Scherer, of the University of Michigan. Dr. Scherer was coauthor, in 1962, of an analysis of weapon systems acquisition pub-

lished at Harvard University. He told the Stennis committee that the McNamara contract reforms introduced too much rigidity into the structure. This results in higher bureaucratic costs and "is a great enemy to economy in the development of complex, technically advanced weapon systems."

Here, Dr. Scherer cited the history of the C-5A and the USAF weight requirements. Lockheed was willing to try to meet them, and the maximum specification was written into their fixed-price incentive total package contract. Later, Lockheed asked for a waiver. It was refused. This forced the manufacturer to substitute lighter but more expensive metals in some parts and resort to chemical milling on others. Dr. Scherer says the estimated cost of these operations was $120 million. He suggested that some of the structural failures experienced were attributable to these programs. He repeated that "inflexibility of contractual instruments is incompatible with economy" and said it imposes a heavy cost on the taxpayer.

Dr. Scherer also lamented the trend, during the McNamara administration, toward the centralization of management of weapons acquisition in the office of the Secretary of Defense. He traced the history of this back as far as the early 1940s, through the Eisenhower Administration and to the establishment of the Office of the Director of Defense Research and Engineering. Over this period, the Defense Secretary accumulated more and more power until it got to the point where the armed services proposed and the Secretary disposed. McNamara participated actively in decision-making at all stages of research, development, and production.

Commented Dr. Scherer:

"The sentiments underlying these changes were commendable. There had been no lack of dissatisfaction with programs of the 1950s, despite some noteworthy successes.

"There was widespread belief that 'better management' would solve the problem. But in the complex bureaucracy of weapons and space systems acquisition, 'better management' has a tendency to be translated into 'more management,' with an accompanying increase in rigidity, delay, and the suppression of initiative.

"This was exactly the opposite of what the technological conditions of the 1960s demanded. . . . Flexibility was most difficult to maintain in a regime of elaborate hierarchical management, detailed centrally mandated development specifications, and equally detailed and rigid contractual instruments.

"Failure to achieve it appears to have been a significant contributor to the problems experienced in the F-111, C-5A, F-14, and no doubt other weapons programs."

At several points in the hearings so far, it has been pointed out that the Blue Ribbon Panel cited these same ailments and that under the present Administration efforts are being made to swing the other way.

The most important part of Dr. Scherer's testimony dealt with his diagnosis of the situation today and his proposed remedies.

He said, to begin with, that the weapons industry is in its worst state of disarray since right after World War II. He estimates that we now have twice the industrial capacity we really need, because "the defense space boom of the 1950s sowed the seeds of its own undoing . . . so that by the early 1960s there was evidence of considerable excess capacity in the manned aircraft, guided missile, guidance system, and related electronic subsystem fields."

This, of course, is tied to declining profits. Now the struggle is for survival. The result is that the manufacturers devote their top resources to winning new orders. The witness finds this natural:

"One cannot expect them to estimate costs and technical risks accurately when optimistic estimates enhance the prospect of capturing a new program assignment. One cannot expect them to refrain from hoarding personnel under whatever contractual blanket they can find when long-run organizational viability demands that they keep the team together."

Dr. Scherer was harsh:

"During World War II . . . the attitude of contractors was: 'How much can we do with what we've got?' . . . But when the pressure is off, and especially when there is a general surplus of defense industry resources relative to program demands, the characteristic attitude is: 'What in the world can we do to keep our existing staff busy?' Then cost controls falter, gold-plating, and excessive complication of products are fostered, and the best technical personnel are diverted away from problem-solving of a constructive sort into proposal writing and brochuremanship."

Some changes are needed. It is up to the customer, Dr. Scherer says, to induce the contractors to maximize output and not the resources they can tie up in a restricted set of programs. There must be a shakedown. How?

1. The Defense Department should decide how many industry people and how much plant capacity it needs to support its programs. It should bring capacity into line with this requirement, dropping the least effective contractors and "forcing a Slenderella treatment on the others."

2. Defense then should keep this selected industry pros-

Lockheed's C-5A continues to play a role as a target for critics of procurement policies. Witnesses before the Stennis committee faulted contract terms and rigidity of specifications as the major causes of difficulty with the huge USAF transport.

perous, with research, development, and production to the limit of its capacity to do a first-rate job.

3. This guarantee of work should not become a sinecure. Organizations which do a good job should be allowed to grow. Those who fail can die on the vine.

The truth is that Dr. Scherer is suggesting that free enterprise be allowed to work. He told Mr. Stennis he considered his program a "radical proposal."

Other witnesses heard so far by the Armed Services Committee included Dr. John S. Foster, Jr., Director of Defense Research and Engineering, and a trio of experts from the RAND Corp. Dr. Foster spoke up for the record set in his office, which has been in large part based on the recommendations of Mr. Fitzhugh's Blue Ribbon Panel.

Dr. Foster said this Administration has decided to bring only the important and critical issues up to the Secretary of Defense for his personal attention. The Secretary is giving more power to the Chiefs of Staff and the program managers. With this decentralization, Dr. Foster testified, the Pentagon is giving increased emphasis to basic technology, avoiding duplication of effort, simplifying management, and giving more attention to test and evaluation.

He pointed to the new school at Fort Belvoir for the training of program managers and the upgrading of that job. Twenty of the managers of eighty-two large programs now are general or flag officers, compared with twelve six months ago. There is an attempt to minimize concurrency of development and production.

A key witness from the RAND Corp. was J. A. Stockfisch, who presented a paper on operational testing. This is an area of which the Blue Ribbon Panel was highly critical, holding that funding has been inadequate and confused. The Panel called for a special appropriation and a new Deputy Secretary of Defense for Evaluation, who would have responsibility for the program.

Mr. Stockfisch, accepting this decision, gave a lecture on operational testing, what it is and how it is done. The witness was critical of the military services, finding that the contractors made too many decisions and acquired too much power in the process. He said the military users should dominate, but he also accused them of asking for too much.

Other RAND witnesses were Robert Perry and Arthur J. Alexander, who testified on how weapon systems are designed and developed in Europe and Soviet Russia.

In the opening sessions of the hearings, which will be continued in the near future, there was no evidence that Senator Proxmire or any of his staff showed an interest in the proceedings.

Mr. Proxmire is not a member of the Armed Services Committee. Along with his opinion that the Grumman F11F-1 was a "lemon," he wrote in the *Potomac* Magazine of December 5 that the Armed Services Committees, which he calls Armed *Forces* Committees, are "incapable of the close inspection and argument which must be given the Pentagon's requests." Mr. Stennis is offering strong evidence to the contrary.

The Wayward Press

About a month ago, ten USAF men were killed when a C-130 cargo plane crashed on takeoff for a training mission from Little Rock AFB, Ark. Little Rock is a Tactical Air Command base. The C-130s are used there for tactical airlift and crew training.

We have at hand a newspaper account of this accident. There are ten paragraphs in the story, making up what a printer would call "two sticks" of type. There are factual errors in five of the ten paragraphs:

The first paragraph says the aircraft had a "full load of twenty tons of jet fuel." The 40,000 pounds it carried is the standard fuel load for this type of mission, but is not a "full load."

The second paragraph says the C-130 has "turbo jet engines." The C-130 is powered by four Allison T56 turboprop engines and has propellers.

The fourth paragraph says "five of the eleven men aboard were student airmen learning to be pilots." There were seven students aboard—three pilots, one navigator, one engineer, and two loadmasters. The other four men were members of the instructor crew.

The sixth paragraph speaks of "the 4,000-horsepower cargo plane." The C-130's four engines each generate 4,050 horsepower, giving the aircraft a total horsepower of 16,200.

The ninth paragraph says a USAF information officer at Little Rock said, "The plane used up about 11,000 feet of runway on takeoff." He did not say that. He said the aircraft took off at about 4,000 feet. It immediately developed control problems, swerved away from the runway and back over it, then crashed at the 11,000-foot mark.

This collection of mistakes presumably went through the hands of a normal contingent of editors and copy-readers. One of the latter wrote a headline which said, "10 KILLED IN CRASH OF AF FUEL PLANE." The reader would assume this meant the C-130 was a tanker, not a cargo plane. That was the sixth mistake.

We will not identify the newspaper, because there is no attribution for the story. It could have been staff written or supplied by an unidentified wire service.

There is a simple point we want to make. It is this:

If the reporter who wrote this accident story were a sports writer, sent out to cover a football game, he would be fired for incompetence if he came up with a comparable list of errors of this magnitude. He would, or should, be followed into the street by the desk man who approved the story and wrote the erroneous headline.

Yet a representative of the newspaper in question, asked about the deplorable performance out of Little Rock, responded: "What difference does it make?" ■

"Don't you have any other statement about the budget besides, 'It's a lot of do-re-mi'?"

Aerospace World

News, Views & Comments

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

WASHINGTON, D. C., DEC. 12

As we enter the year 1972, increasing numbers of discharged veterans are adding to the pressure on an already critical situation in the US: the high level of unemployment.

Steps are being taken within USAF to lessen the impact on the veteran and on the civilian community he'll return to.

Among them, Air Force is setting up a facility at Forbes AFB, Kan., as the site of a job-training center for airmen preparing for discharge.

The Air Force Skill Center at Forbes is scheduled to become operational early in 1972. Its primary aim is to expand the Project Transition Program, established to increase employment opportunities for returning vets. The center will employ civilian instructors to teach courses in such marketable skill areas as auto mechanics, appliance repair, bricklaying, air and water pollution control, and other in-demand services.

The airmen will also receive job-placement assistance.

Various aspects of the Skill Center, such as recruitment of civilian instructors, will be handled by the Department of Labor and the Department of Health, Education and Welfare. Air Training Command will oversee the facility.

The student body at the center is expected to total an initial 400 airmen by midsummer, with priority given to those who have no marketable skill and who are returning from combat areas abroad.

In a related matter, the 301st Air Refueling Wing, Lockbourne AFB, Ohio, at year's end launched a program to help place vets in civilian jobs in the Columbus area.

The campaign, entailing three phases, was undertaken in conjunction with the National Alliance of Businessmen (NAB), the US Department of Labor, and the Ohio State Employment Service. Formerly engaged in placing the disadvantaged in jobs, the federally aided NAB has expanded to help veterans.

During Phase One of the program, selected Lockbourne NCOs made appointments through NAB to visit some 470 civilian employers to acquaint them with the range of veteran skills available.

Phase Two, a Jobs for Veterans Opportunity Fair, was held recently at the Ohio State Fairgrounds, where interviews were set up between airmen and representatives from more than 100 businesses.

Phase Three will consist of a tour of Lockbourne by prospective employers to view the extensive facilities used to train the airmen in up-to-date skills.

☆

The Air Force has scheduled a sharp reduction in pilot output during Fiscal Year 1973.

Reasons cited are the reduced combat requirement in Southeast Asia (with concomitant manpower realignments for all the services); increased pressure on the budget; and higher-than-anticipated retention of younger pilots (a tight civilian job market being a significant factor).

The reduction in undergraduate pilot training will be the first since 1962.

Using the lowest figure quoted as the original training target for Fiscal 1973—3,750 pilots—the downward revised figure of 3,100 would mean a drop of some sixteen percent in new pilots for Fiscal 1973.

Down but not out *is the attitude of Maj. James R. Compton, a pilot with the 13th Tactical Fighter Squadron, 432d Tactical Fighter/Reconnaissance Wing, Udorn RTAFB, Thailand. Severely injured along with his backseater, Capt. Ronald E. Fitzgerald, when their F-4 Phantom II was shot down over Southeast Asia, the Major is given something other than a disheartened send-off boarding a medevac aircraft*

The decrease in new pilots will not affect new Air Force officer production in other rated areas and in the support fields, officials said.

☆

Late in 1971, US pilots reported that a North Vietnamese MIG fighter fired an air-to-air missile at a B-52 bomber, the first recorded instance of such an event in the history of the air war over Southeast Asia.

The US aircraft was part of a contingent engaged in a mission over the Laos portion of the Ho Chi Minh

Trail, the enemy's main supply artery and the principal target of US interdiction efforts.

The MIG missed the B-52 and was subsequently chased back into North Vietnamese territory, the report said.

The MIG pass is indicative of the stepped-up activity by enemy aircraft over Laos in the last several months.

As US forces withdraw from SEA and US involvement in the air war dwindles, North Vietnamese airpower —though restricted in range—may well become an increasing threat to remaining US land and air elements, as well as allied air and ground forces.

☆

A team of specialists, organized in December, will undertake an in-depth review of C-5 transport production quality. The project was proposed by Brig. Gen. Warner E. Newby, C-5 Systems Program Director.

The $3.5 million year-long review will utilize technical experts from USAF, prime contractor Lockheed Aircraft Corp., other aerospace industry groups, and from the scientific community at large.

The review will evaluate structural tests and procedures and recommend refinements and modifications as required to assure that the C-5 is fully capable of performing its mission.

In a joint effort worked out with Lockheed, and to be undertaken primarily at Lockheed's Marietta, Ga., facility, the panel will report on each segment of the aircraft—from wings to landing gear—to ascertain fatigue life, damage tolerance, and static strength.

The review is to complement ongoing C-5 test programs, as well as contribute data to USAF's "operational use management program," set up to use the aircraft's operational capability to a maximum while minimizing wear and tear.

F. A. Cleveland, Lockheed Vice President for Engineering, will head the contractor team, while Dr. J. W. Lincoln, technical adviser to the Aeronautical Systems Division's Director of Airframe Engineering, will direct the Air Force element.

☆

In the last decade, much R&D effort has gone into electronic devices for reconnaissance purposes—mostly stimulated by requirements to "find and fix" enemy infiltrators utilizing darkness and adverse weather in Vietnam.

Many devices are airborne and, not surprisingly, have found application in such US civilian fields as law enforcement, border patrol, and the Customs Service. You can imagine the difficulty of patrolling, say, the thousands of square miles of badlands in the Southwestern United States in the battle against smuggled narcotics and the illegal entry of aliens.

One such device built by Lockheed for use aboard aircraft was recently unveiled to law-enforcement officials and other potential users. The system —Airborne Night Observation Device (ANOD)—will also be evaluated by USAF.

ANOD amplifies reflected light—even hazy starlight—to permit identification of objects on the ground.

One potential use for ANOD and like gadgets could be aboard night-patrolling police helicopters, which urban areas are turning to increasingly in the fight against crime. Many of these helicopters now illuminate shadowed areas with spotlights—which leaves no doubt to hiding criminals about police interest. Thus, unobtrusive detection devices might prove useful in patrol work.

☆

Hats off to MAC's maintenance men and safety program: The command's fleet of C-141 StarLifters has set a mark of three million flight hours without the loss of one aircraft through equipment malfunction.

—Wide World Photos

To cap a crisis-strewn year in international relations, a full-fledged war erupted between India and Pakistan, following many months of tension and mutual recriminations. This is a photo released by the Indian Defense Ministry that reputedly shows Indian villagers regarding the wreckage of a Pakistani F-104 jet fighter shot down near Amritsar in India's Punjab State. By mid-December, clearly stronger Indian forces had forced the surrender of East Pakistan.

Until the operational appearance of C-5s in significant numbers, the dominant mainstay of US airlift was the reliable C-141. Still a prominent member of the airlift team, MAC's StarLifters tote men and equipment around the world with jet speed. Built specifically to serve as a jet transport, the C-141 has logged an incredible record of three million flight hours without loss through equipment failure (see above).

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This is really remarkable considering that the 284 C-141s (built by Lockheed Aircraft Corp. between 1965 and 1968) have logged about a billion and a half miles in their worldwide transport role. The MAC fleet has been pared to 275 aircraft, with two lost in Vietnam combat and seven serving other commands.

With a cruise speed of more than 500 mph and cargo capacity of up to 68,500 pounds, the C-141 was the first jet designed specifically as a cargo or troop transport. Such characteristics plus high reliability have significantly reduced both maintenance and cargo-delivery costs over prop-driven transports.

☆

And cheers for MSgt. Hance C. Storus, the first man in history to fly 400 combat missions in a B-52 Stratofortress.

A tailgunner with the 367th Bomb Squadron, McCoy AFB, Fla., the Sergeant set his record while on temporary duty with the 307th Strategic Wing at U-Tapao Airfield, Thailand.

And talk about temporary duty: Sergeant Storus, since his first Southeast Asia mission back in September 1966, has logged close to 1,000 days TDY in SEA.

The Sergeant began his military career with the Army's First Cavalry in 1946. Leaving the Army in 1949, he joined USAF in 1950.

Always crewing in bombers, Sergeant Storus began his flying in B-36s, and later switched to B-47s. In 1964, he became a B-52 tailgunner and has chalked up more than 3,000 hours in that aircraft since.

Another proud tally for Storus is his mark of "Bonus Deals" on eighteen missions. BDs occur when a B-52's bomb-drop radar malfunctions and the tailgunner of the preceding aircraft utilizes his fire-control radar to direct the drop.

Sergeant Storus holds the DFC with Oak Leaf Cluster; the Air Medal with thirteen Oak Leaf Clusters; USAF's Commendation Medal; and the USAF Outstanding Unit Award.

☆

USAF has set up an official "new ideas" department open to public contributions. Dubbed the "New Initiatives Office," it will be the responsibility of the Deputy Chief of Staff for Research and Development.

The new office "will serve as an Air Staff focal point for new ideas, systems, and techniques to solve Air Force R&D-related problems and to give the service better methods for performing its mission," Air Force said.

Ideas generated by private citizens, institutions, and industry will be considered, and those showing promise will be forwarded to Air Force Systems Command for detailed examination, Air Force said.

"Creation of the new office will not change established procedures for submitting unsolicited proposals through AFSC, nor is it a substitute for the normal request-for-proposal procedures. It will, however, provide a place where new ideas can be introduced to the interested Air Staff agency and should give industry representatives a better understanding of Air Force areas of interest in research and engineering," officials said.

Address the New Initiatives Office at AF/RDQLI Room 4C348, The Pentagon, Washington, D. C. 20330.

☆

The US Army has successfully test fired a missile with an all-plastic airframe. (Development of the plastic missile technique was announced last April by Hughes Aircraft Co., under contract to USAF.)

The use of plastics in missile airframes has some very promising advantages. While still experimental, it was noted, plastic missile fabrication could contribute better aerodynamic heating performance; less corrosion problems; reduced radar reflectivity; fewer dents and scars resulting from careless field handling; and, last but certainly not least, better cost-effectiveness. (While under developmental structural tests at Wright-Patterson AFB, Ohio, the plastic airframe proved stronger than its aluminum counterpart.)

Also of considerable significance is that plastics are more readily available than are the strategic metals now utilized in missile airframes. In building the plastic missiles, less time and labor are required, a Hughes spokesman said. No mechanical fasteners or threaded joints are necessary.

If feasible, plastic airframes could be built as training missiles, target missiles, flight research vehicles, and even tactical weapons, it is believed.

Meantime, at the Air Force Armament Lab, Eglin AFB, Fla., work is proceeding on a 20-mm plastic-case/aluminum-base cartridge. If developed, the plastic case could mean considerable savings in ammunition production costs, weight in ammo loads aboard aircraft, and expenditure of expensive metals. A side benefit: denying an enemy the option of collecting and reusing expended brass ammunition cases.

☆

In mid-December the Aviation Hall of Fame, Dayton, Ohio, enshrined four more Americans among its rank of aviation greats.

Attending the event were some of flight's most prominent personalities, including Sen. Barry M. Goldwater (R-Ariz.), who acted as master of ceremonies. Senator Goldwater is a retired Major General in the USAF Reserve and has logged some 10,000 hours of flight time in ninety-six types of aircraft.

The Hall of Fame enshrinees for 1971:

- **Aviatrix Jacqueline Cochran,** who has set and held more international speed, distance, and altitude records than any other person. (Miss Cochran is also a long-time supporter of AFA.) She is the first woman to fly faster than sound and has logged 15,000 hours at the controls of many kinds of aircraft, including ten types of jets. "Because she was testing new equipment and developing new techniques during almost every one of her major flights, the speed and altitude records set" by Miss Cochran represent "outstanding achievements in modern aviation," the Hall of Fame said.
- **William M. Allen,** Chairman of the Board, Boeing Aircraft Co., known throughout the aviation community for his backing of research and development. Under his leadership, Boeing built the B-47, the B-52, the 707, and giant 747.
- **Gen. George C. Kenney,** USAF (Ret.), who commanded the Allied Air Forces in the Southwest Pacific, 1942–1945. He organized and com-

Jacqueline Cochran

William M. Allen

George C. Kenney

Harry F. Guggenheim

Left and above are Milt Caniff's portraits of the Aviation Hall of Fame's 1971 enshrinees. The four join a select group of US aviation greats.

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manded the Strategic Air Command from 1946 to 1948. Before retirement in 1951, General Kenney also served as Commander of the Air University, Maxwell AFB, Ala. His flying career began in 1917 when he flew as a combat pilot in France.

The late **Harry F. Guggenheim,** diplomat, naval aviator, and supporter of research in aeronautics, rockets, and jets (he was also noted for his many philanthrophies). Mr. Guggenheim served as a naval aviator in England, France, and Italy during World War I. A champion of aviation research and safety, he was the prime mover in establishing many schools of aeronautical engineering at top-rank US universities. He heavily supported Dr. Robert H. Goddard, whose pioneering of rocket and jet propulsion is the basis for all modern developments in the field.

As president of the Daniel Guggenheim Foundation, he helped create centers for jet-propulsion and aerospace research, as well as centers for aerospace health and safety, and the International Academy of Astronautics.

The Aviation Hall of Fame is a nonprofit organization chartered by act of Congress to honor individuals who have made outstanding contributions to aviation.

Eight new Short-Range Attack Missiles (SRAM) in rotary, rapid-launch configuration for installation aboard B-52s.

Lt. Gen. James T. Stewart, Commander, Aeronautical Systems Division, AFSC, was honored at an AFA-sponsored reception in Beverly Hills, Calif., last November. From left: John F. Loosbrock, Editor, AIR FORCE *Magazine, AFA President Martin M. Ostrow, General Stewart, and Daniel J. Haughton, Chairman of the Board of the Lockheed Aircraft Corp.*

☆

WAF notables:

Col. Letha P. Willingham retired from USAF on December 1 after twenty-four years of military service. During her career, the WAF officer served as a protocol officer, squadron commander, and personnel officer. Her final service years included duty as Deputy Director of WAF at Hq. USAF. She was the first WAF graduate of USAF's top school, the Air War College at Maxwell AFB, Ala.

At the conclusion of her career, Colonel Willingham served as Director of Personnel for the Air Force Communications Service, and in that role planned career progression, training, and education for the command's military personnel. As Assistant for Social Actions, she organized command programs concerned with drug abuse, equal opportunity, dissident and protest activities, domestic actions, and human relations.

Colonel Willingham plans to travel before settling down to civilian life.

Another WAF entered a previously all-male domain:

Sgt. Janice K. Gilpatrick is the first WAF to serve as a security-police desk sergeant. The twenty-year-old is with the 4600th Security Police Squadron, Ent AFB, Colo. "I'm not planning to put flowered curtains on the windows or change any traditions," she said, "I'll just try to do an outstanding job."

Finally, on the lighter side:

WAF Airman Sherri Watkins, nineteen and single, is the only female bluesuiter among the 4,000 stationed at Laughlin AFB, Tex. Miss Watkins, who operates the base's duplicating machines, misses other girls to talk to, "but my social life is pretty full," she says.

☆

Mariner-9, a US spacecraft in orbit around Mars since mid-November on a scientific and picture-taking expedition *(see December issue, p. 22)*, was joined later in the year by two Soviet companions.

The first Soviet fellow-traveler, Mars-2, went into orbit around the Red Planet in late November after ejecting a capsule that carried a hammer-and-sickle emblem to the planet's surface. The event marked the first placement of a man-made object on the Martian surface.

Since it is reasonable to assume that the Soviets would not expend considerable resources on a simple prestige gesture, it was believed that the capsule also contained instrumentation

Page 1

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Act of August 12, 1970: Section 3685, Title 39, United States Code)

SEE INSTRUCTIONS ON PAGE 2 (REVERSE)

1. TITLE OF PUBLICATION: AIR FORCE Magazine
2. DATE OF FILING: Dec. 10, 1971
3. FREQUENCY OF ISSUE: Monthly
4. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, city, county, state, ZIP code) (Not printers): 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers): 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006
6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR

PUBLISHER (Name and address): James H. Straubel, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

EDITOR (Name and address): John F. Loosbrock, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

MANAGING EDITOR (Name and address): Richard M. Skinner, 1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

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Publication of the Air Force Association, a nonprofit organization, no stockholders	1750 Pennsylvania Ave., N.W., Washington, D.C. 20006

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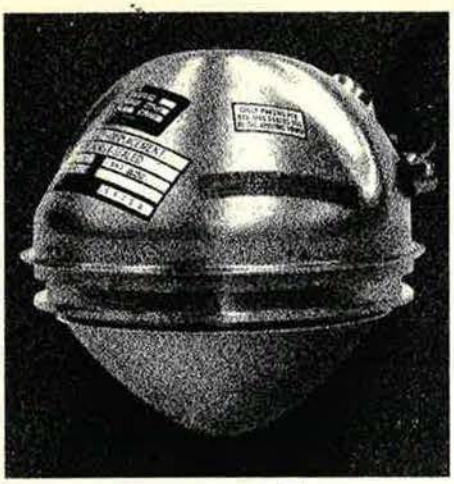

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North American Rockwell is pleased to belong to a First Team, the many people under Air Force management who've provided our nation with the most advanced unmanned aerospace system ever built.

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North American Rockwell
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destroyed upon failure of a soft landing.

Mars-3 arrived early in December and also ejected onto the planet a scientific robot which did achieve a soft landing although "the video signals received from the surface . . . were brief and suddenly discontinued," news agency Tass disclosed. Although no reasons were given for the failure, television photos from Mariner-9 indicated that fierce dust storms had been sweeping the Martian surface.

While a teletype link between US and Soviet scientific teams had been established for the rapid exchange of data generated by their respective Mars probes, the Russians remained circumspect in revealing details of their two Mars missions. For some reason, they delayed word of the Mars-3 package failure for several days following the event.

The Soviet Union has not had great success in its planetary probes; in December 1970, the fourth in a series of instrument packages bound for the Venusian surface failed somewhere in the planet's atmosphere.

☆

In mid-November, the Navy's newest antisubmarine warfare aircraft was rolled out for the first time at Lockheed-California Co.'s facility at Burbank.

The new S-3A is a jet-powered aircraft intended as a replacement for Navy's prop S-2 Tracker, the mainstay of US carrier ASW aircraft for the last fifteen years. The S-3A is to be capable of 400 knots and range of 2,000 nautical miles, or more than twice the speed and range of the S-2.

The S-3A also has greatly improved avionics, including a digital computer that will enable the aircraft's four-man crew to perform more effectively than on the S-2. A high degree of automation will free the crew from many routine jobs.

Powered by two GE TF34 turbofan engines, the S-3A will be able to carry an arsenal of ordnance, including homing torpedoes, mines, depth charges, and rockets.

The S-3A's first flight is expected early in 1972, with operational aircraft joining ASW forces early in 1974. As of now, Navy has the option to purchase 191 production S-3As.

☆

NEWS NOTES—By January 27, USAF and US Army **base exchanges** worldwide will be integrated into the **Army and Air Force Exchange Service,** under the overall command of USAF **Maj. Gen. William B. Campbell.**

Late last year, the USSR made its first deliveries of **MIG-21 jets** to **Cuba** in more than four years; the ship-delivered aircraft probably replace MIG-15s and -17s and bring Cuban first-line fighter strength to about sixty-seven aircraft.

Died: Arnold Air Society's **Louis Ciccoli.** See p. 66.

Died: Ben Marble, McDonnell Douglas Corp.'s Vice President for Marketing Communications, in Santa Monica, Calif. A well-known figure in the aviation world and an AFA member, Mr. Marble directed the production of industry-related films that won many public-relations awards.

Died: Brig. Gen. Emil C. Kiel, USAF (Ret.), who presided over the US military tribunal that, following WW II, sentenced the late Ilse Koch to prison for war crimes. He was seventy-six. His career in aviation dated back to the pioneer days of flight; as an Army lieutenant in 1919 he participated in a transcontinental air race that helped establish intercoastal airmail service. ■

Index to Advertisers

What They're Saying . . .

(From time to time, AIR FORCE Magazine will publish in this space newsworthy excerpts from speeches pertinent to defense affairs.)

Gen. W. M. Momyer, Commander of the Tactical Air Command, in prepared testimony on October 29 before the Senate's special subcommittee on close air support:

The Air Force has learned to use different type aircraft in the roles for which they are best suited, and in looking at the future threat and the requirements of the close air support mission as learned in three different type wars, we do not consider the use of rotary-wing aircraft for this role as a viable option. In comparison to the fixed-wing alternative, they are simply lacking in lethality and survivability.

In the case of the current fixed-wing V/STOL candidate, we feel that its comparative capabilities in terms of range, payload, and loiter time reduce its utility in the close air support role, and that the aircraft does not meet the requirements of the Air Force. The Harrier gives up a great portion of its mission capability in order to achieve vertical flight. In order to carry larger payloads or extend its combat radius, it must be employed as a STOL aircraft, requiring a takeoff ground run. Its V/STOL flexibility is not then readily apparent, when compared directly to the A-X.

The Air Force has for years participated in the development and testing of V/STOL systems; we continue to support the development of VTOL technology, but current systems do not meet our requirements in range or loiter time and payload. VTOL technology should eventually advance to the point where V/STOL attack fighters become cost-effective in comparison with today's STOL aircraft.

I believe we must design our aircraft to deliver firepower first and then seek a takeoff and landing characteristic consistent with the firepower capability. With today's technology we have not been able to reach a happy position where we can have a vertical takeoff and landing aircraft with a significant armament load and acceptable operating ranges without paying a prohibitive price in size, weight, and financial outlay.

The Air Force prefers the A-X over both the Cheyenne and the Harrier because we believe it will provide more capability at less cost, greater lethality, and better survivability. These factors, in our judgment, more than offset the advantages accrued through the ability to take off, hover, and land vertically. In relation to the A-X, and in terms of the total close air support mission, the other candidates appear as expensive systems of limited utility.

ASD Commander Lt. Gen. James T. Stewart, speaking before a National Security Industrial Association luncheon in Washington, D. C., on November 18:

Let me give you a brief status report on some of those programs, starting with the C-5. On the plus side, Fat Albert—as the C-5 is affectionately known among its pilots—performs well, and production is running smoothly under the revised contract. On the debit side, the C-5 is not nearly as fatigue-resistant as we wish it were [*see p. 13*]. And there is no simple one-time fix for this problem—which, incidentally, is the end product of an ill-advised weight-reduction program in the design phase—a situation we don't think would happen under today's management philosophy. . . .

A year ago, one of our major problems was the F-111. Today I am happy to report that this aircraft is performing well, and the previous technical and financial problems are under control. The program seems to be in good shape.

NASA Administrator Dr. James C. Fletcher, discussing the changing plans for the Space Shuttle before the National Space Club on November 21:

I would like to stress that the purpose of our present studies is to enable us to define the best possible alternative to the baseline Shuttle which would reduce development costs in the mid-'70s and involve less technical risk. When these studies are completed, we can make valid comparisons of the advantages and disadvantages of the baseline Shuttle and the best alternative to it.

These comparisons will give NASA and the President a much sounder basis for a final decision on the Shuttle approach than we have had so far.

As the result of these studies to date, our thinking is now reasonably firm on the orbiter. It will have an external, expendable tank carrying both hydrogen and oxygen. The main orbiter engine will initially be either an improved version of the J2 engine used in upper stages of the Saturn-5 (called the J2S), or a new high-pressure engine; if the improved J2 is chosen initially we may or may not phase to a high-pressure engine later on. For the heat loads, we will have an ablative system in Mark I and reusable thermal protection in Mark II. For avionics, we will make modest advances in the state of the art for Mark I and more substantial advances for Mark II.

For the booster, four major concepts are still under study:

One concept would use the F1 engines developed and proven in the first stage of the Saturn-5. This booster would be manned and would fly back to the launch site.

The second and third concepts would be unmanned and would be recovered from the ocean after a parachute landing.

The second concept would be a single, pressure-fed booster which would require development of a new engine.

The third concept would use twin pressure-fed boosters firing simultaneously with the orbiter. Development of a new engine would be required.

The fourth booster concept would be twin solid rockets firing with the orbiter. This booster would be unmanned and would not be recovered from the ocean.

I would like to stress here that we expect the Shuttle with the Mark II orbiter to meet the same high-performance requirements as the fully reusable, more sophisticated baseline Shuttle we were talking about earlier this year.

These requirements include a 65,000-pound payload in due-east orbit; a payload bay fifteen feet in diameter and sixty feet long; a quick turnaround of several weeks; a cross-range capability of 1,100 miles as specified by the Air Force; and a reaction time of twenty-four to forty-eight hours. ■

MIA/POW Action Report

AFA's 'Big Brother' Resolution

At the National Convention in September, AFA delegates unanimously adopted a policy resolution calling for the Air Force Association to "continue and expand its efforts in behalf of these unfortunate men [the MIA/POWs] and their families." *(See November '71 issue, p. 85.)*

In conjunction with that resolve was a general resolution suggested by the Richmond, Va., Chapter and approved by the assembled delegates.

The resolution is entitled "Support of MIA/POW Children" and is worded thusly:

> WHEREAS, the Air Force Association considers its efforts in behalf of Americans missing in action or held prisoner in Southeast Asia to be a highest priority program; and
>
> WHEREAS, one of the most tragic elements of the MIA/POW situation is the number of children who are growing up without the comradeship of a father; and
>
> WHEREAS, relatives and neighbors cannot always fill this gap on a "one-to-one," rather than a group, basis;
>
> NOW, THEREFORE, BE IT RESOLVED that the Air Force Association establish a "Big Brother Program" to encourage, through both individual and unit action, a policy of seeking out families of MIAs and POWs and inviting their children to participate in recreational activities.

While the resolution itself is straightforward and to the point, Chapter members interested in establishing effective programs or simply applying the spirit of the resolution on an individual basis may come across some difficulties.

Most immediate is contacting those MIA/POW families who have a need for male- or adult-led recreational outlets for their children. It is only natural that some families harbor a basic reluctance to entrust their offspring to outsiders in this very sensitive area of human relations, where the question of parental authority and other complex factors come into play.

Also, in many cases male relatives of the MIA/POW families can and are providing the impetus for the children's participation in recreational activities; in other instances, neighbors are lending a hand; again, school-related functions for the children are often adequate.

Nevertheless, officials of the National League of Families of American Prisoners and Missing in Southeast Asia assure us of the great need for the "Big Brother" program proposed by AFA. In the situation of many families, such wholesome male-led activities as fishing, hunting, and other sports-oriented recreation are lacking entirely.

The League's National Coordinator, Mrs. Evelyn Grubb, stresses that "Big Brother" activities need not be on a formal basis; inviting kids on a picnic or taking them for a walk could be just the ticket.

As an example of a multiple dilemma, she points out that often those who would like to help out are hesitant about inviting all the siblings in a family to an outing because of the problems associated with controlling a large number of high-spirited children; while to invite just one could cause unhappiness for those left behind. This also presents difficulties in attaining the ideal one-to-one (adult-to-kid) ratio in providing recreation. But overcoming these adverse factors may bring rewards well beyond the drawbacks encountered.

The League of Families has made its list of state coordinators available to "MIA/POW Action Report" so that we may pass information on contacting the coordinators to AFAers who may be interested in implementing the "Big Brother" resolution. Drop a line to "MIA/POW Action Report" for information on your area League coordinator.

Presumably the League's state coordinators know the families in their area that would welcome recreational help.

Jumpfest

The Second Annual Military Jumpfest in honor of Southeast Asia MIA/POWs and their families was held at Eglin AFB, Fla., Auxiliary Field Six, October 2–3, 1971. The event was jointly sponsored by the Hurlburt Field and Florida Army Ranger Camp Military Sport Parachute Clubs.

This year the Jumpfest was the largest military contest held in the US in terms of participating teams. A total of thirty four-man teams participated, representing virtually every major military base sport parachute club in the nation. More than 900 jumps were made in this year's contest and, including 1970, brought the total number of jumps to 1,460.

Approaching a touchdown in the second annual Jumpfest held in honor of the MIA/POWs. The hope is that Americans now held captive in Southeast Asia will be home for next year's meet.

Applying US Parachute Association rules, the competition included individual- and team-accuracy jumps from 3,500 feet; static-line team jumping from 1,200 feet with military equipment and free fall; high-altitude low opening (HALO) team demonstration jumps from 12,500 feet. A number of US and world record-holding personnel were among the participants.

More than 8,000 spectators have attended the two annual contests, and their voluntary contributions have materially helped to increase public awareness of the plight of our Southeast Asia MIA/POWs. The two contests have raised more than $1,500 to support the MIA/POW program.

The thirty teams represented the following units (when clubs had more than one team, the numbers are shown in parenthesis): 18th Airborne Corps, Fort Bragg, N. C. (3); Fort Rucker

Ala. (2); Pope AFB, N. C., Combat Control Team (CCT) (2); Langley AFB, Va., CCT (2); 82d Airborne Division, Fort Bragg, N. C. (3); Hurlburt Field Sport Parachute Club (SPC) (5); England AFB, La., CCT; Charleston AFB, S. C., CCT; Dover AFB, Del., CCT; Florida Ranger Camp; Pensacola NAS Club, Fla.; Whiting NAS Club, Fla.; McChord AFB, Wash., CCT; Travis AFB, Calif., CCT; Shaw AFB, S. C., SPC; Fort Benning, Ga.; McGuire AFB, N. J., CCT; Aerospace Rescue and Recovery Service, Eglin AFB, Fla.

This year, Lt. Tom Pinney, Langley AFB, Va., was first in individual accuracy. Lieutenant Pinney is a two-time winner, having been captain of the Air Force Academy team that won the same event in 1970.

In the team accuracy event, the 82d Airborne Sport Parachute Club took first and third place. Second place was won by a unique service team from Whiting NAS, comprising two Navy, one Marine, and one Coast Guard member. In the team static-line competition, Hurlburt's teams, appropriately called "Air Show Qualified" and "Kelly's Heroes," took top honors, with the Charleston team a close third.

The high-altitude and low-opening demonstration team jump was judged by the MIA/POW wives' representatives based on maneuvers, accuracy, and crowd appeal. The 82d Airborne Division Sport Parachute Club took home the trophy.

All participants were highly complimentary about the arrangements and management of the contest. The Air Force JROTC Cadets assisted in parking cars and the Hurlburt Field CCT wives managed the refreshment concessions. It was the consensus of all involved that they hoped the next Jumpfest would be in honor of our returned POWs from Southeast Asia.

On Behalf of MIA/POWs

Samuel Krakow, Director of International Activities for the American Red Cross in Washington, D. C., was present at a coffee given by the Friends of the POW/MIA League of Santa Clara County, Calif. Purpose of the coffee was to meet and thank volunteers of the League. Mr. Krakow gave a short address and answered questions about the role of the Red Cross and the prisoner problem in Southeast Asia.

Volunteers canvassed most of Santa Clara County and Menlo Park October 25–29 in honor of US MIA/POWs. The action was sponsored by the Friends of the POW/MIA League with the help of several local organizations.

Seminarian John McNalis (right) receives a Certificate of Honor from Lee Cordell, President of the Illinois AFA. Serving as the AFA's MIA/POW state Chairman, Mr. McNalis is a member of Illinois West Suburban Chapter 149. He has secured hundreds of signatures and sought help from civic and business leaders for the MIA/POWs.

Illinois AFA President Cordell presents a Certificate of Honor to Matt Simon, Chairman of the Glen Ellyn, Ill., Chamber of Commerce MIA/POW committee, which collected many thousands of letters and signatures that were delivered personally by Mr. Simon and two others to the peace delegation in Paris.

Mr. Cordell presents an AFA Certificate of Honor to Mrs. Dorothy Bodden for her MIA/POW work. Mrs. Bodden, who has served on the National Board of the League of Families, has a son missing in action in Southeast Asia. A committee she headed secured from the Mayor of Chicago a Proclamation of a month's devotion by the city to the MIA/POW cause.

Inclusive in the information distributed were fact sheets and order forms for MIA/POW Christmas card inserts designed and distributed by the local MIA/POW group. Also, the volunteers asked for signatures on petitions to His Excellency Felix Schnyder, Swiss Ambassador to the US in Washington, D. C.

A special nondenominational prayer service for MIA/POWs was held Sunday, October 24, at the Moffett Field, Calif., chapel.

With the help and sponsorship of the American Red Cross, the League set up booths at both the San Mateo and Santa Clara County Fairs in August and September. The San Mateo booth, which took second prize, was manned by forty-six MIA/POW volunteers and forty-six Red Cross representatives. About 8,600 signatures were collected during the two-week span of the fair.

At the Santa Clara Fair, thirty-eight volunteers with an equal number of Red Cross people obtained 8,200 signatures.

The Junior Officers Club and the Air Force Satellite Test Center, Sunnyvale, has set up a "Handyman Pool" to help any MIA/POW wife who may need some repairs done on her house or car.

* * *

Maj. Kenneth L. Beaton of the Strategic Air Command's 320th Bombardment Wing, Mather AFB, Calif., received AFA's National Certificate of Honor on November 6 at the AFA's Mid-Year Conference in Fresno, Calif.

Major Beaton was honored for his work in promoting national interest in improvement of conditions for MIA/POWs in North Vietnam.

Col. Norris Overly, Deputy Commander for Operations at Mather and a former POW, was featured speaker at the event. ■

Airman's Bookshelf

The Changing Military

The American Enlisted Man: The Rank and File in Today's Military, by Charles C. Moskos, Jr. Russell Sage Foundation, New York, N. Y., 1970. 274 pages with appendices, bibliography, and index. $7.95.

Sociologist Charles Moskos combines numerous interviews with such diverse material as military grade-structure trends and reports from the *Overseas Weekly* to fashion his detailed study of the modern G.I.

Over the years, the nature of the military converged with that of society at large, with emphasis on technology and with fewer people engaged in purely military activity. For officers, service in the armed forces became more similar to work in a civilian setting. But for the enlisted man, the change was muted; his experience remained distinctively military. Even those in technical jobs went home to the barracks, where they were accountable to the orderly room in traditional military ways.

At the same time, the typical G.I. grew more individualistic, the better-educated adjusting less well to life in the ranks. Indicative, Moskos thinks, is the caustic writing of recent ex-G.I.s who pursued careers as authors: "It seems that where the enlisted chroniclers of World War II were attracted, even if ambivalently, to the character and flavor of military life, the enlisted intellectuals who found themselves in the cold-war military were revolted by that same enlisted behavior."

The elemental fact of the "enlisted culture," he says, is a unique leveling effect of classes, underutilizing the man of middle-class background, while allowing those of lower station or less education to compete successfully. The middle-class youth feels he is wasting his time.

These, and other observations, lead Moskos to conclude that the military of the future will be much different. The convergence between the military and society has peaked out and is beginning to reverse itself.

A curtailed draft will mean fewer middle-class enlisted men, and the distinction between the less-educated G.I. and the degree-holding officer corps will become more rigid and castelike. A smaller military will bring civilianization of many technical and support functions, and a greater portion of the uniformed force will be occupied in traditional military roles. Without recalcitrant gadflies from within, the military will follow a more conventional and authoritarian social organization.

Careful scholar Moskos writes lucidly and unemotionally. But his personal view of military life, spelled out in a postscript, comes as little surprise. He liked the Army when he was an Army enlisted man. He still likes it.

—Reviewed by Capt. John T. Correll, USAF. Captain Correll is presently assigned to AIR FORCE *Magazine under the Education With Industry (EWI) program.*

Sufficiency and Security

Strategic Power and National Security, by J. I. Coffey. University of Pittsburgh Press, Pittsburgh, Pa., 1971. 214 pages. $9.50.

J. I. Coffey is Associate Dean of the Graduate School of Public and International Affairs, University of Pittsburgh. His scholarly treatment of the broad range of factors affecting national security bespeaks a long association with the Department of Defense, as a member of the White House staff, and as a consultant to various agencies of government. The book is well documented with statistics, quotations, and citations.

Coffey sees US plans under the "sufficient" force concept as calling for doubling the number of nuclear warheads by installing MIRVs and introducing SRAMs, for deploying an ABM system to safeguard some of our ICBMs, and for modernizing and improving our air defense and ASW forces.

He does not believe that this course of action will ensure strategic superiority or acceptable levels of casualties and damage from a nuclear exchange. Rather, he sees these actions as a stimulant to the arms race and to continued tensions between the USSR and USA. Coffey takes the stand that if the US did nothing to affect the strategic growth of the USSR over the next five years, the US could still inflict some forty to fifty million casualties in an exchange with the USSR. Indications are that, by Soviet standards, such a loss is unacceptable.

No one, Coffey asserts, questions that the US should maintain secure and effective strategic retaliatory forces; what is being debated is whether deterrence of aggression hinges on the capacity of the retaliatory forces to match—or to overmatch—the killing power of the enemy. According to him, it does not. Current Soviet ideology and actions indicate that they are against "adventurism" and the taking of inadmissable risk.

The author is not worried about the Peoples' Republic of China (CPR), since he believes their major concern is how to avoid being attacked by the US, rather than how to maneuver under the US nuclear shield. Our allies, while concerned that there be a credible "shield" to aggression, do not necessarily equate nuclear superiority with security against attacks.

In Coffey's judgment, the linkage between strategic power and deterrence is not so close or direct that the US must maintain a superior strategic nuclear force. He further maintains that levels of strategic power are not necessarily related to political behavior, which depends on other such variables as degree of interest, extent of commitment, nature of this threat, etc. And, more importantly, he argues that many other factors will influence the readiness of the USSR and the CPR to use force or the threat of force to advance their interests.

Coffey believes that the USSR and US can find common grounds for agreements on limiting the size of strategic strike forces, restricting qualitative improvements in weapon systems, banning or constraining ballistic missile systems, and precluding the introduction of new weapon systems into the strategic force. He recognizes that agreements in these areas may require the US to give up its aims of maintaining a strategic advantage and of limiting damage from small attacks; however, by reaching

some agreement, the US would gain in terms of greater stability of the strategic balance, lower defense costs, and decreased tension with the USSR.

The author recognizes that arms control is a dynamic process that will require continuous adjustments in strategic capabilities; that both sides would feel compelled to continue research and development aimed at offsetting destabilizing innovations; and that it will be difficult to devise an agreement that does not give some advantage to one side or the other. In spite of these problems and shortfalls, Coffey maintains that seeking agreements on arms control is still a more rewarding venture than continuing the arms race—and more conducive to ensuring the national security.

—Reviewed by Lt. Col. H. S. Faircloth, USAF Research Associate, University of Pittsburgh.

A Great Life Observed

MacArthur, edited by Lawrence S. Wittner. Prentice-Hall, Englewood Cliffs, N. J., 1971. 186 pages with index. $5.95 hardcover; $2.45 paperback.

In three parts, this book portrays General of the Army Douglas MacArthur as he revealed himself through his own words, as he was seen by his contemporaries, and as he has been evaluated by historians.

Part I includes eighteen of his speeches, or excerpts from them. These range from great oratory through histrionics to—occasionally—foolishness. Some readers who have not seen it before will be startled by MacArthur's plan to end the Korean War, which he discussed with newspaperman Bob Considine in January 1954, but which Considine withheld until after the General's death.

For military men, the most moving of the speeches is the General's extemporaneous address to the Corps of Cadets at West Point on May 12, 1962, following his acceptance of the Sylvanus Thayer Award. In those brief remarks, General MacArthur summed up the code of honor of the professional soldier with an eloquence that has not been equaled by any other American soldier.

Among contemporaries whose comments about MacArthur make up Part II are Dwight D. Eisenhower, Wendell Willkie, Maj. Gen. Charles A. Willoughby, and Air Force Generals George C. Kenney and Lewis H. Brereton.

Finally, MacArthur's place in history is assessed by twelve historians, among them Arthur Schlesinger, Jr., Forrest C. Pogue, Walter Millis, and Samuel P. Huntington. There is no doubt that arrogance and vanity were conspicuous among the many complex facets of the General's character. As historian Louis Morton put it, "He was always his worst enemy. . . . He should be remembered by his deeds, not his words." But as Edwin O. Reischauer, Harvard scholar and later to be US Ambassador to Japan, wrote in 1950, ". . . as a great military hero in his own land and a still greater peacetime hero in the land he helped to conquer, his place among the great names of history is doubly secure."

Thread Through the Labyrinth

A Dictionary of Modern War, by Edward Luttwak. Harper & Row, New York, N. Y., 1971. 245 pages of text plus index and 66 pages of photographs. $7.95.

According to the publisher, Mr. Luttwak "has compiled a handbook of essential data on military affairs for the intelligent newspaper reader." He has, in fact, gone well beyond that. The book is a useful reference for the more serious student—if used with caution, even for the professional—who doesn't have ready access to the various *Jane's Yearbooks* or to a wide range of recent military literature.

Luttwak's *Dictionary* gives global coverage to principal items of hardware, formal defense organizations, and military concepts, with major emphasis in the latter category on the strategic area. Entries vary in length from a few lines about some smaller tactical weapons to several pages on the strategic concepts that have evolved over the past two decades.

For a 1971 publication, there are some surprising omissions (B-1, F-14, F-15, A-X), and it would be hard to find an F-111 pilot who would agree with the author's judgment that the plane is "a costly failure." Nor would many concur with his categorization of the MIG-23 as a multipurpose fighter "in the same category as the . . . F-4 (though more advanced), and the US F-111A. . . ."

This book is not destined to become a standard reference work, but it is worth the price. Modesty forbids a comment on the author's selection of AIR FORCE Magazine as one of eleven "military journals" (worldwide) that are "perhaps the most helpful" secondary sources of information.

New Books In Brief

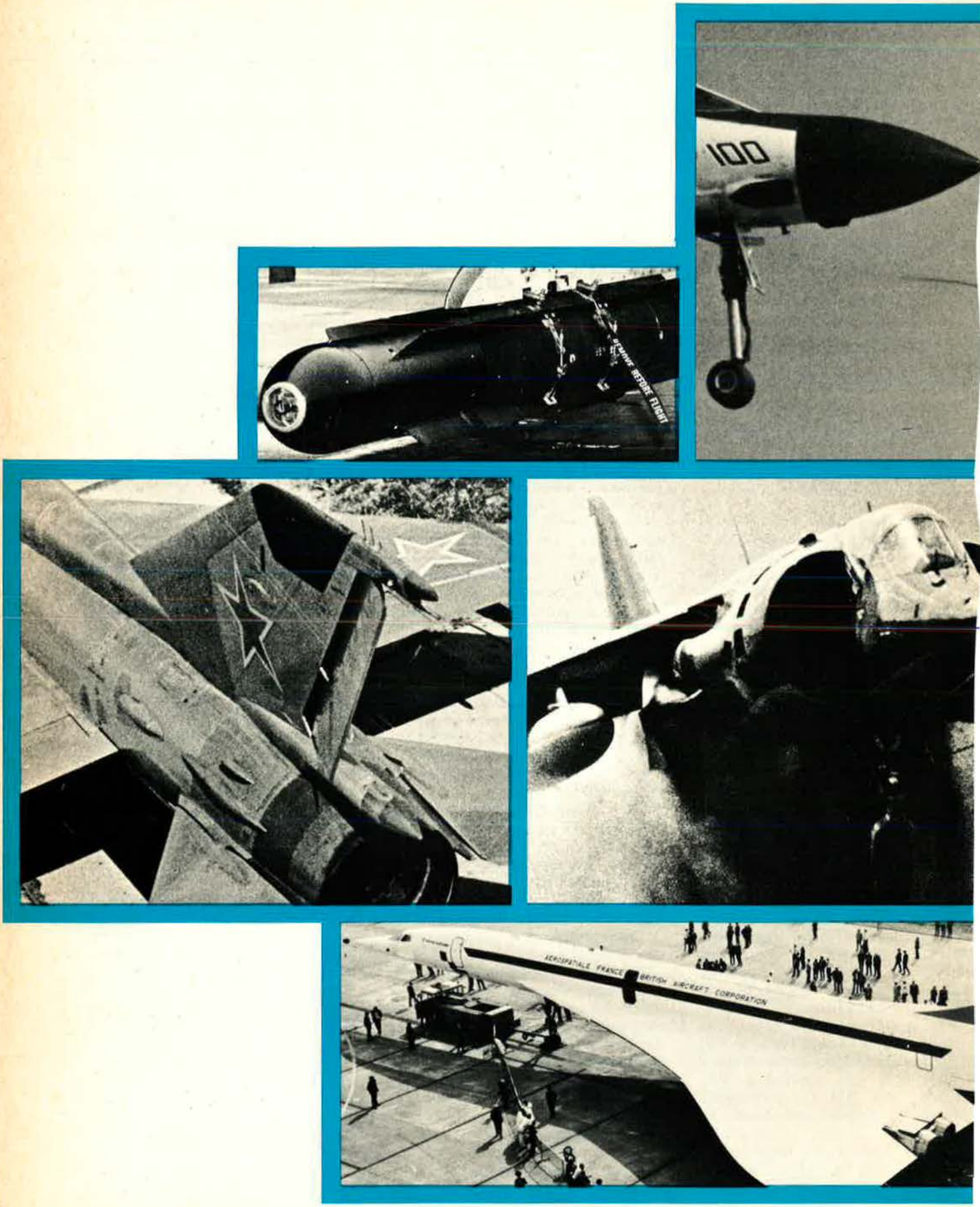
Armament of British Aircraft 1909–1939, by H. F. King. This well-illustrated history of British aircraft armament up to the eve of World War II may be of greatest interest to students of the first World War. British contributions to armament development between 1914–18 were extensive and in some cases not well known. The book is also a fine contribution to the history of the British aircraft industry, covering as it does some 500 types of aircraft produced by forty-eight manufacturers. Putnam, London, England, 1971. 457 pages with index. £5.50.

Bombs Away!, edited by Stanley M. Ulanoff. This is a compilation of sixty true stories of strategic airpower from World War I to Vietnam. There are a number of excellent photographs of bombing operations. For this anthology, the editor has drawn from a number of sources, including AIR FORCE Magazine. Unfortunately, he and his publisher have failed to credit their sources. Doubleday, Garden City, N. Y., 1971. 540 pages. $9.95.

British Naval Aircraft Since 1912 (3d Revision), by Owen Thetford. This 1971 revision brings the standard reference work on the history of British naval aviation up to date. There are more than 400 photographs and 114 drawings. Appendices cover Royal Navy lighter-than-air craft and details of all the aircraft carriers and other ships that have borne fixed-wing aircraft or helicopters. Putnam, London, England, 1971. 463 pages with index. £5.25.

The Future of the International Legal Order, Vol. III: Conflict Management, edited by Cyril E. Black and Richard A. Falk. Eleven contributors to this third of a five-volume series examine a variety of factors relevant to the role of law in the management of international (and, in one case, internal) conflict. Princeton University Press, Princeton, N. J., 1971. 413 pages with index. $12.50.

Sounds of Aviation, narrated by Bob Cummings. For those who get their kicks from the purr, roar, or whine of an aircraft engine, here's something really offbeat—a recording of the sounds of engines taxiing or in flight, including the T-6, P-51, H-19, Ford Tri-Motor, Stearman PT-17, Ryan PT-21, B-25, P-40, and several vintage private and commercial types. Good narration by actor Bob Cummings, who holds the No. 1 Instructor Pilot License in the US. Kaybro Sales Co., Box 24916, Village Station, Los Angeles, Calif. 90024. One-record album, stereo, 33⅓ rpm. $5.95 postpaid. ■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GEMINI BEFORE FLIGHT
AEROSPATIALE, FRANCE
BRITISH AIRCRAFT CORPORATION

AIR FORCE
JANUARY 1972 MAGAZINE

n the article appearing on these pages, a broad rray of notable developments in the world of erospace is viewed by an acknowledged expert in he field—the Editor of *Jane's All the World's ircraft.* Delving into subjects ranging from space atellites to small-aircraft manufacture, the author learly demonstrates why he and the publication e represents enjoy such high regard among nilitary and civilian readers . . .

JANE'S AEROSPACE REVIEW 71|72

By John W. R. Taylor

EDITOR, *JANE'S ALL THE WORLD'S AIRCRAFT*

SURBITON, SURREY, ENGLAND

ON THE morning after the 1971–72 edition of *Jane's All the World's Aircraft* was published in Britain, an unexpected transatlantic telephone call informed the editor that he was engaged in a live interview over a major American radio network. The questions that followed were typical of those provoked in a dozen countries by facts and comments in the new book. . . .

Does Russia's proven ability to intercept and destroy orbiting spacecraft mean that America can expect to have its reconnaissance satellites "shot down"?

Does America have any comparable capability of destroying Soviet satellites?

Could this development lead to a space war?

Does the news of Soviet missile and combat aircraft developments, reported in *Jane's,* mean that the United States is falling dangerously behind in the East-West balance of power?. . . . and so on, for more than ten expensive minutes.

The concern in the voice of the interviewer was apparent. So was the feeling of shock which persuaded one of Australia's top national newspapers to publish a front-page banner headline proclaiming AMERICA SPIES ON RUSSIANS FROM AUSTRALIA. It transpired that, until they had been informed by *Jane's,* few people in that country realised that a relay station 300 miles northwest of Adelaide was helping NORAD HQ, at Colorado Springs, to keep track of Soviet and Chinese missile launches.

On the same day, in England, Britten-Norman Ltd announced that its financial problems had become so acute that its debenture holders had been asked to appoint a receiver for the company.

Was this as great a surprise as the press implied? Britten-Norman had seemed one of

In its February 1971 issue, AIR FORCE Magazine was privileged to inaugurate a new department — *Jane's Supplement* — prepared by the editors of the acknowledged international authority on aircraft data—*Jane's All the World's Aircraft.*

Since then, under an exclusive agreement with Jane's publisher, the *Supplement* has appeared as a special eight-page section in AIR FORCE Magazine every other month.

Jane's All the World's Aircraft, published in a new edition annually in Great Britain, first appeared in 1909, following the success editor and publisher Fred T. Jane had with *Fighting Ships,* begun in 1897.

Jane's has evolved through the years, and in its present form gives details of aircraft listed under thirty-seven countries. The entries in the *Supplements* are, of course, but a small sampling of a wide spectrum of aeronautical information ranging from aircraft engines to spacecraft.

The guiding hand behind the *Supplements* is John W. R. Taylor, who has been Editor of *Jane's* since 1959. His experience includes seven years of design and technical writing at Hawker Aircraft Ltd., working on a variety of aircraft. This was followed by eight years with the Fairey Aviation Group. He has 154 books on aviation published to date, with several others commissioned or in the initial printing stage.

Mr. Taylor is a Fellow of the Royal Historical Society, a Fellow of the Society of Licensed Aircraft Engineers and Technologists, and an Associate Fellow of the Royal Aeronautical Society.

AIR FORCE Magazine considers it a singular honor to be associated with *Jane's* and John W. R. Taylor. —THE EDITORS

the brightest stars in the aerospace sky. By evolving a simple, sturdy, piston-engined ten-seater, it had offered the third-level airline market an ideal transport for the 'seventies. By the second half of 1971, a total of 320 Britten-Norman Islanders had been sold in eighty countries. Each of the company's employees was then producing £10,000 worth of exports annually—a figure that would solve all the United Kingdom's economic problems if it could be achieved nationwide.

Success had seemed assured. Yet, in August 1971, Britten-Norman had to announce a cut of twenty-five in its small staff, and a postponement of R&D work on Islander variants and the Nymph lightplane. To ease its financial burdens, it was reported to be planning possible disposal of the three-engined Trislander programme to a foreign manufacturer, or at least to licence production abroad.

At this critical point, when negotiations for licence manufacture of the Trislander appeared to be going well, the people who had provided funds to underwrite Britten-Norman production asked for their money back. Simultaneously, Her Majesty's government made it clear that no help could be expected from that quarter.

As if forewarned of what was to come, *Jane's* had commented: "The ways of the financier are beyond the comprehension of mere human beings, for whom a full order book for a sound project, and an efficient production line, would appear to be adequate grounds for solvency. If an aeroplane as simple and straightforward as the Islander can produce difficulties, little wonder that governments and manufacturers approach projects like the Boeing 2707-300 SST, North American Rockwell B-1 bomber, and MRCA so warily."

Economic problems once were restricted mainly to raising funds for the R&D phases of any aerospace project. In its small way, the Islander demonstrated that such times are past. Britten-Norman could cope with most of the aircraft's development costs of around £800,000 by themselves. To progress to series production required two or three times that sum, and the funding had to be sought elsewhere. Out of that economic necessity sprang disaster.

An Uncertain Future

In the light of such events, Europe's aerospace industry cannot face the future with confidence. The German government still hesitates to hand over its share of the £500 million needed to put the A 300B Airbus into production, on top of the £200 million already allocated for R&D; and nobody can yet venture a reliable estimate of the price of Concordes, individually or by the dozen.

Facts like these are not difficult to uncover so there is no magic in *Jane's* ability to forecast events like the Britten-Norman collapse. Since the first edition of *All the World's Air-ships* appeared in 1909, the primary task of this yearbook has been to serve the aviation industry of the world. On ninety-nine percent of its pages, it does this by recording every available fact and figure concerning the "ironmongery" of flight in and beyond the atmosphere. Whilst doing so, its compilers cannot avoid gaining an overall picture of current policy and problems. These are condensed as comment on just three pages of the editor's Foreword, at the front of the book.

Reviewers, faced with the task of writing a

brief assessment of a book of one and one-half million words, tend to turn to the Foreword for inspiration. This explains why one London journal reported that the frustrations confronting Britain's aerospace industry could be blamed on "a pathetic government." In fact, the Foreword refers to "apathetic government" over a period of fifteen years, embracing both Conservative and Labour rule; but the industry is unlikely to quarrel with the misinterpretation!

Stick to It

The only long-term and practicable solution to most of the problems now facing the indus-

Britain's Hawker Siddeley Harrier is the West's only operational fixed-wing V/STOL fighter. The first of the version ordered for the US Marine Corps was delivered in January 1971. Designated AV-8A, it is well adapted to close support of amphibious forces where operating range is less critical than is the case in Air Force operations.

try—not just in the UK but worldwide—is for governments to work out a sound programme of aircraft development and production, and then stick to it. In recent years there have been too many cancellations of costly programmes, often after prototypes have been built and flown. In the case of military types, such as Britain's TSR.2 tactical strike and reconnaissance aircraft, and the Anglo-French AFVG variable-geometry fighter of the 'sixties, cancellation can throw a major air force completely off balance operationally. Yet, even after such experiences, governments still offer little hope of stability in military aircraft procurement. For examples one need look no further than the USAF's B-1 bomber, the future of which seems continually in the balance, and the Japanese T-2 supersonic trainer.

Even at the present prototype stage, the T-2 seems capable of doing everything for which it was designed, with high secondary value as a light attack type. Nobody disputes that money could be saved by purchasing Northrop F-5Bs, from the USA, instead of some of the T-2s; but this ignores the worth of an established and thoroughly up-to-date aircraft industry capable of producing exactly the aircraft one wants, when they are wanted, and in the right quantities. This capability, the potential income from exports, and the technological "spin-off" into other industries and products, are what governments seldom appear to appreciate.

In the case of Japan's aircraft industry, it has risen phoenix-like from the wreckage left by World War II to an enterprise that can sell YS-11 twin-turboprop airliners and MU-2 business aircraft to US operators, take over sole responsibility for Boeing-Vertol's Model 107 twin-turbine helicopter, become the fourth in the world to orbit a satellite, and produce the Shin Meiwa PS-1 ASW flying-boat—a design so uniquely efficient that it has attracted the interest of both military and commercial operators in the USA.

Current Japanese projects range from VTOL test-beds to an advanced early-warning version of the C-1 twin-turbofan transport, the Y-X civil airbus, and the FXS fighter, in the class of the USAF/McDonnell Douglas F-15. When one studies this variety of programmes, it is easy to overlook the tiny size of the industry from which all these types must come. It employs a total of only 27,000 persons, and aircraft manufacturing divisions of great companies like Mitsubishi account for no more than about four percent of the parent group's assets and annual turnover. Nor will the size and number of contracts increase while the Self-Defence Forces continue to rely on the USA to meet their primary needs in terms of combat aircraft like the F-104J and F-4EJ, with only licence production in Japan.

Poland's Janowski J-1 Przasniczka is an ultralight, single-seat aircraft that has been designed specifically to be built at home by a do-it-yourselfer. It has a range of about 250 miles.

Romania's contribution to the general-purpose light STOL aircraft category is this IS-23-A, first flown in 1967.

Poland's PZL-104 Wilga 40 general-purpose aircraft has several unique features, such as detachable cargo container and skiis.

The Smaller Nations

Similar patterns can be observed throughout the aircraft industries of smaller nations. Czechoslovakia's 29,000 aircraft workers limit their manufacture of nationally designed types to jet trainers, the 11,245-pound L-410 twin-turboprop transport, agricultural and light aircraft. Romania produces little but IAR-821/822 agricultural sprayer/dusters, licence-built Britten-Norman Islanders, and French-designed Alouette helicopters. Switzerland's home products are the Porter and Turbo-Porter eight- to ten-seat STOL transports and the Bravo two- or three-seat lightplane developed in partnership with SIAI-Marchetti of Italy. Mexico has set out to create a national industry on the basis of a locally designed agricultural aircraft named the Anahuac Tauro and the competitive Quail Commander and Sparrow Commander sprayer/dusters taken over from North American Rockwell.

This last transaction, through a Mexican company in which NAR has a thirty percent holding, has particular significance when one switches attention to the major manufacturing countries. It has left North American Rockwell with only one of the wide range of agricultural types it inherited from the former IMCO, Snow, and Aero Commander companies. Such rationalisation has been essential in the US industry in a period during which it has been hard hit by the nation's business recession. Figures published in the 1971–72 *Jane's* show the extent of the recession by recording, for example, that Boeing contracted from approximately 130,000 employees to 54,000 in four years and that General Electric's Aircraft Engine Group expected to lay off more than a quarter of its 27,242 employees during 1971. There have been even bigger proportional redundencies at Sikorsky and the Aircraft Division of Hughes Tool Co. during the past year.

Officially released statistics show that the number of transport aircraft built in the USA in 1970 was 311, some forty percent fewer than in 1969, while total US aircraft production fell thirty-seven percent. At the top end of the civilian programme, the Boeing 2707-300 SST disappeared during the year under review. In the light and business aircraft sec

tor, sales by the leading manufacturer, Cessna, fell from 5,887 aircraft in 1969 to 3,730 in 1970. Butler's bold bid to compete with America's "big three" of general aviation suffered a jolt with discontinuation of Aerostar 600/601/602 production. ARDC's Brantly helicopters and Enstrom's helicopters also dropped out of the picture this year.

On the other side of the Atlantic, in Britain, there was the almost unbelievable, yet entirely predictable, collapse of Rolls-Royce, bringing in its train the threat of disaster for Lockheed, America's No. 1 defence contractor. Never had the interdependence of aerospace companies throughout the world been highlighted more dramatically.

A Decade in Space

As on Earth, so also in space. A mere decade after Yuri Gagarin became the first man to break free of Earth's shackles and venture briefly into the weightless world of space, we saw on our TV screens live colour pictures of US astronauts driving over the surface of the Moon. Their "car" was ferried with them on a flight so technologically inspired that it seemed almost routine. Yet, at a time when such exploration seems on the point of producing exceptional scientific and commercial rewards, funding will permit only two more Apollo launches before all current NASA programmes for manned voyages to the Moon are ended. Furthermore, there is growing doubt as to whether once-bold plans for a "grand tour" of the outer planets by unmanned US spacecraft will come to pass in our lifetime.

Limitation of NASA's funding is but one of many reminders that, in the West, the anti-technology and antipollution factions have won victory after victory. BAC and Aérospatiale have been forced to accept the likelihood that Concorde will be banned from flying at supersonic speed over the US land mass and most other populated areas of the world. Fortunately, this does not wreck the aircraft's viability, and it has been possible to record spectacular progress during 1970–71.

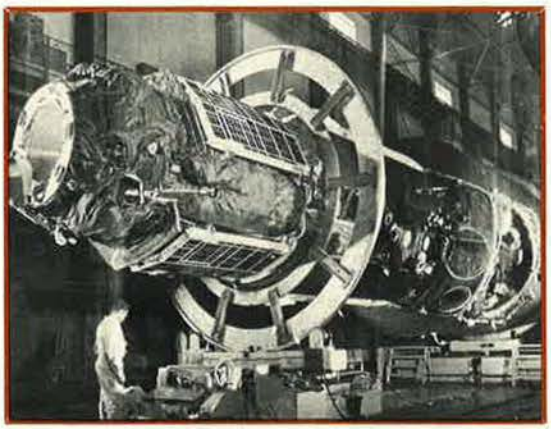
In contrast, the Soviet Tu-144 seems to have made only slow progress. This is strange, as one often gains the impression that Russia's aerospace industry has everything in its favour, being encouraged by a completely different economic system to provide all the aircraft that are needed by Aeroflot and the Soviet armed forces, regardless of expense.

The prototype Tu-144 was rushed into the air, wheels-down and probably semi-equipped, on the last day of 1968, two months ahead of Concorde-001. It reached Mach 1 and then Mach 2 before its Western competitor, and was once expected to enter service with Aeroflot as early as 1971–72. In fact, figures quoted at the time of the 1971 Paris Air Show suggested that the Tu-144 had by then logged a mere 100 flying hours, half of them at supersonic speed, while the two Concordes passed the 550 flying hour mark by early July 1971, including 141 supersonic hours. Both types are now expected to reach operational status at much the same time, probably in 1974.

Nor has the Soviet space programme recorded its usual unmitigated successes. Soyuz/Salyut manned space station missions have continued to make steady, rather than spectacular, progress, with nothing to rival the exciting journeys of the Boeing Lunar Rover around Hadley Rille. The big headlines came only through disaster when, after their longest-ever stay in orbit, the three-man crew of Soyuz 11 were killed by accidental decompression of their cabin during reentry.

Such incidents, and the achievements of Russia's unmanned Lunokhod 1 Moon explo-

The center of interest, just prior to its first flight, is the Anglo/French Concorde-001, preproduction model of the supersonic transport.



—Tass Photo

Photo released by Soviet news agency Tass shows Salyut manned orbiting laboratory being assembled. Three Cosmonauts died returning from a mission to orbiting Salyut.

ration vehicle during eleven lunar days, have lent weight to arguments that it is a needless expense and risk to send men into space. Yet Apollo has proved conclusively that there is no substitute for man when maximum results are required in a minimum time-scale. Only in the military field is this debatable at the present state of the art, for recent developments suggest that it was entirely justified to scrap the former USAF MOL (Manned Orbiting Laboratory) project in view of the great advances made in satellite technology.

Configured for a special reconnaissance role is this USAF Boeing RC-135C. Photo was taken in Japan for Jane's *by photographer T. Matsuzaki.*

Policy of Peace Through Fear

The world press, radio, and TV made much of the fact that the 1971–72 *Jane's* gives details of air and space craft so "sensitive" or clandestine that they are allowed to peep only occasionally from beneath the wraps of military security. Yet, in publishing such material the editorial team was not attempting to show how clever it was by prejudicing the secrets of any nation. All the facts and figures were obtained freely and openly. Only when they are displayed in *Jane's* entirely factual manner, without comment, do they begin to add up to a remarkable picture of how the major powers continue to maintain a policy of "peace through fear." Nobody may like such a policy, but it is working and will continue to work so long as both sides know enough about the other's destructive potential to be deterred from any hasty move.

As long ago as July 1955, President Dwight D. Eisenhower put forward his Open Skies plan "to ease the fears of war in the anxious hearts of people everywhere." His proposals called on the Soviet Union and US to exchange blueprints of armed strength and military facilities. A key element of the plan was aerial reconnaissance, to be conducted freely and regularly by the USAF and Soviet Air Forces over each other's territory, to identify positively and completely any new military activity.

To underline the effectiveness of aerial inspection at that time, the US Information Service issued a booklet explaining that the seven cameras carried by an RB-47 medium reconnaissance aircraft could photograph a million square miles in three hours. The results made possible by then-current techniques were displayed in a picture of part of an aircraft wing, photographed from a height of sixty feet during a 525-mph overflight, in which the rivets could be counted easily.

Open Skies was rejected by the Russians, who were supersensitive about their buildup of missiles and other military strength. Frustrated, America inaugurated the U-2 overflights, which continued until Gary Powers' aircraft was shot down near Sverdlovsk on May 1, 1960. In any case, as the 'sixties passed, the need for such overflights disappeared. The rôle of the "spy-plane" was taken over gradually by the reconnaissance satellite, carrying increasingly effective sensors.

Early Warning Satellites

The degree of sophistication that has been achieved can be studied in *Jane's* for the first time this year. No claim is made that the coverage is comprehensive, but one typical entry refers to the "Big Bird" satellite that was put into polar orbit by the USAF on June 15, 1971, carrying an eleven-ton camera. Only the latest Titan IIID booster was powerful enough to launch this spacecraft, which was fifty feet long. The photographs of missile sites, airfields, and other installations that it transmitted to Earth should have been quite revealing. Little wonder that the US Defense Department can issue such precise details of Soviet missile and aircraft development when it so wishes.

No less interesting is the IMEWS (Integrated Missile Early Warning Satellite) programme, which has caused the Australians such concern. After an unsuccessful first launch in November 1970, the second IMEWS was orbited on May 5, 1971, and was steered subsequently into a geostationary position from where it can observe Soviet and Chinese missile firings over the Pacific. Being too far from Colorado Springs for direct contact, it transmits its reconnaissance data to NORAD via a relay station, which the Australian press now suggests is located at Narrungar, in Woomera, under the control of the larger US base at Pine Gap in the Northern Territory.

Across half the globe, a telephone enquiry asked anxiously if this made Narrungar a priority target for any future Soviet missile attack. It was possible to reassure the questioner that

the Russians would find it easier to destroy the source of information rather than the relay station. *Jane's* lists eight Cosmos satellites, numbered between 249 and 404, which have functioned either as interceptors or targets for trials in which one satellite has blown another to pieces.

In any case, Russia is unlikely to follow up these experiments with an offensive against the IMEWS or any other US "spy satellites." Whether or not this would constitute an act of war—especially if it occurred over Soviet territory—is immaterial. As President Eisenhower foresaw in 1955, mutual knowledge of the "other side's" military capability tends to ease the fear of sudden attack in both East and West, and the Russians know that any interception of US satellites would lead inevitably to the putting out of their own equally effective "eyes in the sky."

America may not have conducted satellite interceptions to rival those of the Soviets' Cosmos family; but a nation that can destroy incoming ICBM reentry vehicles with its Safeguard installation on Kwajalein Atoll should have little difficulty in dealing with satellites in a predictable orbit.

Surprisingly, the press generally has ignored references in the 1971–72 *Jane's* to important new developments in reconnaissance techniques within the atmosphere. For the first time, there are pictures and details of aircraft like the Pave Eagle Beechcraft QU-22B, the same company's RU-21E with its fence-like array of electronic reconnaissance antennae, and the grotesque B-57G, modified by Westinghouse to carry TV, laser, and radar devices that enable it to seek out and hit ground targets on night interdiction missions.

Reconnaissance, ECM, and all-weather target-fixing are interrelated branches of current electronic/aerospace technology. Everything suggests that the West retains a vital lead in such techniques at the start of the 'seventies, but leadership will be retained only at a high cost in money and effort.

Soviet Aircraft

Russia can sometimes offset technological brilliance by less elaborate advances in other directions. The MiG-23 (NATO "Foxbat") provides an example of this. Except for its Mach 3-plus performance at height, this big twin-jet fighter is hardly exciting. Its vulnerability at low altitudes is so great that it is said to need a large protective screen of MiG-21s to escort it to cruising height whenever it takes off from Egypt for a reconnaissance sortie over Israel.

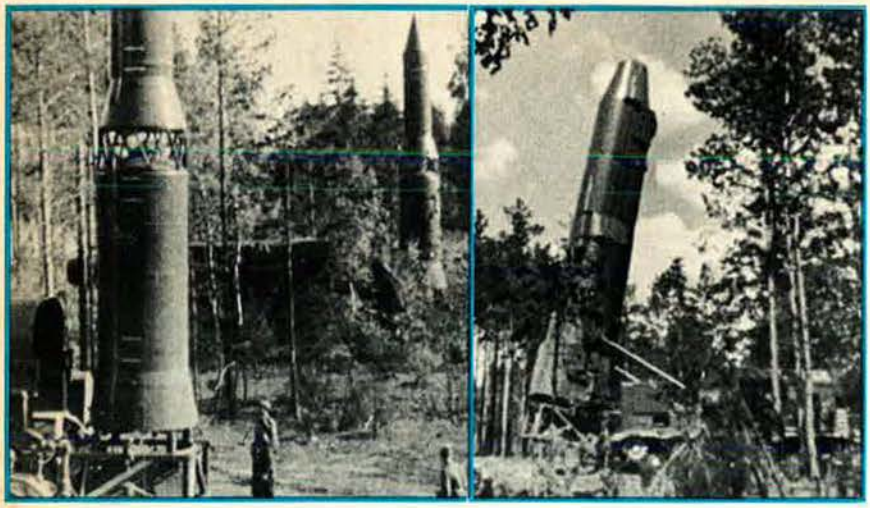
—Tass Photo

Recent Tass photo of the latest type MiG-21—the Fishbed-J. The aircraft is among the smallest fighters in the world, with a span of only twenty-three feet, five and a half inches.

Once at 70,000 feet-plus, the MiG-23s can come and go as they please. Israeli fighters have failed to get near those detected over or near their country, and this must cause considerable concern even if the Soviet-built (and Soviet-manned) aircraft perform no offensive acts. There is still a divergence of opinion on just how offensive these aircraft could be if they tried. Their design is such that the basic version would give its pilot a rough ride if he attempted low-level attack operations at high speed. Even more intriguing is that the aircraft depicted in the latest officially released photographs appear to lack the large nose radome seen on the earliest models.

The Russians have always referred to the MiG-23 as a high-altitude interceptor. If all versions are now operated without fire-control radar, this must lend weight to the suggestion, made in *Jane's* for the past three years, that they are directed to their targets by early-warning aircraft like "Moss" (a developed Tu-114 with over-fuselage saucer radome) and are then intended to utilise snap-down missiles to destroy their enemy. If this should be true, the first objective of any attack force would clearly be to knock down the early-warning machines, after which the MiGs would be blindly ineffective.

Dozens of other fascinating lines of thought



Two views of the USSR's Scamp/Scapegoat IRBM missile system deployed for firing. Left above shows two missiles ready for action; right above, the container is being erected.

are presented to the military student who looks beyond simple facts, figures, and photographs to what they imply. Why, in a missile age, does the Soviet Union need to develop a new variable-geometry bomber—the Tupolev design now known to have the NATO code-name "Backfire"? Readers may draw their own conclusions from the absence of any drawings of this aircraft in *Jane's,* after impressions have appeared elsewhere; but should bear in mind that, so far as possible, this yearbook publishes only what is *known* to be accurate.

—TASS Photo

A Soviet Tu-22 twin-jet supersonic bomber takes off. Designated "Blinder" by NATO, it has been observed carrying "Kitchen" air-to-surface missiles.

"Backfire" is clearly being developed to fill a gap left by shortcomings in the Tu-22 ("Blinder"). If, therefore, the Russians foresee an urgent need for an aerial missile-carrier, despite the availability of huge numbers of long-range missiles, should not the North American Rockwell B-1 be receiving equal priority? And will the performance of the next-generation F-14 and F-15 air-superiority fighters of the USN and USAF be good enough when the MiG-23, which first flew in the mid-sixties, can already cruise at well over Mach 3? Clearly the present confidence that they will be good enough must be based on knowledge of the capabilities of America's latest defensive radars and air-to-air missiles that will offset the slower speed of their launch aircraft.

The one clear fact that emerges from current developments is that it would be dangerous to neglect manned aircraft in an age of missiles. Already, the USA and Russia have passed the "overkill" point in ICBM deployment. Use of the Minuteman force by one side, or SS-9s and SS-11s by the other side, would lead to mutual annihilation and is too stupid to contemplate. Soviet leaders know that they could never hope to achieve a knockout blow with a first strike while the US Navy has its Polaris and Poseidon submarines at sea, even if the US forces at home could be caught off guard. Similarly, expressed fears that "bigger holes" detected by US reconnaissance satellites might imply the imminent deployment of missiles larger than the SS-9, with its twenty-five-megaton warhead, are unrealistic. One cannot kill any enemy more than once, and nothing is achieved by doubling an existing overkill capability. Rather one should look for new progress in electronics, which might lessen the effectiveness of long-range missiles and make manned aircraft increasingly attractive.

The man does not need always to be in the cockpit. First references to Ryan RPVs (remotely piloted vehicles) in *Jane's* include a description of the simulated dogfight in which a modified Firebee drone, piloted from the ground by Cdr John Pitzen, USN, outflew an F-4 Phantom II fighter. The Mach 2.5 performance of the multi-million-dollar Phantom gave it no advantage against the capability of the Firebee to pull 6*g* turns, without loss of altitude. Sparrow and Sidewinder missiles fired from the Phantom all missed, and its pilot must have been thankful that the RPV was unarmed. Here, at the "Wright biplane" stage, is a development that might well revolutionise future air defence—and not only defence, for other RPVs have already been used to deliver inert 500-pound bombs in ground-attack trials, and a variety of high-performance Ryan drones have been used for routine special reconnaissance sorties over China, North Vietnam, and other areas for many years.

New Developments

There will clearly be no shortage of new developments to interest the readers of AIR FORCE Magazine in the years ahead. Even in the commercial field the aeroplane continues to

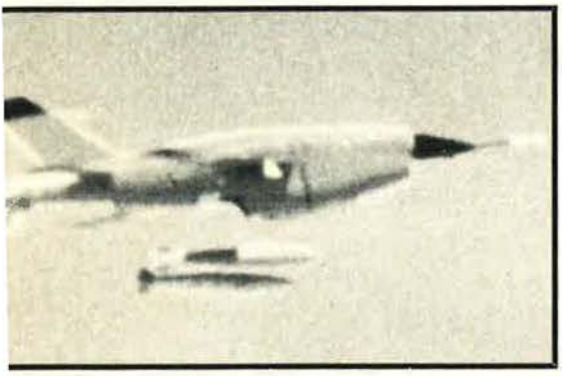
take new shape and find new rôles. The Tu-144 may look very like the Concorde, and the TriStar resemble the DC-10, but it is necessary only to look at the Lockspeiser LDA-01 pictures in last month's *Jane's Supplement* to be convinced that design is never static or dull.

Those who know their aviation history may be amused to note how similar the LDA-01 is to the Drzewiecki monoplane built in Poland fifty-nine years ago. Features shared by the two designs include a box-like fuselage, tandem plank-like wings at the extreme nose and tail, with the shorter-span wing low-mounted at the front, three tail-fins, a four-wheel non-retractable landing gear, nose cockpit, and a pusher propeller at the tail.

It is easy to feel that such similarities indicate a reversion to the primitive rather than progress; but this would be far from true. The theoretical efficiency of the LDA-01 is high, and it is no coincidence that Boeing has also adopted a square-cut, constant-chord wing for the massive Resource Air Carrier projected as a means of transporting crude oil (8,000 barrels at a time) from Alaska's North Slope, in the absence of a pipeline.

Such projects should never be dismissed as impractical doodles by underemployed engineers. In many respects, they are more down-to-earth than tilt-wing, tilt-rotor, or tail-sitting VTOL aircraft of which prototypes have flown in recent years.

For really "way-out" projects it is necessary only to look into the file of aircraft that do not get into *Jane's*. They have included in the past two years a supersonic airliner worked out in great detail by an American engineer; a 4,000-mph transport only twenty feet in span, 200 feet long, and made of aluminium (which is well worth further study) by one of the world's great aerospace technicians; a scheme for an antigravity vehicle for space exploration by a group of British inventors who have invited the editor to see the prototype, now under construction; and a projected airship which would employ everything from hot-air lift augmentation to channel-wing propulsion and a gondola that would become a boat in an emergency.



Promised for the future are remotely piloted aircraft. Here, a Teledyne Ryan Firebee drone modified as an RPV drops inert 500-pound bombs during a practice run at White Sands Missile Range, N. M.

Who would dare to decry such ideas in an age when men can drive over the Moon, hop over rivers with the aid of strap-on rocket belts, and locate troops on the ground beneath their aircraft by detecting the heat of their bodies?

Today, the rate of progress in air and space is dictated not by what is possible but by what can be afforded. To a degree this is fortunate. If the Soviet Union, even with its different economic system, could afford to deploy a fully effective ABM, America's deterrent would lose its credibility, and the world would again have to fear a final annihilation.

In a happier context, there are signs that the financial problems that have restricted commercial aircraft progress for the past few years are easing. Cessna Board Chairman Dwane L. Wallace, in his latest financial statement, reported after-tax earnings of $1,850,000, or 27 cents per share, for the last quarter of Fiscal 1971, compared with $474,000, or 7 cents per share, for the same quarter of 1970. He commented: "This was the first time in two years that sales and earnings for any one quarter exceeded the previous year. We are looking forward to somewhat better economic conditions during 1972, and anticipate a sales increase of more than fifteen percent."

This optimism is typical of that felt by other US companies. As Cessna launches its new Citation business jet, Piper introduces the PA-34 Seneca light twin and North American Rockwell extends its product line to include new versions of the Sabreliner. Lockheed resumes production of the TriStar with renewed confidence as the re-financed Rolls-Royce RB.211 turbofan fulfils its early promise of economy and power. The European MRCA combat aircraft progresses toward a 1973 first flight date, looking more formidable and useful with every passing month. And the French industry continues to go from strength to strength, showing how much can be achieved when state ownership and private industry work in harmony, turning out aeroplanes that are seldom revolutionary but always efficient.

Not all the troubles are past. The anti-pollutionists and antitechnologists in America are by no means beaten. In England, as these words are being written, men at Rolls-Royce Bristol, whose jobs were saved by the money of British taxpayers, are on strike, so that the manufacture of engines for the Concorde and Harrier is at a standstill. The barriers to progress and solvency are political, economical, and suicidal on the part of employees rather than technological. Only if they are overcome by common sense will the aerospace picture really look brighter a year from now. ■

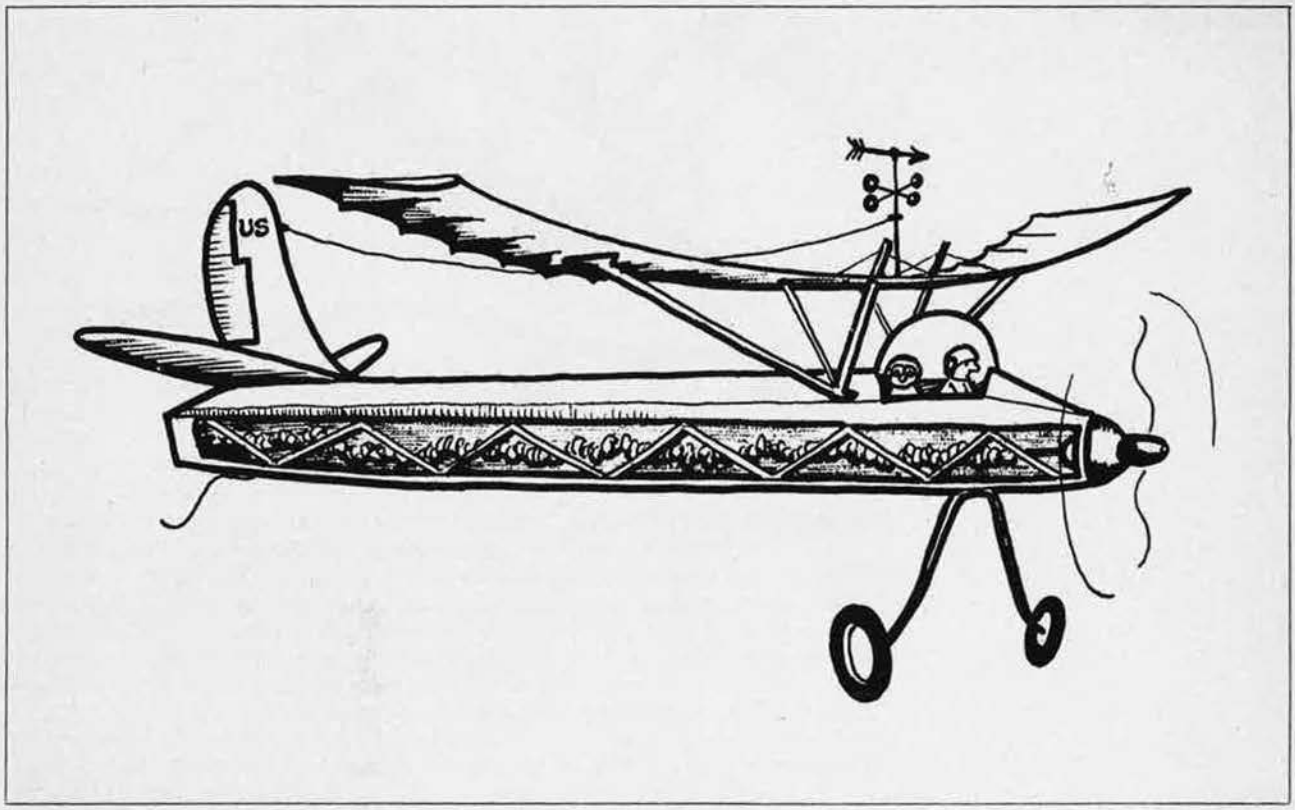
Present trends in international relationships, societal forces, and aerospace technology suggest that the next generation of manned aircraft may be quite different from anything flying today. The synergistic effect of these trends, brilliantly synthesized here by a sometime Electronic Warfare Officer, is apparent in the advanced concepts presented in this mind-boggling special portfolio . . .

1984 ALL THE WORLD'S SCARECRAFT*

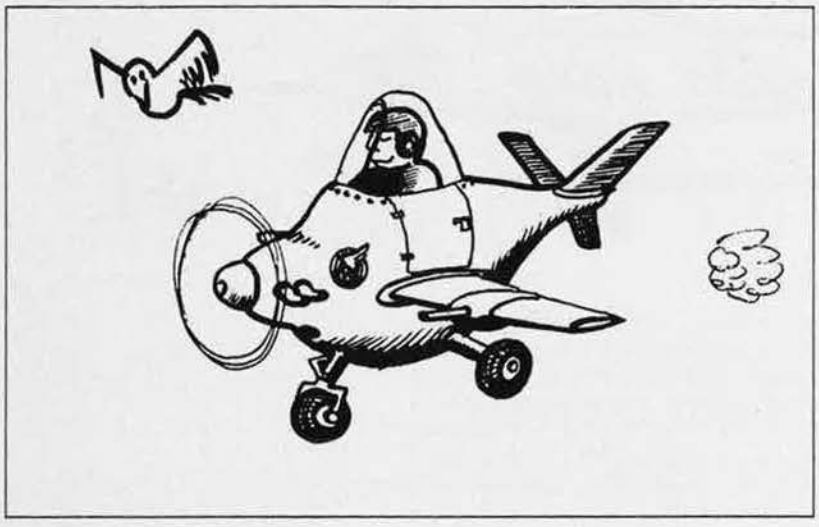
By Maj. Robert L. Brown, USAF

The author (and artist) is Maj. Robert L. Brown, who reports this month for duty at Hq. Seventh Air Force, Tan Son Nhut Air Base, Vietnam. Earlier, he was at the University of North Carolina for Master's work in English, in preparation for assignment to faculty duty at the Air Force Academy in 1973. Now thirty-three, Major Brown is a 1960 graduate of The Citadel, Charleston, S. C. He received navigator training at James Connally AFB, Tex., in 1960–61, and electronic warfare training at Keesler AFB, Miss., 1961–62. He served on B-52Gs from 1962 to 1967 as an Electronic Warfare Officer, and from 1967 until 1970 aboard RC-135s. The son of a retired USAF chief master sergeant, he is married and the father of two children.

* With apologies to *Jane's All the World's Aircraft* and to John W. R. Taylor *(see p. 24)*

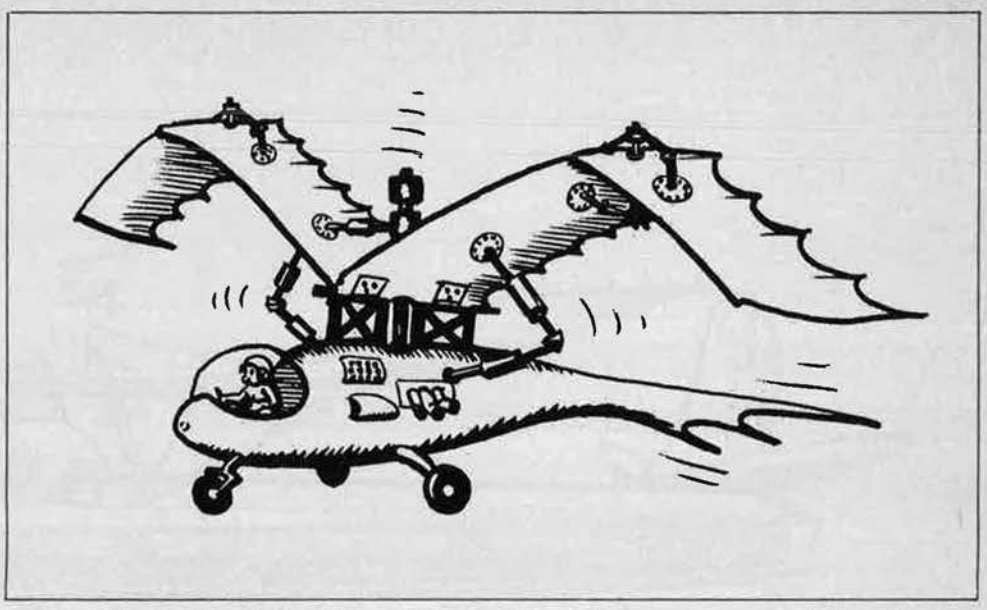


THE NIBBISH UNDERRUN—Due to the uproar caused by cost overruns in aircraft production, the Defense Department contracted for this all-purpose, low-cost airplane. Built by the Nibbish Model Aircraft Co., the all-purpose, high-altitude, low-level, strike and reconnaissance fighter-bomber and antisubmarine troop carrier is constructed from old K-ration boxes and used aluminum foil. Total cost of the undergunned Underrun to date has been held to $2.84, which suggested the aircraft's name. The Congress has been very pleased with the program so far and may increase the order to two squadrons.

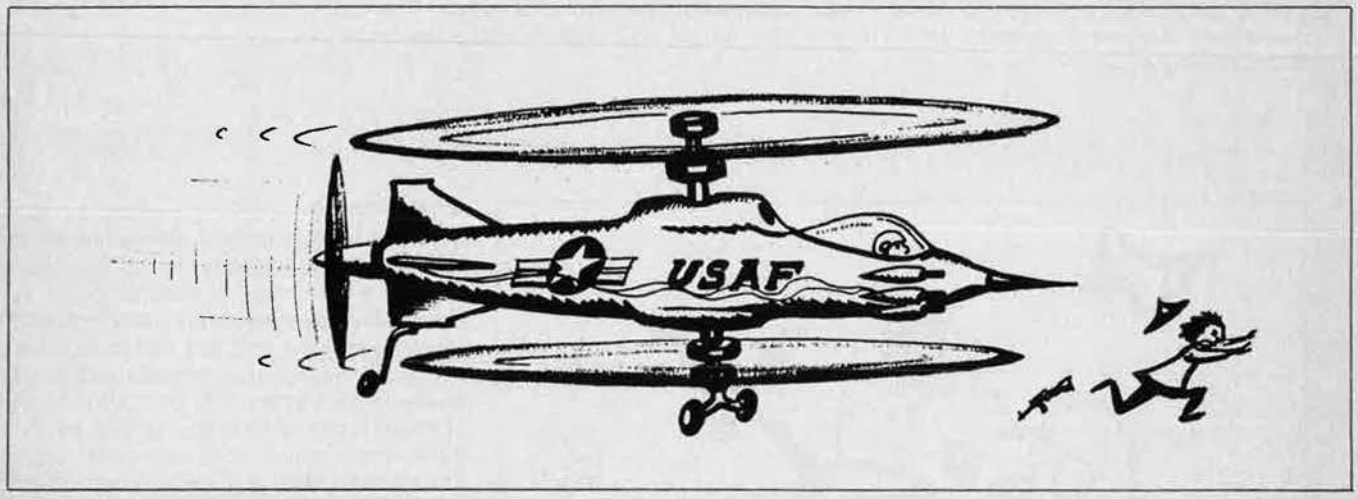


HAKU GNAT—Japan's continuing work in the miniaturization field, as well as its expanding motorcycle industry, led to the development of a new class of minifighter for small wars. All primary systems are identical to the Haku 90 bicycle, and are mated to the Type C Dragonfly engine that develops up to thirty hp at sea level. Particularly useful for operations at small forward airfields, as well as most backyards, its low-level capability, especially among the trees, is quite impressive. Although somewhat unstable in winds above fifteen knots and limited to pilots under four feet three inches tall, the Gnat was proving itself a nimble fighter in jungle operations. Unfortunately, development was halted after the prototype was sexually assaulted by a large bird (possibly a great Asian auk) on its second test flight and was damaged beyond repair.

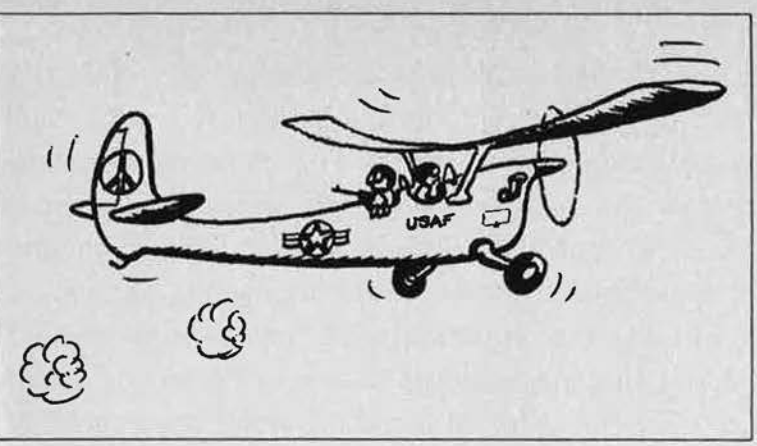
1984



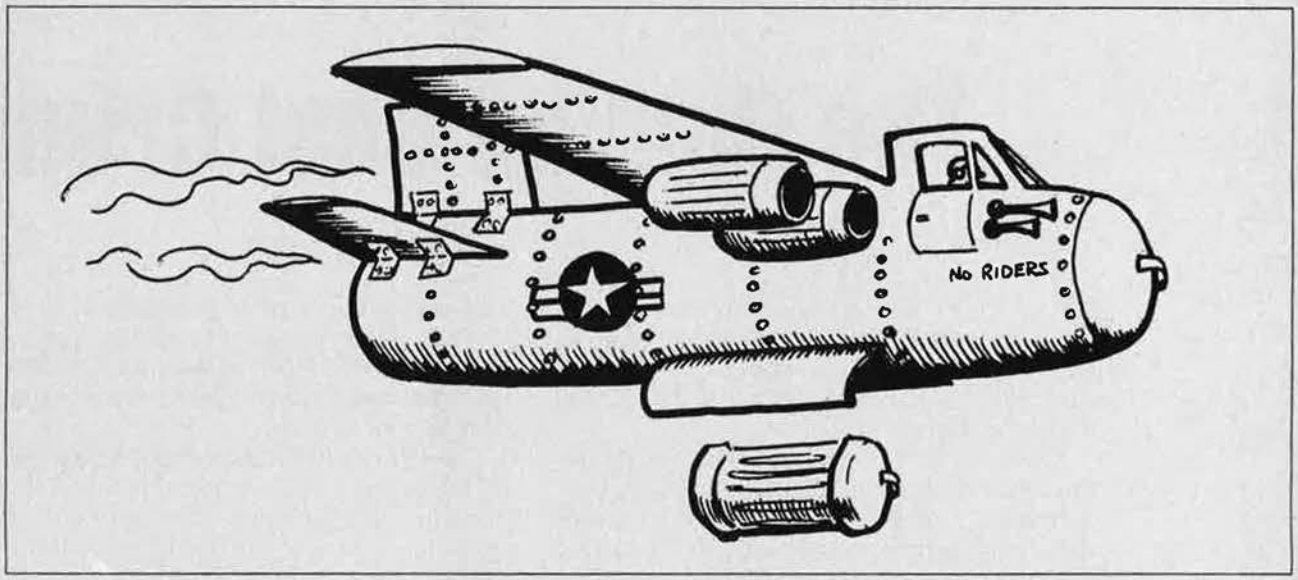
THE BARNYARD HOP-A-LONG—Man's dream of a successful ornithopter was finally realized with the lightweight STOL Hop-a-Long, developed by the brilliant British screen-door builder-designer, William Barnyard. Unusually agile, the highly maneuverable Hop-a-Long has been bought by the US Air Force as a dual-purpose, counterinsurgency and Washington courier machine. Well suited to the problems of getting in and out of tight places, the Hop-a-Long has also proved to be an extremely difficult target to hit because of its unusual, jerky flight characteristics. Unfortunately, this strong point of the Barnyard design has proved to be a sore point for pilots with weak nerves and stomachs. Many a thrilling moment is provided for the novice Hop-a-Long pilot as he comes flailing in for a landing, the Gremlin-Gripe, two-speed engine (On-Off) clanking mightily. The Hop-a-Long is well known for separating the men from the boys and the pilots from their flight lunches.



THE HOWLING HUSTLER—The Air Force, realizing that the helicopter was here to stay, increased its research allocations and ordered the Howling Co. to produce an air-superiority gunship and runabout to take the place of the older models. The result was the Hustler, the first helicopter to travel faster than the speed of sound—in any direction. A unique feature of the Hustler is the second set of rotors mounted under the ship, which counteract the top unit's high torque pressures and act as a highly efficient jungle-cover defoliator in counterinsurgency warfare.



THE DIMWORTH DOVE—Put into operation by the government following the Vietnam conflict to persuade the world that the US has no aggressive intentions or imperial ambitions. The Dove was developed by the Dimworth Papier-Mâché Co., and with its one-hp, grass-trimmer engine is able to reach a speed of thirty-eight mph on a clear day. Its rearward-facing (defensive only) .22-caliber, bolt-action rifle is never loaded unless the aircraft is threatened by hostile fighters. The gunner is then allowed to request ammunition from the pilot, who carries the single authorized bullet in his jacket pocket. The Dove has a two-mile range without refueling, and embodies a unique safety feature, which causes the wing to fall off if the aircraft leaves the territorial US.



THE DUMPSTER DORMANT—Following the collapse of major aircraft companies in the late '70s, the Air Force turned to the ever-growing Dumpster Corp. to produce a new, heavy bomber. The company's long association as a prime Air Force trash mover helped the company build the 6,000-ton Dormant. Initial Air Force acceptance-testing was halted, however, due to the efforts of the environmentalists, who want to bar further flights over populated areas. In the meantime, taxiing tests have been conducted on selected bases in conjunction with a new, experimental, high-speed garbage-pickup system.

PEOPLE'S LIBERATION AND CULTURAL EXCHANGE MACHINE, I-73—A joint people's liberation group has produced the revolutionary I-73, NATO designation, "Rainforest Raider." Built to cope with the problems of insurgency warfare, the I-73 flies beneath the jungle canopy and fires its bombs up and over into enemy positions. The US armed services consider this new threat to be most serious and have taken steps to counteract this weapon system. It is thought that the use of fast-acting fertilizers to increase the jungle growth may prove a most effective defense, as this would no doubt put an insupportable strain on the already overtaxed ground crews who must clear the undergrowth ahead of the I-73 on its missions.

The Air Force's F-15 air-superiority fighter program plays a key roll in the Department of Defense's efforts to overcome the budgetary and political problems associated with cost overruns. It was the first major development program to incorporate the milestone approach, so-called because it relies on cautious step-by-step progression and reviews, instead of an all-encompassing development and acquisition contract. With not only one of its most important weapon systems but also the reputation of all military management at stake, the Air Force is exerting major efforts to assure the technical and financial success of the F-15 program. But external factors, beyond the control of the Air Force, have introduced unforeseeable cost increases and have created . . .

The Coming Cost Crunch

TWO YEARS after its formal launch, the Air Force's F-15 air-superiority fighter program shows up remarkably trouble free, technologically hale, in step with the Soviet threat, and fiscally unscathed.

While he offered no guarantees for the future, F-15 System Program Director Brig. Gen. Benjamin N. Bellis told AIR FORCE Magazine that "our progress to date appears to confirm that a conservative, sequential approach is *the* way to get the R&D job done." (The F-15 program is the first major military R&D effort using the so-called milestone approach initiated by Deputy Secretary of Defense David Packard to cure the deficiencies inherent in the management techniques of the past decade.)

But all precautions and care notwithstanding, the F-15 program is headed toward a significant cost increase because of factors completely outside the purview and control of the System Program Office (SPO) and the Air Force.

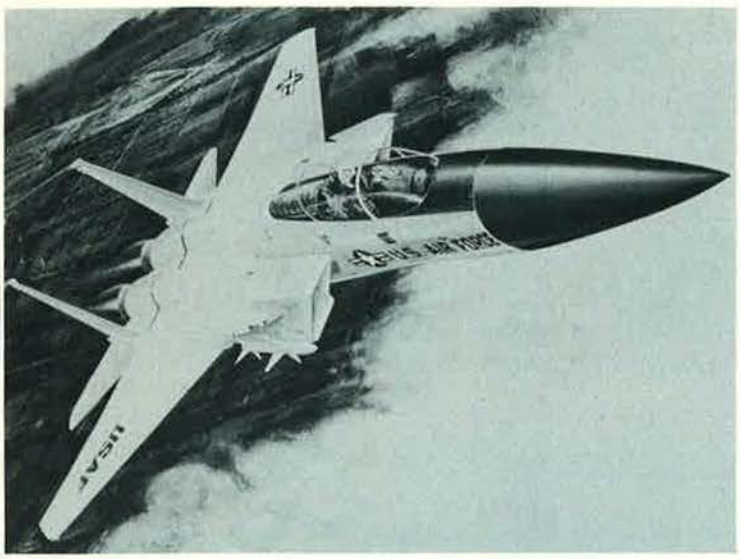
Based on a programmed buy of about 700 aircraft, the all-inclusive unit program cost of the F-15 was to be just below $10 million per aircraft. An as yet unspecified increase above this level, General Bellis explained, was foreordained when the Navy recently canceled its production commitment with respect to the F401 engine, which is linked intimately in budgetary, technical, and contractual terms to the F-15 engine. The F401 engine is to power the Navy's F-14B fighter. The Navy's production contract was to have been initiated on September 1, 1971, but the Navy—for the time being—elected to procure only F-14A models that are powered by a growth version of the F-111's TF30 engine. (The F401, the TF30, and the F-15's F100 engines are all designed and built by United Aircraft Corp.'s Pratt & Whitney Division.)

The Navy's F401 engine and the Air Force's F100 engine have considerable commonality, including a core engine (gas generator) common to both, and are being developed concurrently by a Joint Engine Project Office (JEPO), which is part of the F-15 SPO at Wright-Patterson AFB, Ohio. Procurement of both production engines was to be on the basis of jointly negotiated contracts with Pratt & Whitney. The Air Force's F-15 cost estimates were premised on such a joint buy. The Navy's

Brig. Gen. Benjamin N. Bellis was appointed Systems Program Director, Deputy for F-15, Aeronautical Systems Division, AFSC, in July 1969. Rated as one of the Air Force's most experienced R&D managers, General Bellis served as the SR-71 Program Director and Deputy for Electronic Warfare prior to his present assignment.

By Edgar Ulsamer
SENIOR EDITOR, AIR FORCE MAGAZINE

of the F-15



The F-15 air-superiority fighter is not only the first aircraft of its type the Air Force has been permitted to build in twenty years, unencumbered by the constraints of commonality and dual-role requirements, but also represents a major management challenge because it follows hard on the heels of the trouble-plagued C-5 and F-111.

cancellation action affects the Air Force program in a number of ways, according to General Bellis:

- It "tumbled" the Air Force's production engine prices with P&W. That contract is currently being renegotiated to reflect the new conditions.
- The Air Force now will have to pay for *all* tooling costs. Previously, the two services had agreed to share these costs on the basis of the number of engines each was to procure.
- Engine costs were calculated on the basis of a schedule, agreed to by both services, which provided for the Navy to "produce a larger number of engines earlier" than required by the conservatively paced Air Force program. At the same time, the two services agreed that the Navy would absorb the higher costs of the earlier engines, the price of which to date reflects little benefit from the learning curve influences. This cost burden has now shifted to the Air Force.
- The sharp reduction in the number of engines to be produced (the Navy's cancellation precludes its initiation of F401 production before Fiscal Year 1974) drives up the unit costs of the F100 engine.

The overall effect on the F-15 program of the Navy's decision not to produce the F-14B, General Bellis explained, "is that we will not be able to stay within our budget forecasts. Our independent [from the contractor's quotes] cost forecasting did not allow for this kind of disruption." (By contrast, the Air Force's conservative cost forecasting enabled the service to absorb the Air Force share of a recent increase in the engine's R&D costs of $55 million "without having to change our quotes to Congress one iota," according to General Bellis.) Because the Air Force, at the time of his interview with AIR FORCE Magazine, was still negotiating with the contractor, General Bellis declined to estimate the extent of the price increase other than to say that it could be "significant."

Joint Engine Development Continues

The Navy's cancellation of the production phase of its contract with Pratt & Whitney, however, does not affect its participation in the

joint engine R&D project. The only change in the development project, General Bellis said, is that "due to certain differences in the [Air Force and Navy] programs, the Navy's QT [military engine qualification test] has been stretched an extra four months, from February 1973 to June 1973."

The differences between the two engines are largely in the areas of size and thrust. Because the Navy's F-14 is considerably heavier than the F-15, the F401's thrust requirement is greater than that of the F100 engine. The fact that the Navy is continuing the joint engine development project on an evenly shared cost basis suggests that the Navy eventually plans to resurrect the F-14B program. The F401/F100 family of engines represents a significant advance in engine technology, especially in the crucial area of thrust to weight (double that of the original TF30s). The Navy, of course, is eager to equip the aircraft that is to protect its carriers and surface fleets in the years ahead with the best available engine and, presumably, will reinstate the F401 production program as soon as their present restrictions have been resolved.

The joint engine development project, General Bellis pointed out, "is progressing very well. The so-called preliminary flight rating testing (PFRT) has already been started and is expected to be completed in February 1972. The first F-15 engine is to be delivered to McDonnell Douglas Corp., the prime contractor, in the following month, and the aircraft is scheduled to make its maiden flight in July 1972."

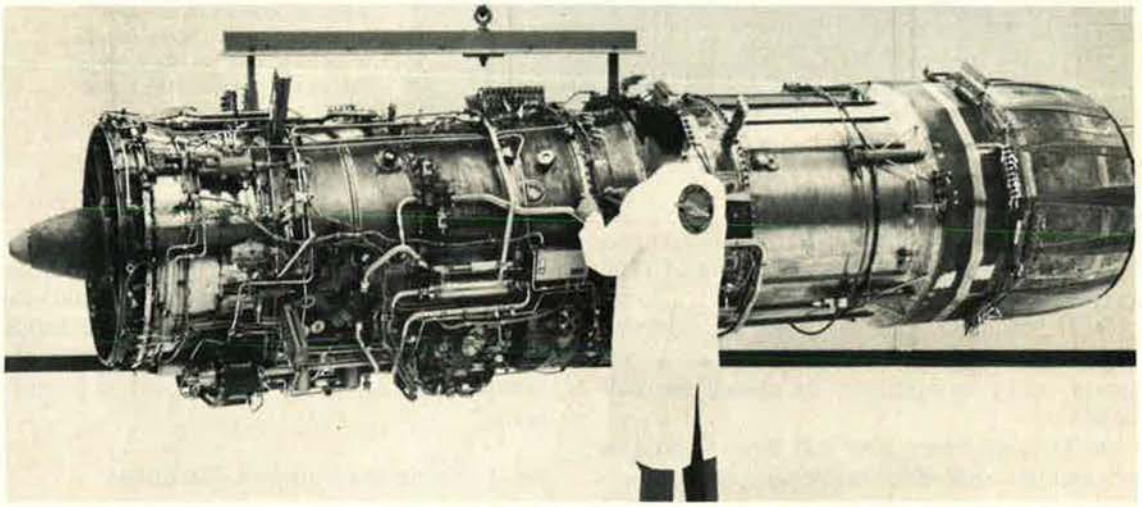
The F401/F100 family of advanced technology engines, General Bellis predicted, "is likely to open up a new era in propulsion technology, not only in terms of thrust to weight, but distortion tolerance and fuel efficiency. These engines have considerable capacity to 'grow' in order to meet different requirements in the future, and might well find their way into other weapon systems."

Startling Test Results

Overall, progress of the F-15 program has been "far better than we expected," General Bellis reported. "Several of our key subsystems are already past the demonstration stage and have attained running hardware status." The F-15's inertial navigation system (designed by Litton Industries), for instance, is about to complete its actual flight testing aboard an RF-4 aircraft at Holloman AFB, N. M. This system, which is "characterized by simplicity, high reliability, and ease of maintenance, is not only available to us significantly ahead of schedule but might well serve in other applications," General Bellis said.

Similarly, the F-15's unique and sophisticated attack radar, designed and built by Hughes Aircraft Co., has proved in flight hardware demonstration its "look-down, shoot-down capabilities." The F-15 is the first fighter aircraft capable of locating and tracking low-flying aircraft in the ground clutter, the natural electronic "noise" emanating from the earth's surface.

Because of its overriding effect on performance, reliability, and life cycle, unprecedented attention has been lavished on the structural integrity of the F-15's airframe. As a result, "our structures program is shaping up beautifully, verifying that this is a really tough airplane. It has a greatly expanded fatigue spectrum so that it can handle repeated cycles of high G loading. Also, its basic structure is simple, doing away with such more sophisticated but vulnerable features as leading and trailing edge devices on the wings. We have designed into the airplane what we call re-



Pratt & Whitney's F100-PW-100 advanced turbofan engine, which is to power the McDonnell Douglas F-15, is shown ready for testing at the company's Florida research and development facility. The engine has a common core with the F401-PW-400 powerplant of the Navy's F-14B fighter

To date, the F-15's structural test program has yielded unprecedented results. Using the same test specimen for the simulated flight-fatigue test as well as for the static test of the horizontal stabilator tail, it has not yet been possible to break this critical component. The aircraft is designed to survive even after sustaining severe battle damage.

dundant load paths, meaning the aircraft can sustain a fairly high level of battle damage, including missile and gunfire, without losing its basic maneuver capability and, of course, the ability to return home safely," General Bellis emphasized.

In order to ensure the structural toughness and integrity of the design, he said, "we provided right from the start for subsystem test programs in all areas where we thought we might be technically questionable.

"Early major subsystem development in the F-15 program was a form of early component prototyping, such as we instituted with respect to the engines, the attack radar, and now the GAU-7 Gatling gun [the caseless ammunition-iring, 25-mm Gun Aircraft Unit, to be furnished by either General Electric or Philco-Ford, depending on the outcome of a currently pending hardware test].

"In our structural subsystems test program, we highlighted two key areas, the horizontal tabilator tail and the wing and wing-attachments points. On the basis of past experience, we knew that both areas are very critical because they involve constantly changing high G oading. As of now, we have completed the esting of the horizontal stabilator, which involves the use of advanced composite materials. The test results are unprecedented. We sed the same test specimen for both the 5,000 hours of simulated flight fatigue test as well as for the static test. Not only did the same test article withstand both rigorous test efforts of fatigue, but it exceeded the ultimate load test requirement by a substantial margin. So far, we haven't been able to break it. This is something unheard of in previous aircraft design experience.

"We are just now starting our wing and wing-attachment point fatigue tests, and, while we don't know whether or not we will be able to duplicate the spectacular results of the stabilator test, we are encouraged by the early test results.

"In addition, of course, the F-15 SPO is set up as a problem-solving organization. By probing all technologically risky areas early and extensively, we feel confident that we will be able to solve whatever troubles lie ahead without unduly burdening either our budget or schedule," General Bellis explained.

Boron Wings for the F-15?

In the early and mid-1960s, Air Force scientists and other materials experts inside and outside the Defense establishment were attracted, and at times even mesmerized, by the potential of the so-called advanced composites. As the name implies, these are combinations of materials—usually nonmetallic plastics—that tend to reinforce one another in such areas as hardness, strength, and light weight. As a re-

sult, their stiffness, hardness, and strength-to-weight ratio exceed that of conventional metals.

In view of these attractive qualities, there was little doubt that the composites provided military and commercial aircraft designers with the means to revolutionize aeronautics during the 1970s. But the glowing prognostications were slow in materializing, with use of advanced composites confined to minor or test applications. The first proposed massive use of composites, in the fan of the Rolls-Royce RB.211 engine, had to be abandoned two years ago because of high costs and technical problems.

But, in a tentative and cautious way, the F-15 program holds out the promise of the first large-scale use of advanced composite materials. The Air Force Materials Lab at Wright-Patterson AFB, Ohio, in concert with the F-15 SPO and McDonnell Douglas, is in the process of producing a set of F-15 wings made of boron and carbon composites, General Bellis told AIR FORCE Magazine.

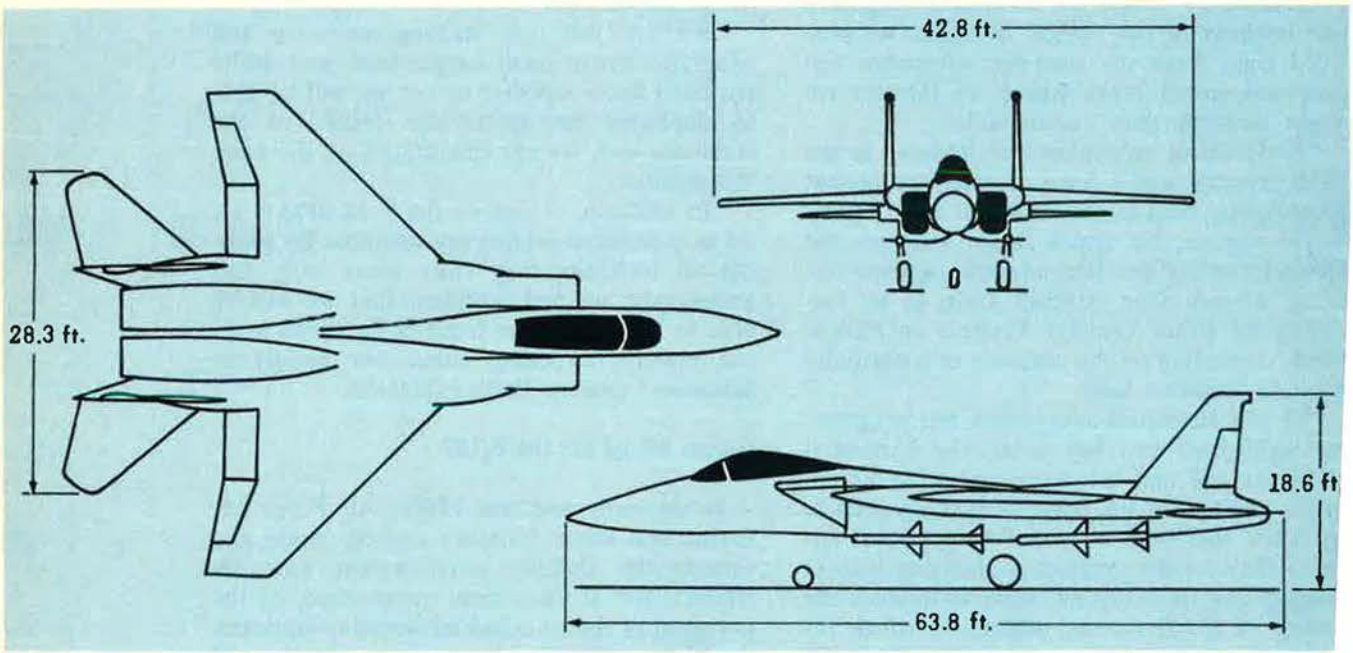
"We agreed in this joint endeavor to substitute these advanced composite wings for the standard wings at a certain point in our test program and to evaluate their performance. While we have some very guarded optimism that these new materials can eventually be flight qualified, and, that in case of an extended production program of the F-15 we might actually incorporate boron wings into production aircraft, no commitment to do so exists at this time," General Bellis said.

The composite wings will be identical in size and shape to the standard wings of the aircraft, to permit a "straight-across comparison," General Bellis said.

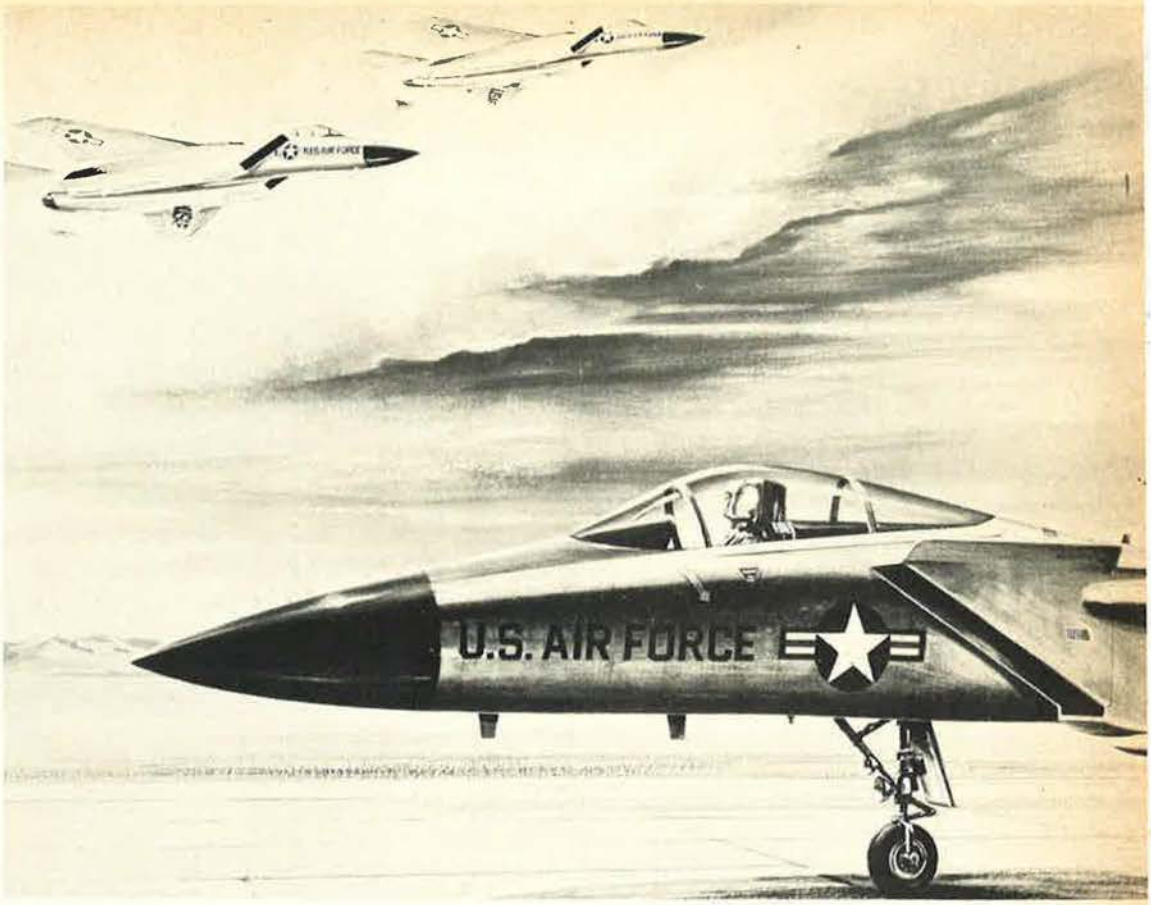
While it would have been possible to exploit the inherent advantages of the boron/carbon composite material to an even greater extent by changing the wing design in order to take advantage of the new material properties, he explained, this would have made comparative evaluations more complicated and ambiguous. (Because they are stronger, stiffer, and have greater ductility, load-carrying components made of advanced composites need not be as massive as conventional structures and thereby provide designers with greater latitude.)

Even with this restriction, the substitute boron/carbon wings of the F-15 are expected to realize a total (structure and fuel) weight saving of about 1,000 pounds, compared to the conventional aircraft, General Bellis said. "This," he emphasized, "might not impress some people as a very startling cut in weight, but it does represent an enormous gain in the case of a fighter where you normally consider a five- or ten-pound reduction as a significant achievement."

General Bellis refused to speculate on when he might consider incorporation of boron wings into the F-15 production program. "This is meant to be a parallel effort that explores a technically advanced area in concert with the Materials Lab in a strictly tentative fashion. If the effort turns out to be successful, we will incorporate thoroughly proven technologies on an incremental basis. If it's not successful, we incur no disruption of the F-15 program



The twin-engine, fixed-wing F-15, with a thrust-to-weight ratio of better than one to one, has a total length of 63.8 feet, a wingspan of 42.8 feet, a twi tail width of 28.3 feet, and tail height of 18.6 feet. The aircraft is likely to use a rapid-fire gun firing caseless ammunition.



USAF Vice Chief of Staff Gen. John C. Meyer recently stressed that the F-15 design takes "advantage of all our accumulated technology. As a result . . . it will outclimb, outmaneuver, and outaccelerate a MIG-21, a MIG-23, or any kind of MIG you might find in the next decade."

whatsoever, because we have never scheduled the composite wing's incorporation."

If and when the SPO concludes that the advanced composites are ready for application, no redesign of the aircraft is necessary "because all we contemplate is a materials substitution. The only thing that would be changed is that instead of bolting on aluminum wings, we would use the composite component," he said.

F-15: Best for Air Superiority

Because the F-15's guiding design philosophy is technologically and fiscally conservative—and has been so from the very beginning—Congress and the press from time to time have aired doubts about the aircraft's ability to cope with advanced Soviet designs capable of far greater speed and higher operational ceilings.

Recently expressed doubts center on specific claims that the Mach 2-plus F-15 will not be able to cope with the Soviet Union's MIG-23 Foxbat, which, as of late, is being credited with a speed capability of up to Mach 3.8. In addition, there have been claims that there are no US air-to-air missiles that can outrun a Foxbat operating at top speed.

General Bellis vigorously rejected these insinuations, saying, "We have absolutely no evidence that might prejudice the F-15's ability to provide us with air superiority in the years ahead." (*See* AIR FORCE, *June '71 issue, p. 27.*) While conceding that, "theoretically at least, Foxbat will be able to run away from us and leave the field of battle, this leads to one of two conditions: First, his leaving the battle zone automatically gives us the air superiority we seek. Second, our AIM-7 missile [AIM-7F intermediate-range Sparrow] operates at Mach 6 and is quite capable of catching him at the high altitudes he must go to if he wants to travel at Mach 3. These high altitudes cut his maneuver capability and he won't be able to dodge our missiles.

"If we should find that an even higher performing missile is needed, we can equip the F-15 with the AIM-47 [an advanced missile system flight-tested in high-speed launch by the YF-12], which could operate at speeds up to Mach 7, depending upon the launch conditions," General Bellis said. (The Air Force has no evidence that Foxbat is indeed capable of Mach 3.8 speeds but, rather, believes that the Soviet aircraft's top speed is only slightly above Mach 3, or similar to the capabilities of the USAF SR-71 and YF-12.)

General Bellis summed up the Air Force position: "At the nub of the air-superiority issue is the fact that air battles, now and in the foreseeable future, will in all probability be fought at speeds well below Mach 3. In the real air-superiority battle environment, no known aircraft is more viable than the F-15." ■

The author, who is head of the Air Force Academy's Department of Political Science, believes that both qualitative and quantitative changes are taking place in Soviet foreign policy. The Soviet Union has achieved superpower status while its leaders' perceptions of the world are still conditioned by their commitment to Marxist-Leninist ideas. For the US, the next ten years are likely to be . . .

The Dangerous

THE United States may now be entering the most dangerous decade in its relations with the Soviet Union. The Soviets, it can be argued, have begun a stage in their national growth and foreign policy which America began in 1950—and left in 1970. They are an emerging superpower; we, in contrast, have become a mature superpower.

Both superpowers start from a roughly similar power base; both have sufficient nuclear weapons to inflict unacceptable damage on the other; both intentionally or unintentionally influence events in almost every area of the world (action or inaction by a superpower must be considered by a national leader of any other country); leaders of both superpowers see their respective interests as global; both the United States and the USSR are recognized by other states—and by each other—as superpowers.

The difference between an emerging superpower and a mature superpower appears to be mainly psychological. The emerging power tends to be optimistic about its future, about its ability to expand its influence and control events in other areas; at the same time, it is very concerned about national prestige. These traits create a dynamism in the emerging power's foreign policy and a tendency toward opportunism and intervention. The mature power on the other hand has had more experience with the limits of its ability to affect events in other parts of the globe, and with the dangers of overcommitment. It is less concerned about national prestige abroad and more concerned about internal problems. National capability still exists, but is often latent (sometimes called "neoisolationism"). The mature superpower, in short, is more relaxed about the international environment and less interested in ideological or political and military confrontations in distant lands.

The Question of Motivation

I have been describing thus far a differing style of foreign policy behavior found in superpowers at various stages in their growth. Style, however, is hardly the whole story. We must look at the reasons why the United States and then the Soviet Union became superpowers. For the impact of their foreign policies on the world differs dramatically because of differing motivations.

The United States became a superpower because of the new responsibilities forced on it after World War II and because it was the only nation with a nuclear capability. With the old balance of power destroyed and what was thought to be a wave of Communist expansionism in Eastern Europe and China, the United States rearmed itself and its allies and fought where perceived necessary to halt aggression. In effect, the United States was attempting to prop up a rather shaky *status quo* in the non-Communist world.

The motivations moving the Soviet Union to become the emerging superpower of the 1970s are more complex and more dangerous for the world. The Soviet Union is interested in changing the *status quo* in significant aspects. And when a superpower attempts to change the *status quo,* there obviously can be difficulty for

By Col. Richard F. Rosser, USAF

Decade

another superpower and for other countries in its path.

Let us start our analysis of why the Soviet Union has focused its energies on gaining superpower status with the admission that much of the drive has been inspired by fear of the "imperialist" West and, in particular, of the United States. Even during World War II, Stalin saw America as a state potentially more dangerous than Nazi Germany—and German troops had advanced to the suburbs of Moscow. Stalin began to build a defense in depth in case of a future war with the capitalist camp; Western Russia had to be guarded by a belt of satellite states subservient to Moscow. Even Stalin's most notorious aggressive adventure—the Korean War—now appears to have been initiated by the North Koreans and only cautiously supported by Russia. (See Khrushchev's revealing description of the origin of this conflict in his memoirs—*Khrushchev Remembers.*) Stalin, in short, lived in constant fear of the West and acutely felt Russia's inferiority in relation to the United States.

The Evolution of Policy

Khrushchev decided to do something about Russia's inferior status. But he wanted to do it on the cheap, and certainly not by crude attempts to gain territory which only had alarmed the West. Russia, in Khrushchev's view, had enormous domestic problems that demanded attention. He concentrated his energies on pulling his still economically backward country into the twentieth century. Russia, he insisted, had to catch up with America. This costly program dictated shortcuts in foreign policy, and especially in the arms to back up an advancing foreign policy. Russia could not afford guns *and* butter.

Khrushchev's whole foreign policy from 1954 to 1964 can be described as a grand project to achieve the appearance of a superpower without the substance. The most dramatic example, of course, was his attempt to change the balance of power with the emplacement of a few missiles in Cuba. It must be admitted that Khrushchev had some success until the Missile Crisis of 1962. There had been agonizing cries in the United States during the late 1950s about the "missile gap." Many had earlier predicted Soviet technological—and military—superiority after Sputnik was launched on October 4, 1957.

Khrushchev's successors had enough of his gambling with Soviet national security. They quickly decided to build a solid base for Soviet superpower status. The military in particular must have insisted on parity and probably superiority with the United States in almost every significant weapon system. (What commander does not want superior arms?) Soviet military leaders would not be sold a bill of goods again that America could be bluffed by a handful of missiles in a foreign country far from Russian shores.

Brezhnev and Kosygin and their colleagues also had enough of Khrushchev's spectacular but often crude style in foreign policy. (We can imagine them cringing when he pounded his shoe on a desk at the United Nations.) They probably made a conscious decision that from then on Soviet leaders would adopt a "statesmanlike" posture on the world stage—no histrionics, no oafish behavior. Kosygin's widely applauded mediation between India and Pakistan at Tashkent in 1966 signaled the new style. A responsible "big brother" role also fitted a state which was about to become a full-fledged—if emergent—superpower.

Roots of Soviet Perceptions

We might not have to worry so much if Soviet foreign and military policy today were motivated only by defensive considerations, as revisionist historians indeed argue. Unfortunately, the objectives of the Soviet leaders—and their subjective attitudes and biases—are not like those of Western statesmen interested essentially in preserving the international *status quo* while promoting peaceful change.

What is the difference? I suggest that it derives from the perception held by the Soviet leadership of the world around them: perceptions formulated in an environment permeated by elements uniquely Russian and containing an elaborate, centrally directed conditioning process based on the Marxist-Leninist ideology.

The Russian element involves an intense national pride in things "Russian" and in Russia. (Even Stalin, a Georgian, drank a toast to the "Russian people" at the end of World War II—the "leading nation of all the nations belonging to the Soviet Union.") This pride in present achievements is all the more intense because of a long history of Russian backwardness in technology, in economic advances, in general living standards when compared with the West. Soviet leaders beginning with Lenin have felt Russian pride and Russian inferiority acutely and have used all the means at their command—the brutal but effective five-year plans and the collectivization of agriculture—to catch up with the West.

Now that the USSR is emerging as a superpower with all the accompanying accoutrements, Soviet leaders demand their place in the sun. Any "Russian" government today—democratic or otherwise—would do the same. In the words of Vladimir Ossipov, the Soviet newspaper *Izvestia's* former London correspondent:

> I must honestly say that I have long been struck by this feeling of unshakeable self-righteousness which is shown by "many people in the West" every time the question arises of some or other countermeasure taken by the Soviet Union in the interests of its own defense, or in the interests of supporting countries allied with or friendly to us. For some reason it does not seem to trouble these people when the United States, at its own discretion, accumulates in Southeast Asia an army bigger than the one Napoleon used against Russia, thereby trying to change radically the so-called "balance of forces" in this area to its own advantage. . . . But Soviet warships only have to appear in the Indian Ocean for this in itself to be the pretext for a fuss about "the growing presence of the Soviet Fleet" and "a threat to the shipping" of the Western powers. By what international authority, and since when, has been conferred on the United States and Britain the sole right to send their warships wherever they think fit? And what authority has deprived the Soviet Union of that right? . . . We do not believe in "gunboat diplomacy." We have no "sinister intentions" in the oceans of the world. But whether you like it or not, we must at least know what is going on around us. We have a right to this, and we intend to go on exercising it.

It should be noted that this attitude appears to be shared by the Soviet layman. An experienced British observer of the USSR found in 1970 that the Russian man in the street took Soviet naval expansion in the Mediterranean and Indian Ocean as something entirely right and proper for a world power and a fitting reply to the string of American bases across the world. In particular, few Russians expected or even wished for any reduction in defense expenditures.

Ideological Influences

Some in the West would say at this juncture in the argument: "What indeed *is* wrong with the Soviet Union pursuing the same kind of superpower strategies and tactics which the United States has so long pursued around the world?" Is the USSR necessarily more "aggressive" than the United States, or less interested in avoiding conflict? And they might be right, if it weren't for the lingering influence of the Marxist-Leninist conditioning, which continues to have a profound if often misunderstood impact on every Soviet decision-maker.

The impact is misunderstood because the

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ideological influence on Soviet foreign policy is frequently presented in crude terms—that the USSR is irrevocably committed to communizing the world and has a "master plan" toward this end. The evidence does not support such an assumption. Soviet promotion of Communist revolutions abroad has been subordinated to Russian national interests since the Bolshevik Revolution. In fact, the Soviets have repeatedly sacrificed foreign Communists for the sake of the USSR. Ask Communist leaders from other countries—especially the Chinese—what they think of the USSR's support of the world proletariat.

The real ideological impact is far more subtle. Let me try to explain its nature. First, there is a continuing irrational fear of the "imperialist" West based on decades of propaganda about capitalist warmongering. True, there is much more realistic analysis than before of the many conflicting forces in Western countries; for example, the work of the Institute on the United States, located in Moscow. But even in the publications of this Soviet "think tank" the stereotypes about the USA noted in the Soviet media remain essentially unchanged: America is the leader of the imperialist world, dominated by finance capital and the military-industrial complex, determined to extend its military power into every corner of the so-called "free world," and dedicated to anti-communism and "subversive activity aimed at destroying the socialist commonwealth and undermining the socialist social system."

Continuing fear of the West and suspicion of our every move naturally creates pressure for ever-rising arms expenditures in the USSR, inclines Soviet leaders to see any Western gain as a Soviet loss, forces them to look for hidden, nefarious motives behind every Western overture regardless of how peaceful it may be, and complicates every effort at international negotiations.

Influence of 'Inevitability'

A second aspect of the ideological impact is a belief in the inherent superiority of the Soviet social and economic system, and of the eventual and inevitable victory of this system around the world. But I must hasten to point out again that Soviet belief in inevitability does not *force* Soviet support of leftist or even Communist insurgencies in other countries. If world communism is "inevitable," why should the Soviet Union take unnecessary risks? This belief in inevitability also poses serious questions for those who foresee a Soviet obsession to develop a first-strike capability. Leaders who are confident in eventual victory for their cause have little reason to launch nuclear war, even if they are reasonably assured of coming through largely unscathed. Moreover, "reasonable" assurance alone is not enough in the nuclear age. As long as some doubt remains about whether a state truly has achieved a first-strike posture, it simply is not worthwhile to contemplate intentionally starting central war. Only a madman would not have such doubts and Soviet leaders have never been and are not now madmen. (The argument assumes, of course, the continual maintenance of an effective American deterrent based on the Triad of weapon systems.)

At the same time, belief in the inevitable victory of a superior system *can* lead to overconfidence—to a feeling that the balance of power has swung to the Soviet side and that the "decadent" West has lost its nerve or its will to survive. Khrushchev appears to have made such an erroneous judgment almost a decade ago about John F. Kennedy: A President who had failed to carry off a Bay of Pigs invasion against an insignificant power would hardly contest Soviet missiles once they were emplaced in Cuba. Soviet ideological overconfidence, accentuated by the natural optimism charactertistic of any emerging superpower, may be increasingly evident in the present decade. This attitude moreover could be stimulated by a Soviet Union facing the United States in its mature superpower stage. A more relaxed, low-key posture in American foreign policy might be interpreted as lack of concern and, more ominously, as genuine weakness.

What Is 'Normal'?

There is a third aspect of the ideological impact. The Soviets have a fundamentally different view of the "normal" processes of world politics from that held in the West. Soviet decision-makers at all levels and of all degrees of sophistication tend to see change—and change in the direction of "socialism"—as the normal and natural condition in international politics. The attempt of the North Vietnamese to "unify" Vietnam is natural; our effort to stop this process is unnatural. Any attempt to promote Western-style democracy in Eastern Europe is unnatural; Soviet efforts to hinder integration in Western Europe and to split the United States from Europe are proper. Soviet foreign policy, the Politburo is convinced, is in harmony with the fundamental trends in history; Western foreign policies, in particular American foreign policy, constitute a reactionary and, in the long run, unsuccessful attempt to halt the inevitable movement of mankind onward and upward.

Such a divergence in attitude between Soviet and Western leaders is bound to cause political disagreement in many instances. More basically, it militates against any kind of long-term settlement of world problems. The heart of the matter is that the Russians simply don't want the kind of world which the West wants.

Yet the Russians must be realistic. Indeed,

Lenin's version of Marxism demands that they be so. Lenin insisted that any good Marxist must soberly calculate the balance of forces in any situation, and compromise or retreat if faced with equal or superior might. Russian leaders, therefore, can and do reach "temporary" accommodations with the West. Some of these accommodations, moreover, can last indefinitely; there is no hurry if world socialism is inevitable. We thought West Berlin could not live through the blockade in 1948. The Western powers have just signed a new agreement on Berlin, in effect extending the status of that divided city for perhaps decades to come.

Convergence and Conflict

Accommodations may be especially possible in the arms race. There are indications that some Soviet political leaders are increasingly aware of a need to limit or control strategic weapons, providing Russia is not frozen in a position of inferiority. The economic burden of the arms race is considerably greater on the USSR than on the United States. In addition, the Soviets probably now have a clear understanding of the limited marginal utility of more powerful Russian strategic forces if these only call forth greater American strength. Soviet interest in SALT, therefore, appears genuine.

What should concern us is the growing Soviet proclivity to change the *status quo* in areas which are unstable and where there is declining Western influence. We have seen how Russia moved into the Middle East in the 1950s. Soviet involvement in other areas of the world is clearly growing in intensity, in anticipation of power vacuums. Chester Bowles recently asked a Soviet official: "What is the basis of Soviet foreign policy in Asia?" His answer, "We simply occupy the empty seats."

A second concern is the manner in which the Soviets are penetrating new areas. The old emphasis on crude subversive tactics is waning. The new style of diplomacy is that of a great power, not of a revolutionary movement which happens to be headed by a nation-state: security pacts (Brezhnev's surprising scheme for Asian collective security); trade missions; the exchange of diplomatic representatives; junkets by high Soviet leaders (Kosygin is the first Soviet head of government to visit Canada); cadres of military advisers and even active military participation in the defense of client states (Egypt); naval visits to numerous foreign ports. The Soviets have used all of these tactics in the past at various times. But never has there been such a broad Soviet program on a world scale, and never have the Soviets been so careful to use perfectly "respectable" tactics —tactics which the West long has used in promoting its desired world. I believe we are seeing a qualitative and quantitative change in Soviet foreign policy.

The West, however, should not go off half-cocked. We no longer need consider Soviet and Western competition as a gigantic zero-sum game. Every Soviet "gain" is not a Western loss. Much of the increased Soviet activity in Asia is undoubtedly motivated by a desire to counter Communist China. In a curious reversal of roles, the USSR has taken on some of the burden of "containment" in that area of the world. Peking has not been slow to recognize this fact, denouncing the Soviets for acting in collusion with "United States imperialism" and the "reactionary bourgeois regimes" of Southeast Asia to encircle China, and labeling Soviet economic relations with Asian nations as "freedom for Soviet revisionist social imperialism to plunder the resources of other countries." In short, it is quite possible for Soviet and Western interests to coincide in certain areas of the world as well as in limiting the strategic arms race.

A Race With Time

The danger comes from the dynamics of an unstable situation. A superpower cannot always immediately control its involvement when it begins to aid another state. The Soviets undoubtedly are far more deeply involved in the defense of Egypt than Khrushchev ever anticipated. This is partly the "quicksand" effect; a superpower finds it hard to completely shut off an aid program once begun lest it lose all influence, although the USSR could substantially reduce its aid to Egypt without jeopardizing its objectives. Second, the greater the power and prestige of a superpower, the more that is expected of it. We may see more crises where the superpowers, against their real interests, support rival states and inadvertently confront each other.

A second problem arises from the trend toward worldwide military operations, especially on the part of the Soviet Navy. The increasing danger of physical confrontation between the two superpowers cannot be underestimated, especially in periods of international tension. Who would have predicted a decade ago that the United States and Soviet navies would be talking today about how to avoid accidents at sea?

The United States is in a race with time in its relations with the Soviet Union. The ideological content of Soviet foreign policy obviously has lessened over the years; in the future, the ideology may lack any real impact on Soviet perceptions. Unfortunately for the West the Soviet Union has emerged as a superpower while its leaders are still formally committed Marxist-Leninists. And superpower status is a gigantic booster for a wavering ideology. We must hope for the peaceful and fairly rapid transition of the Soviet Union from the emerging to the mature superpower stage.

Which Way Soviet Foreign Policy?

Within the past three years, the USSR has changed the balance of military power that had existed since shortly after World War II. The Soviet view of military doctrine includes an attachment to political uses, which the US no longer shares. It is likely, the author believes, that Soviet foreign policy will become more assertive, within a positive concept of . . .

The Dynamics of Parity

By Andrew J. Pierre

The following analysis of the possible consequences of military parity has been taken from Andrew Pierre's article, "America Down, Russia Up: The Changing Political Role of Military Power," which appeared in the Fall 1971 issue of Foreign Policy. *The article examined reasons why the US consensus on foreign policy and the political utility of military forces have collapsed, while the USSR's experience appears to have led Soviet officials to different conclusions. A second excerpt from the same article—Mr. Pierre's discussion of controlled escalation in Vietnam—will appear in the February issue of* AIR FORCE Magazine.

—THE EDITORS

WHAT is likely to be the long-term consequence of present Soviet military doctrine, and its apparent assumptions regarding the political utility of armed force? This involves some highly subjective judgments and speculations—precisely the kind of ephemeral criteria on which political leaders often have to make policy decisions. There seem to me to be three broad conclusions.

Soviet Global Role

1. *Soviet Confidence in Playing a Global Role*—Although the Soviet Union has long been one of the two nuclear powers, it is only now that it is becoming the second global superpower. There is a real danger that Soviet leaders will now see opportunities for political exploitation around the globe that were not available before, and that they will be tempted to take greater risks. The mere availability of a new global military capability can generate pressures for its use. The military establishment, which has urged its acquisition, will feel impelled to demonstrate that the overseas conventional forces have a mission and a political value. Communist allies abroad will be able to appeal for direct Soviet support, whereas the previous inability to intervene militarily at a distance provided Moscow a useful excuse for not doing so. Accordingly, the Soviets could use their power to undermine the confidence of their opponents and move into areas where the West's influence can be diminished. Nuclear parity may be perceived in Moscow as providing a protective umbrella underneath which it can probe in order to expand Soviet political, military, and economic influence.

The Soviet leaders may also sense an opportunity in the post-Vietnam mood of US retrenchment from commitments and military activities abroad. Believing that the United States will be far more cautious about entering into any foreign military involvement, the Soviets may be emboldened to be less worried in facing down Washington in isolated instances abroad. Thus a period of neoisolationism in this country could lead to an underestimation in Moscow of America's commitment to maintaining its world role. It could raise the risk of Soviet miscalculation about Washington's likely response at a time of crisis.

The role of momentum should not be overlooked. There is a wide psychological canyon between a nation that is catching up and achieving general parity in conventional as

well as nuclear arms, and another nation that has or is losing its superiority. A newly acquired confidence on the part of the Soviet leadership could well produce a more assertive foreign policy. In the late 1950s and early 1960s, following Sputnik and the perception in this country of a "missile gap," Khrushchev tried to justify a more aggressive policy toward Berlin and the Congo on the basis of Russia's overall military strength. Finally, there can be no assurance that Moscow, having caught up with the United States, will not be tempted to overtake us in many areas of military power.

Changed Strategic Equation

2. *Soviet Confidence Based on the Changed Strategic Equation*—Throughout the nuclear age the Soviet Union has been in a position of strategic inferiority vis-à-vis the United States. In recent years, as the Soviets have increased their strategic forces while we have not, it has been acknowledged that the two countries are in a position of rough parity. Most professional analysts believe that "parity" was actually achieved more than a decade ago when, as the United States became vulnerable to Soviet missile power, both countries became subject to mutual deterrence. In the subjective world of nuclear strategy, however, it is often what men and nations think and believe that counts, rather than more objective criteria.

The Soviet leadership may now come to believe that their recently acquired rough equality in strategic nuclear forces places them in a position of new strength for the extraction of political gains. If so, the United States must take the responsibility for having been the schoolmaster. Throughout most of the postwar period its leaders told the American public, and our West European allies, that it was our clear nuclear "superiority" which assured the general peace.

The question then arises whether the Soviets may not be tempted to engage in more politically militant policies. A more assertive self-confidence based on world recognition of Soviet-American parity—possibly codified in a SALT agreement—could induce a greater propensity for Soviet risk-taking. This might, for example, entail probing for political advantage and testing the limits of Western tolerance in a region like the Middle East, or seeking to persuade the West Europeans that they must make piecemeal political accommodations to Soviet policy because of the "disappearance" of the nuclear superiority which underpinned the American security guarantee.

The relationship between the existing strategic balance of the two superpowers and their will and ability to pursue foreign policies inimical to each other remains, however, a matter of conjecture. Some take the view that nuclear superiority gives its holder an intangible political lever over an inferior nuclear power. Others contend that so long as both states are effectively deterred by each other from initiating nuclear war, any additional elements of increased strength or weakness have little political significance. Unfortunately for those who are unhappy with ambiguity, there is no way to "prove" that the Soviet Union surrendered in the Cuban missile crisis because of American numerical superiority in strategic nuclear forces, just as there is no way to show conclusively that the outcome today in a similar confrontation would be different because of changes in the strategic equation. It would seem, however, that other criteria must be included in addition to atomic weapons in any calculation of the political equation between nuclear powers. These include many

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intangibles: their comparative stakes in a crisis, the intensity of interest, the resolve and skill of national leadership, the support of domestic opinion and allies, as well as the balance of conventional forces at the subnuclear level where most crises would start.

Need for New Rules

3. *The Need for New "Rules of the Game"* —With the emergence of Russia as a full global power, the Soviet-American competition is entering a new era. And it stands to reason that new "rules" will have to be devised for this entirely novel situation. Although we cannot forecast what either Soviet or American behavior will be, it is not difficult to envisage occasions where there may be overlapping presences and interests in various parts of the Third World. This has already occurred in the Mediterranean and the Middle East. The risks of confrontation inherent in competition could then lead to a dangerous instability if some traffic rules are not tacitly arrived at.

In the past there was a zone of influence in which it was understood that the Communist nations were dominant, and another, wider "free world" zone of the rest of the world where the United States was perceived as having either a direct or residual role. It is to part of this zone that the Soviets will now seek access and where former American instincts for the containment of communism are being diminished. An intermediary zone is in the process of being created, one in which there will be competition for political influence. The stakes in the Soviet-American competition—n some areas China must be included—will not be for territory, but for access and influence. Having altered the balance of power, the Soviets may demand that the United States grant them a larger role in the world. The creative task for statesmen will be to work out new rules which will moderate continuing great power rivalries and at the same time create or maintain a local or regional equilibrium.

What the Future Holds

Each of the superpowers is now in a transitional stage in the evolution of its foreign policy. The present phase of American retrenchment could be modified by the end of the Vietnam war, or even reversed by sharply unfavorable events abroad. In a similar manner the present expansionist trends in Soviet policy could be modified by constraints arising out of domestic concerns. Spending on defense has recently been reduced and the powerful military-industrial complex of the USSR will undoubtedly be pressed for further economies by those who wish to devote greater resources to internal needs. It is not clear, moreover, how far Moscow will seek to extract political gains from its new military capabilities or, given the desire, how successful it would be.

With the exception of the Middle East, where the military commitment has become deep and risk prone, Soviet policy has been cautious. Involvement in the culturally complex internal strife of many less developed countries lacking in institutional or political structure can be compared to being in quicksand. Many of these nationalist countries, while recognizing certain advantages in contacts with the Soviet Union, are also keenly aware of the desirability of retaining their full independence of action safely outside the Communist orbit. One cannot assume, therefore, that the Soviets will necessarily be able to take great political advantage out of all new opportunities.

In the future the major difference between the superpowers in their policies toward the use of force will arise out of dissimilarities in their political systems, and in particular the need for domestic political support. Being essentially an authoritarian system, the Soviet government can act without the restraints imposed upon democracies by public opinion. In the affluent and advanced countries of the West there is a decline in what can be regarded as the political and cultural foundation supporting the use of military power. The military is less prestigious, the colonial era is finished, trade no longer follows the flag, the ideological basis for the pursuit of international power has declined, and in consequence there is little instinctive public support for armed intervention abroad.

Most striking is the change of attitude of many Americans in recent time. Until a new consensus supporting foreign policy coalesces and emerges, it will be impossible to predict under what circumstances the United States will be prepared to use armed force abroad, save in the direct defense of the Western Hemisphere and Western Europe. Clearly the application of military power for political purposes will be far more difficult to gather support for than in the past. It is unlikely that American soldiers would now be used to deal with "unfavorable" political changes overseas as in the Dominican Republic in 1965, Lebanon in 1958, or even Vietnam in 1965.

The future supposition may be that the United States has neither the responsibility nor the right to intervene militarily in an internal dispute, even if an insurgency is being supported by an outside power. The threshold of involvement will no doubt be higher than in Vietnam. We will be more discriminating than in the past in responding to requests for intervention from allies and will make a greater effort to do so under multinational sanctions. We will be more selective and cautious.

The political role of military force is declining for the United States. But for the Soviet Union it appears to be on the rise. ■

Richard D. Kisling, the third NCO to wear the special insignia of the Chief Master Sergeant of the Air Force, talks about his new job . . .

The GI's Man in Washington

By Capt. John T. Correll, USAF

THERE seems little danger that Richard D. Kisling, Chief Master Sergeant of the Air Force since October 1, will lose touch with working-level airmen.

He spent only six days in his new Pentagon office in November. He was scheduled to be there only three days in December.

He has been visiting, listening, and talking with enlisted people because, he says, "basically, my job is to make sure that the Secretary, the Chief of Staff, and the people on the Air Staff understand how guys in the field think—about promotions, assignments, haircuts, or any other program.

"I don't see myself as a filter. I've got to make sure the boss knows the feelings of enlisted people in the field—no matter how I personally feel about an issue."

Kisling, the third man to hold the Air Force's top NCO job sinc the post was created five years ago is no newcomer to working wit people and their problems. He ha spent most of his career in the per sonnel field, and has been a re cruiter, a first sergeant, and a ser geant major.

High on the list of things he' like to see accomplished during h tour of duty are better housing an pay for airmen.

"We've got to provide the individual who's going to stay in the barracks a first-class place to live," Chief Kisling emphasizes. "Most of the people coming into the Air Force today are accustomed to having their own room, rugs, drapes, and some privacy. We have to do better by our people than to house them two or three to a room, with no privacy, and a central latrine

High on His List: Housing, Pay

where they have to fight for a space to shave."

Chief Kisling also sees a need for relief for the airman faced with housing his family in high-cost-of-living areas. Government quarters are seldom available, and even senior enlisted people cannot readily afford a decent place to live.

"In the case of a young staff sergeant with a couple of children living in one of these areas," he continues, "he has to work two jobs all the time in order to make it. So we need more money."

He is also keeping a weather eye on the Air Force's mess halls—both from the standpoint of the quality of food and the choice offered.

"Some people," Chief Kisling relates, "are looking at master menus and saying, 'This is exactly what we've got to provide. We've got to make sure that man gets 3,700 or 4,200 calories a day, and we're going to give him spinach and roast pork to make sure he gets that.' Maybe a youth of today—and he doesn't look unhealthy to me—would rather have a hot dog or a pizza. We have a lot of dining halls that have recognized this, and they

Seeing "Nuts-and-Bolts" Guys

have excellent snack lines. They have most any type of sandwich you could get downtown, milk shakes, anything in the ice cream line. Other places don't even have ice cream."

Chief Kisling prefers to work without a planned itinerary when he's at a base. He avoids VIP tours and briefings, concentrating on seeing "the nuts-and-bolts-type guy who's really doing the work."

"A lot of young people have never had a serious conversation with an adult. . . . They have never sat down and talked about their objectives in life or expressed their feelings."

What do airmen want to talk about? Mostly personnel issues—ninety-nine percent of the time. But not always.

At one base, the prime concern of some young aircraft mechanics was their difficulty in getting the proper tools. A talk with the line chief and the sergeant major resolved the issue. Supervisors were unaware of this problem.

This wasn't the only instance of poor communication between supervisors and young airmen that Chief Kisling has discovered in his travels the last couple of months. He personally doesn't find it difficult to talk with first termers, and he doesn't think any NCO worth his

In Touch With the Working Level

stripes should either. But a candid discussion with the boss would be a totally new experience for some.

"A lot of young people have never had a serious conversation with an adult," he explains. "They've had conversations with their parents to ask about the car, but they have never sat down and talked about their objectives in life or expressed their feelings."

Overcoming this requires leadership. That's why Chief Kisling would like to see increased emphasis on professional military education for NCOs. He feels that NCO academies simply aren't reaching enough people, preparing them for the complex tasks of talking effectively with their airmen and motivating them.

"The NCO has to be technically qualified in his field, of course, but first and foremost he has to be a real leader of men," Chief Kisling believes. "He's got to understand how to motivate his people. He's got to be the man they can go to and get a straight answer."

How about the often-expressed worry that changes in the modern military are undermining the NCO's authority, and that first-line supervisors are ignored as airmen take their problems directly to higher authority?

"In some cases, yes, the supervisor is being bypassed," Chief Kisling acknowledges. "But in a lot of cases, it's because he hasn't really

Going Where the Airmen Are

sought the initiative. It's like working in a staff job. Everyone is not going to come and tell you everything that's going on. You've got to go and find out.

"Many times, a first-line supervisor sees one of his people talking to a senior man, and he says, 'Well, there it goes again—he's talking to him, and he isn't talking to me.' What he should do is go to that senior man and say, 'What do we need to do about this airman's problem? Let's work this thing together.' A lot of people are bypassed because they haven't really jumped in and gone to work.

"A lot of people are complaining about loss of prestige—that they don't have the authority to go with their responsibility. I think that a commander will back an NCO to the hilt, and give him all the authority he needs, if the NCO is willing to seek the responsibility. You can't give a man prestige just by putting another stripe on his arm. Not any more."

Advice for NCOs who feel bypassed: Take the initiative, seek the responsibility.

Supervisors Are the Key

On "Air Force Now" Film Set: Communication Is a Must

Chief Kisling believes that, for most airmen and NCOs, the Air Force is something more than just a place to work.

"Like industry, we have some people who are around to get their paycheck and that's all," he says. "But, percentagewise, our people, including a lot of first termers, have a real feeling for the Air Force, that it's a good organization."

At the same time, he worries about the limited knowledge some young airmen have about the Air Force.

No Newcomer to "People" Problems

Too many, he suspects, make only the minimum effort required of them in basic training to learn about what's ahead, often missing even rudimentary information about the career fields and commands they will be assigned to.

"Down at Fort Lee a couple of weeks ago," Chief Kisling reveals, "I talked to people entering the cooks and bakers school. I could have spent three days answering basic questions. They didn't understand how reassignments work, and I must have had twenty questions about leave."

He wonders if the Air Force's six week basic-training time should be increased. He is a graduate of seventeen-week infantry basic training himself.

"When I came out," he remem

bers, "I knew about the infantry, all the weapons used by the infantry, and how to use them. I felt that I was really ready to go, that I really understood."

Social problems—race, drugs, dissent, and others—are serious considerations, Chief Kisling feels, but they're far from out of control.

"I really feel that the Air Force has a pretty good handle on most of these problems, and that we're working them. We have the tools

Important: How the Troops Feel

to resolve the problems, and we're doing something about them instead of just talking."

He cites examples of action: the Limited Privileged Communication Program, which allows people with drug problems to seek help without fear of punishment; the success of the drug rehabilitation centers; the Air Force's new standards manual, which specifies, for both supervisor and subordinate, the limits of acceptable behavior and decorum; and the Air Force's upcoming program of eighteen hours a year of race-relations education for the entire force *(see also the first item in "The Bulletin Board," p. 64).*

Of special concern to Chief Kisling are the problems and experiences of the black airman. Kisling is convinced that prejudice isn't to be found at the headquarters level, and that it isn't in Air Force policies. Nonetheless, he can cite instances of how biased supervisors have made the promotion system

Special Interest in Black Airmen

unfair for individual black airmen through biased performance ratings.

In addition to racism on the part of some individuals, he says, there exists a widespread, basic lack of understanding.

"The difficulty is that most white people don't have an appreciation of how black people feel—for example, the insecurity that some blacks feel when they are away from the ghetto. This is not good. They should feel secure anywhere."

The Air Force has a handle on social problems—race, drugs, dissent—but there's still work to do. Racial bias can be found among some individuals, and there is a widespread, basic lack of understanding.

He cites an approximate parallel from his own background to explain.

"I was raised in western Iowa during the Depression. Ten children in the family, and my mother died in 1934, in the heart of the Depression. We were poor. I couldn't really participate in conversations with people who were supposed to be my peers, for example, when they talked about getting new clothes. I couldn't run around with them. We didn't have the money.

Their Voice at the Top

"I didn't take people to my home, because I was ashamed. Yet, when I was in that home environment, I felt safe. When I was out with people and someone said something about poor people, I knew that all I had to do was go back home, and I would be safe again."

If people from different background environments are going to get along, there must be empathy and understanding, Chief Kisling insists. For starters, he urges whites to study black history and culture, to try to understand how black people think and feel.

"The black airman, the white airman, and every person rightfully expects to be treated as an individual," he concludes. "I don't mean everybody doing his thing his own way. I mean recognizing individual needs. That's what we've got to do if we're to get the kind of work and support we're looking for from people, and if we are going to motivate them." ■

The author, Capt. John T. Correll, is on a USAF "Education With Industry" assignment with AIR FORCE *Magazine.*

When the C-130 first came along more than a decade ago, no one ever dreamed that it would see combat as an airborne command post for FACs controlling night strikes along the Ho Chi Minh Trail. But it did, and here a SEA veteran describes the teamwork between his crew and a B-57, during one hectic . . .

Night on the Trail

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

Illustration by Fred Holz

THE last angry red ball of 37-mm floats up to disappear in a bright flash against the uncaring stars.

"Who's next, Larry?"

"We've got a B-57, Yellowbird Two Four, holding at 23,000, sir. He's been here quite a while."

That means fuel is getting short. "Okay. Bring him down to a perch. He'll probably want to work from about 11,000."

"Any results for Hobo flight, sir?" Dave, the navigator, is trying to catch up on his record keeping.

"I don't know yet, Dave. How about it, Salty?"

"Nothing." Salty, on the night-vision scope, is disgusted. We've had those trucks pinned down for nearly two hours. First with flares and markers while Hobo flight launched and churned out to meet us, then with the two A-1s. Unfortunately, the two had a bad night. The wingman was new and was badly bothered by the antiaircraft guns. The lead aircraft expended most of his load trying to distract the opposition, then missed his shot at the trucks. "His last nape is right in that string of trucks, but it didn't touch a one."

"Okay. Dave, give them no visual results before they get out of range, then brief the Yellowbird while I take a break." At his dimly lighted desk behind the blackout curtain Dave acknowledges and starts talking on the UHF while I stretch out a bit and ask for a cup of water.

The night is warm and bright. High, scattered clouds, a new half moon. The Southern Cross hangs low in the south and the Big Dipper is pale above the northern horizon. Splotches of fire dot the land below. From just the right angle you can see a single bridge support still standing in the river where a road used to cross. The road, a light streak across the black land, turns away from the bombed-out bridge to disappear in the molten silver river and reappear on the other side. A brighter band of light defines the ford, a couple of hundred yards upstream from the bridge. Water glints from bomb craters on the banks near by.

Inside, the cockpit is almost completely blacked out. My instrument lights are just barely bright enough so I can see the heading and attitude indicators. Larry, my copilot, in the left seat for these missions, has his lights a little brighter, as does Ray, the engineer. Our C-130 drones peacefully at 155 knots. Still plenty of fuel. All temperatures and pressures holding well except for number four power section oil pressure. Right on the line still. Been there for the last couple of hours. Probably no problem, but you never know.

Dave finishes the target terrain briefing and goes on to headings and areas for bailout. I squirm a bit in the seat and check the time. Almost 0300. We took over the area from Bat Three at midnight. Couple more hours before it gets light. The survival vest, heavy with extra radios and ammo, pulls on my neck and shoulders.

"He's all yours, sir."

"Thanks. Salty, it looks like a nape just touching the southeast side of Hobo's last one would be good.


USAF

Do you think that'll do the trick?"

"Rog. There's two of them there. If this guy can just hit the road, we'll have them."

"Yellowbird Two Four, Bat Five. This is your FAC. How do you read?"

"Loud and clear, Bat. We'll be down in a couple of minutes. Can you put us right in? We need to get the napes off." B-57s carry their napalm on external mounts. The extra drag eats up fuel, and it's been a long run up from Phan Rang.

"Rog, Two Four. Were you watching Hobo?"

"Affirmative."

"Do you see his last nape? The one furthest west?"

"Affirmative."

"Okay. I've got some trucks on the road just southeast of that last nape. The nape is on the road. The road is oriented northwest-southeast, and I want your first nape on the southeast side of Hobo's nape with the edges just touching."

"Okay. I think I've got that."

"Good. I'm in a right orbit around the target at 8,000 with my formation lights on. If you have me in sight, I'll clear you in hot."

"Any particular direction you want, Bat?"

"I'll leave it up to you, Two Four. The best of the guns is about a mile or so to the southeast of the target, and Hobo said he was bucking a pretty good wind from the west on his bomb runs."

"I don't have you in sight, Bat. Could you work above us?"

"Well, depends on how low you can perch. I can't get much higher and still see what I'm talking about." I know the answer, but the oblique response may keep him more cooperative.

"Okay. Never mind. The visibility is pretty good tonight. How about turning on your beacon so I can find you?"

Oh boy, here we go again. "Rog. Beacon coming on for about ten seconds." Ray is out of his seat, lying on the floor at the far window where he can watch for flak. The copilot can reach the switch. "Turn the beacon on, Larry."

Perhaps five seconds later, a sharp voice on interphone. "Break lèft!" Reaction is automatic. Mash the autopilot emergency release on the yoke, hard over aileron, hard rudder, haul the wheel into my gut. "Beacon off." A second later a fan of eight glowing 37-mm shells lashes past the right wingtip to explode harmlessly several thousand feet above. Good thing they don't have proximity fuzes.

"How many?" The laconic request is from Dave. We have to keep records of that stuff, too.

"Eight up here."

One of the loadmasters adds, "Eight more behind us."

"Thank you."

"Bat, this is Two Four. Those were pretty close. Do I have some lights showing?"

I can see his black shape against the stars above us. "No, you're clean, Two Four. Those were at my beacon. You just happened to be in line. Do you have me in sight now?" He darn well better, after that.

"Roger."

"Okay. You're cleared in any time."

"Right. That was southeast of the western nape."

"Affirmative."

"I'm hot."

"Cleared." Switch to interphone. "Heads up, Salty, he's in now."

Forty-five seconds later a rose of fire splashes into life. Simultaneously, 37-mm fans out, reaching. . . .

"Break right, Two Four! They're on you."

"That's beautiful!" Salty is ecstatic. Somebody finally hit where he wanted. "He got both of them!"

"You sure?"

"I can't see into the fire, but that's right where they were."

"Okay. The other two on the other side of the old nape?"

"Yeah. If he can put his next one on the other side, just like that last, he'll get one. The other is a little further back."

Dave gets a word in. "How many rounds at Yellowbird?"

"Um—sixteen. Two guns."

"How's that look, Bat?"

"Just fine, Two Four. I want your next one on the other side of the old nape. Right across from the one you just put down and the same distance out."

There is a short pause, then Yellowbird comes back, worried. "Uh, Bat, did I get fouled up on your directions with that first one?"

Oops. I didn't keep him up to date with the action. "Oh no, Yellowbird, that was beautiful. Got two trucks. We're after another one now."

"Well, how 'bout that? First this month. Bet we win the pot tonight. Just the other side of the old nape?"

"Affirmative."

"I have you in sight. Am I cleared in?"

"You're clear."

A short pause. Two 37s come up—then another. They were waiting for him this time. Fire splashes. Another 37 throws some our way.

"Salty, looks like that one was a little too far northwest, wasn't it?"

"Yeah, but he hit the road and got the last truck in the line. Have him fill in the gap. Dave, two small secondaries out of the first strike."

"Got it. How many rounds?"

I do a mental instant replay, "Twenty-four at Yellowbird. Eight at us."

"Accurate?"

"Not very. Didn't have to dodge. New gun."

Yellowbird is back on his perch, apologetic. "Looks like I threw that one a little too far northwest, huh, Bat?"

"Yeah, Two Four, but you've been living right. That's where I was going to put you next time. You got the last truck in the string. Now fill in the gap."

"Okay. Am I cleared in?" The voice is getting gleeful. They must have a pretty good pot built up back at Phan Rang.

"If you have me, you're cleared."

Larry, monitoring the VHF comes up on interphone. "Moonbeam wants to know if you still want more ordnance?"

"The way Yellowbird is going

During his Air Force career, the author, Curt Messex, accumulated some 1,200 hours of combat time, and a total of nearly 10,000 hours in the cockpit. Since his retirement in September 1970, he has made his home at Cheney, Wash. This is Major Messex' third appearance in AIR FORCE *Magazine in recent issues. You'll be reading more of his stories in the months ahead. We think he drives a typewriter as well as he did a C-130.*

don't think we'll need any more."

"Good. Bat Four is asking for some. They'll get the ones we had coming and that should be the last flight tonight."

Three guns come up as fire splashes again, tracers converging. . . .

"Break left, Two Four."

"Dave, about twenty-four rounds at Two Four. I think I finally spotted that nine-level gunner. . . . Load, pilot, stand by with two logs."

One of the loadmasters lifts two wood-cased pyrotechnic markers out of their box and sets them in flare-launching chutes.

Leaning far out of my seat in order to see almost straight down, I guide the '130 in a sweeping turn with gentle movements of the autopilot turn control. Starting at a point in a featureless black area 7,000 feet below, I estimate distance, speed, bank angle. "Ready, ready, logs . . . *now*!"

"Logs clear."

For the first time since the gun fired I look back at the target area. "Looks like he put it right in there, Salty."

"We're still a little far away, but it looks good."

"Guess we need some more targets. We got a real pro working for us."

"Yeah. Take me back where the road crosses the river. I'll see if that one is still there."

"How's it look, Bat?" Yellowbird is impatient.

"Looks like you wiped out my target, buddy. We're moving to there the road crosses the river to see if we can set up another one."

"Okay, Bat. I've still got one nape left, so make it as quick as you can."

"How's it look, Salty?"

"I dunno . . . yeah. He's moved off the road, but he's still there."

"Where abouts?" I can't see the tracks at night from this altitude unless they have lights on. Salty aids them with his night-vision equipment, hanging in the frigid upstream at the open paratroop door to do his job.

"See where the road comes straight to the river, then turns north?"

"Yeah."

"Okay. About a hundred yards north of the corner the road makes a little bend toward the river, then away. . . he's between the road and river—right at the hump."

"Hmm. Okay." Somehow Salty and I have developed a rapport that reduces conversation to a minimum. I still can't see the truck, but I know exactly where it is.

"Two Four, this is Bat Five. If you can see the road coming down to the river, I'll try to do this without markers."

"We can see it when we get the right angle."

"Good. Do you see the corner where the road turns and goes along the edge of the river?"

"Just a minute. . . . Yeah, I got it. You want me to hit there?"

Eager soul. "Not quite. About a hundred meters north of that corner can you see where the road makes a hump toward the river?"

There is a pause. A 37 probes our direction. Another joins in. Unusual for two of them to see us at the same time. I check the moon quickly. A thin translucent cloud has covered it. We are now a black silhouette against a pale pearl backdrop for the gunners. "Sixteen more at us, Dave."

"I can't see the hump, Bat."

Can't waste any more of his fuel. "Okay. There's a truck between the road and river along there. Put your nape two nape widths north of the corner, on the river bank."

"Gotcha. Have you in sight. Am I cleared in?"

"Rog, but watch for more guns from the other side of the river. There are at least three in there."

"Rog. I'm in."

Guns start coming up. The ford is always a hot area. I swing wide to watch for the nine-level artist, to the southwest of us now. My markers have lighted. Two pinpoints of white light about 150 yards apart in the black area. The artist reacts, slashing the sky around Yellowbird as fire splashes on the river bank. My marks are too far north. "Stand by two logs . . . ready . . . logs *now*!" Fast. Didn't have time for acknowledgements. "Did you get them out, Load?"

"Yes, sir!" A touch of pride in the voice says clearly that they can handle the impossible any time.

"Good show . . . anybody get a count on the guns?"

Steve, the senior loadmaster, answers. "I counted five, sir, but I couldn't see what you were marking."

"I was after that good gunner, so that makes six. About forty-eight rounds at Yellowbird, Dave."

"Break right! Break right! Oh, Christ!"

Hard aileron, hard rudder—power boosted controls whip the '130 into a near vertical bank and we cut sharply *toward* a storm of close-spaced 37-mm as it draws red-orange streaks through the space just vacated by the right engines. I roll back and reset the autopilot without comment, wondering why we didn't at least get a hole in the rudder. The crestfallen voice of a student loadmaster, the same that called the break, speaks after a while. "Sorry, sir. I forgot I was facing aft when I called that break."

Volatile Salty erupts, "Don't make mistakes like that—I thought the stuff was coming right in my door!"

Time to cool it. "Okay. About sixteen at us, Dave. That's why we keep the door on the other side open, Salty, so they can keep going."

"You still with me, Bat?" Yellowbird sounds concerned. Must have been watching.

"Yeah. Just teasing the guns. How's your play time?"

"With the napes off . . . about twenty minutes now."

"Okay. Hang loose a minute while the scope man takes a look."

Salty is disappointed. "He's real close. Just not quite far enough north. If he can put another nape right beside that one, that'll do it."

"Only hard bombs left, Salty."

"Damn. . . ."

"Two Four, Bat. That was real close. He's just north of the fire. If you had another nape, I'd say put it in there so the edges touched. Think you can do it with a hard bomb?"

"Sure give it a try. I have you in sight, am I cleared in?"

"Have at it. Watch the guns."

For a moment the B-57 is a black shape sliding across the silver ribbon of river. Fewer guns come up, and some of the shots are wild. Two Four is going through the opposite direction this time and a couple of the guns start shooting before they

finish swinging around. The bomb flashes bright with its pale, spreading halo. Seconds later the jolt hits our airplane. An M-117 makes a pretty good bang.

Salty bubbles again, "Beautiful! Just beautiful. This guy is fantastic! A direct hit. I was looking right at the truck and it just disappeared! Nothing there at all, now."

"Nice. You got another?"

"Yeah. One more. Back down the road. It goes straight away from the river about half a mile, then bends around a bomb crater and keeps going. There's one right at the top of the bend."

"How many rounds at Yellowbird?" Dave doggedly keeps plugging away at the paper work. Getting to be a long night for him. With this moonlight we haven't had much need for his radar.

"About thirty."

Back to the radio. "Okay, Yellowbird. Time to shift targets again."

"You mean we got another one?" Now he's bubbling too.

"Yep."

"You do good work, Bat."

"Thanks. So do you. Okay. Start from that corner we just worked from. You see how the road runs straight west from there?"

"Yes."

"About half a mile west of the corner is a place where the road makes a little hump to the north, then keeps going straight. You see that?"

"Just a minute." The pause stretches. " 'Fraid I don't see that, Bat."

"It's not very big. . . . It's about a quarter of the way back toward the first strike from the corner."

"Lemme take another look. I think we were looking too far west . . . can you see it from your altitude?"

"Yes."

"Mind if I slide down under you for a look? I have you in sight."

"Go ahead." Another pause. I can see him now, circling below us.

"Okay, Bat, we got it. Just a little wiggle."

"That's right. There's a truck sitting on the top of the hump."

"Okay. We can go in from here. We cleared?"

"Affirmative."

A long pause. "Sorry, Bat. I lost it when I started in. Going to go in now from around the other side."

"Still clear."

As the bomb flashes beside the road a spot of yellow flame appears. The gun to the south opens up again and I pinpoint the flickering muzzle blast in relation to the four markers now in his vicinity.

"Watch it, Two Four. The good one is up again."

"Rog on *that!* He *is* good. Right over the canopy.

"Eight more at Yellowbird, Dave."

"Pilot, Scope. That truck is really burning. Must be POL."

"I see it. Looks like a medium to large fire, Dave."

"Lemme see." A head pokes up beside my shoulder.

"Two Four, take a look at what you stirred up." The little spot of flame is becoming a boiling gusher of yellow and red. Black smoke towers up in the moonlight.

"Is that the truck burning?"

"Sure is, buddy. Time to shift targets again. I'm out of trucks, but I'd like to discourage that one gun. He's getting too good."

"I'll buy that. You got him located?"

"Yep. 'Bout a mile south of your fire. Got four markers down while you were working. You see them?"

"Got three . . . yeah, I got four."

"Okay. They make a rough square. Not quite lined up with the world, but I'm going to use the two that make the easterly side of the square. Got those?"

"Uh, yeah. It's sort of angled to the northeast, isn't it?"

"That's right. Those marks are lined up right with the gun. He's south of the marks. As far south of the southern one as the two marks are apart."

"On a line with the eastern marks and south of the southern one as far as the marks are apart?"

"That's it. If you got me, you're cleared in."

"Okay. Be a minute. I want to run in from Florida to Chicago on that."

Hmm. Well, you never know, the bad guys *could* be listening in and they might not know their Stateside geography, but how would they know which gun we were talking about? Oh well.

"Pilot, Scope. What are we after now?"

"Going after the gun that tried to put one in your pocket, Salty."

"Good. I'm watching it."

Silence stretches. Then, "Heads up, Bat—bombs away."

"Watching."

A bright double flash. It looks good. "How many bombs, Two Four?"

"My last two, Bat. Hate to quit on you, but I'm getting a little skosh on fuel."

"No sweat. You got your quota. Just checking to see if you had a secondary explosion."

"How'd they look?"

"Pretty good. No secondaries, so I can't call him destroyed, but he didn't come up so I suspect he's silenced. At least he knows we're thinking about him. I'll tease him now and then if he stays quiet we'll add him to your score, but for now we'll just log the trucks. You on your way home?"

"Affirmative. Passing through 18,000."

Hauling for altitude in a hurry. Bet he pushed his fuel right to the edge. Good thing there are a couple of bases along his way home.

"Okay. Hold the phone while we look it over. My nav will give you the coordinates and results in a moment. Beautiful bombing, buddy."

"Thanks. I just tried to put them where you said."

"You did that." I've been swinging the C-130 around the first strike area so Salty could take another look. "How's it look, Scope?"

"I make it six destroyed. I can see the first two burning now that the nape has died down."

"Six, two secondaries, and medium fire, Dave. Give him the poop. Somebody pass some water."

Quarter to four. Survival vest weighs a ton. Clouds have drifted away from the moon, but the sky is getting lighter in the east. All the gauges still look good. About 9,000 pounds of fuel left. Larry has the consumption down to about 3,600 pounds an hour. The old calculation—fuel to get home plus a little subtracted from fuel remaining leaves how much to spend over the target? Enough time to check the roadnet once more.

I modify the turn to start a hunting spiral. "Let's go hunting, Salty—maybe we can find something for the day shift."

HIGHLIGHTS

1972

MAY

Annual Air Force Almanac issue—exclusive articles by the Secretary and the Chief of Staff, USAF . . . in-depth reports on all major Commands . . . complete glossary on USAF Weapon Systems. Must reading . . . important reference issue throughout the year. (Bonus distribution at Transpo '72.)

SEPTEMBER

USAF 25th Anniversary issue. Combined Annual Convention and Aerospace Briefings and Displays issue. Bonus distribution at the event.

NOVEMBER

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

DECEMBER

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

AIR FORCE MAGAZINE

Published by the Air Force Association

New Family of Weapons?

The laser can be considered a potential candidate for any defensive military application that requires the delivery of high levels of energy in extremely concentrated form. While nuclear weapons are essentially area weapons, the laser appears destined to emerge eventually as an ultraprecise defensive weapon. But the hurdles, in the form of engineerin steering, and tracking, and a variety of other problems, are enormous—perhaps even insuperable. One of the few government leaders with a full over view with respect to the US laser weapo research effort provides AIR FORCE Magazine with . . .

STATUS REPORT ON LASER WEAPONS

BY ITS very nature, the laser (Light Amplification by Stimulated Emission of Radiation) represents an open-ended challenge to scientists and journalists alike to speculate about the myriad of weapons uses for which the "death ray" is theoretically suitable. This tendency runs head on into the fact that the national research effort involving the laser's potential as an active weapon system is one of the most closely guarded of national secrets. Only a handful of top government officials are privy to the full scope of the US program.

Security is tight for two reasons. First, to prevent any possible engineering breakthrough from falling into the hands of a potential adversary and, equally important, to avoid a laser arms race with the Soviet Union.

Dr. John S. Foster, Jr., Director of Defense Research and Engineering of the Department of Defense, told this reporter that exaggerated notions by the Soviet Union about the US level of effort might drive that country into a crash program which, over a period of time, could yield breakthroughs and thereby jeopardize our own security.

In spite of the government's aversion to discussing active laser weapons in detail, Dr. Foster revealed the following information to AIR FORCE Magazine.

Asked to comment about the US level of effort, Dr. Foster said: "The Department of Defense is funding research in this program at a level considered to be adequate in view of the current state of the art. If these current efforts are successful, funding will be increased where appropriate."

With regard to laser work by the Soviet Union and other countries, Dr. Foster said: "Soviet laser research, which has been reported, is excellent and in some areas is ahead of our own. Scientists in several foreign countries have published papers that reveal an understanding of the basic technology. Laser weapon systems are within the grasp of any technologically advanced nation."

Dr. Foster was asked how soon laser weapon systems could be deployed for either tactical or strategic missions. "There is a continuing program of studies and analyses which involve the laboratories of the military services and other agencies, and also test centers, to investigate high-energy laser technology," he said. "The purpose of this program is to enable the services to take timely advantage of the development of a laser weapon, should it prove superior to other weapon concepts."

When queried about the power sources under consideration, such as gas, dynamic, chemical, electrical, nuclear, and others *(see December '70 AIR FORCE Magazine, "Laser—A Weapon Whose Time Is Near")*, Dr. Foster stated only: "We are investigating many lasers which show promise of high power capability."

Concerning the effective reach of laser weapons in such media as air and space, Dr. Foster said: "Studies indicate that laser beams can be effectively propagated, depending upon power, optics, and the target of interest, from a few kilometers in the earth's environment to thousands of kilometers in space."

In response to the question of how effective different types of lasers might be against such targets as reentry vehicles, aircraft, and air-breathing missiles, Dr. Foster would only state: "Air Force and other DoD high-energy laser investigations include an intensive effort to understand the physics of interaction of radiation with materials in a laboratory environment."

Dr. Foster declined to comment about the size and weight factors involved in deploying laser weapon systems aboard aircraft and space craft, nor would he discuss the problem of countermeasures by which an enemy might attempt to defeat laser weapons.

Commenting about the importance of laser technology to weapon systems in being, especially in the area of guidance and target designation, Dr. Foster said:

"Lasers are a new and useful technological tool that offers improved capabilities in many areas. It is anticipated that the Air Force and the Department of Defense will continue to capitalize on the new technology whenever warranted." He explained that "laser-guided bombs and [target] designator systems have already opened the door to a new era of precision bombing. . . . Air Force dependence on these systems [is expected to] increase over the coming years as the technology improves because of the many benefits derived, such as fewer bombs, fewer airplanes, lower collateral damage, and increased pinpoint destruction accuracy."

The Commander of the Air Force Systems Command, Gen. George S. Brown, recently stated: "Within the Department of Defense today, there is one technology program which truly stands out with the potential to make a profound and lasting impact on military operations. This technology advancement, the high-energy gas laser, is of great national significance."

From all indications, the national effort in this area of potentially revolutionary defensive weapon systems is advancing profitably and at an intensive level.

—BY EDGAR ULSAMER

The Bulletin Board

By Capt. John T. Correll, USAF

Five of the resolutions adopted at the AFA National Convention last fall were recommendations of the Airmen's Council. Here, three members of the council (left to right), CMSgt. Paul Barton, CMSgt. Jim Collins, and CMSgt. Fred J. Walton, ponder issues affecting Air Force enlisted people.

Race-Relations Education

This month, six bases begin pilot programs in race-relations education as the Air Force takes the first step in the most ambitious base-level training effort it has ever attempted.

The ultimate goal is eighteen hours a year of race-relations education for each military member of the Air Force. Expansion of the program is paced to the supply of instructors graduating from the new Defense Race Relations Institute (DRRI) at Patrick AFB, Fla.

The twelve Air Force members of the first DRRI class, which graduated December 10, are setting up courses at their home bases: Ellsworth AFB, S. D.; Travis AFB, Calif.; Lackland AFB, Tex.; Chanute AFB, Ill.; Davis-Monthan AFB, Ariz.; and Patrick AFB, Fla.

First students will be commanders and key staff at the bases, following what the Air Force calls a "top-to-bottom scheduling sequence." Classes will be during normal duty hours. Each will be a discussion session, made up of no more than twenty-five people, grouped by similar grade to allay inhibitions arising from major differences in student rank.

There will be role-playing, and instructors will use film clips depicting commonly recurring areas of conflict, such as reaction to racial symbolism, emotional epithets and racially offensive language, confrontations in informally segregated civilian establishments, discrimination in promotions, assignment, and schooling, or other interracial situations.

The Air Force program was developed in response to a Defense Department mandate to all services to conduct continuing race-relations education for everyone in uniform. The Army and Navy, like the Air Force, will train instructors at DRRI. The Marines opted to contract with American Institutes for Research, Silver Spring, Md., for their program, and graduated the first of their instructors in December.

The next DRRI class, which begins at Patrick on January 31, will prepare another twenty Air Force instructors. When fully constituted, the Air Force program will employ 481 officer and airman instructors, with every Air Force member receiving the instruction annually within three months of his birthday.

Instructors are volunteers, with officers in the grade of first lieutenant through lieutenant colonel and airmen in the grade of airman first class through master sergeant eligible to apply for the duty. Race-relations instructors, as part of the new social actions office at each base, will be on the local commander's staff. As a rule, training agencies occupy a spot much further down the organizational chart.

The primary emphasis will be to improve effectiveness in work situations rather than directly attempting to change racial attitudes of individuals.

The Air Force will continue race-relations instruction as part of the Air University USAF Commanders' Seminar, which began in April 1971. Precommissioning programs, basic training, and professional military education have also been revised to include broad-scale training in race relations.

Legislation

Two items of legislation long sup ported by AFA had passed the U House of Representatives and wer under consideration by the Senat as "The Bulletin Board" went to press

H.R. 10670, the "widows' equity" bill, would allow career military peo ple to leave up to fifty-five percent o their retired pay to survivors. Cos

AFA National Director Jack Withers, left, joins authors of papers selected as best at the 1971 Air Force Systems Command Science and Engineering symposium, Wright-Patterson AFB, Ohio. Winners, from left, are: Capt. Armand A. Fannin, Jr.; Frank J. Seiler; Robert Barthelemy; Jerry E. Jenkins; Capt. Bruce Kujawski; and Capt. Don C. Eckholdt. Winners received AFSC plaques and $100 from AFA. Second-place papers won plaques, $50.

The President's Trophy for the outstanding Air Reserve aircrew of the year went to the 944th Military Airlift Gp., Norton AFB, Calif. Here, Col. John F. McCormick, former aircrew commander, accepts the award from AFA Board Chairman George D. Hardy at AFA's 1971 Convention.

to the retiree would be yearly deductions of 2.5 percent of the first $3,600 of his pay, and ten percent of the remainder.

The measure further guarantees a $2,000 minimum yearly income to present widows, for whom the new program would come too late. A controversial feature provides for the attachment of as much as half of a retiree's pay to comply with court orders in favor of spouses, former spouses, and children.

Best estimate is that deductions will pay for benefits through 1987, but that thereafter the increased number of beneficiaries will require appropriations of more than $310 million a year.

H.R. 2 would establish an Armed Forces Medical Academy, graduating 400 students a year, near Washington, D. C. Graduates would be obligated to serve seven years as doctors on active duty. The bill also provides for up to 5,000 defense scholarships to other medical students, obligating recipients for varying terms of military service, depending on the amount of aid provided.

Physicians Cutback

Dr. Richard S. Wilbur, Assistant Secretary of Defense for Health and Environment, told a recent Pentagon press conference that he foresees a cutback in military physicians to the 1961 level.

The services now have 14,500 physicians in uniform, compared to 16,600 in 1961. But the number of people they supply medical care for—some two and a half million—is about the same. Most of the doctors now on board are draft-motivated, Dr. Wilbur said.

The armed forces, moving toward a goal of zero military draft calls by mid-1973, can make do with fewer physicians if they can offer improved pay, prestige, and working conditions to attract top-flight, highly motivated M.D.s, Dr. Wilbur believes. For example, he proposed that military physicians be allowed a sabbatical every four years, and that their pay be made competitive with civilian medical practice.

He pointed to the proposed Armed Forces Medical Academy, now before the Congress, and the Berry scholarship plan as good steps toward assuring the required number of military physicians in the 1980s.

In a memo to Assistant Secretaries for Manpower and Reserve Affairs of each service, Dr. Wilbur suggested they prepare to reduce Medical Corps strength by forty percent—and Dental Corps strength by thirty percent—by next September.

Housing

The Air Force has received Presidential approval to build 3,600 family housing units and to construct 850 mobile-home spaces. Funds are included in the Military Construction Appropriations Act of 1972.

Housing units are allocated to Beale AFB, Calif.; the Air Force Academy; Ent AFB-Peterson Field, Colo.; Dover AFB, Del.; Bolling AFB, D. C.; Homestead AFB, Fla.; Andrews AFB, Md.; Offutt AFB, Neb.; Cannon AFB, N. M.; Wright-Patterson AFB, Ohio; Shaw AFB, S. C.; and Woomera, Australia.

Mobile-home space allocations are for Eielson AFB, Alaska; Davis-Monthan AFB, Ariz.; Beale AFB, Calif.; Vandenberg AFB, Calif.; Lowry AFB, Colo.; MacDill AFB, Fla.; Westover AFB, Mass.; Keesler AFB, Miss.; Indian Springs Field, Nev.; Nellis AFB, Nev.; McGuire AFB, N. J.; Shaw AFB, S. C.; and Sheppard AFB, Tex.

Air Charter Service

A congressional committee is looking into the military air charter service between Europe and the United States presently available to active-duty military people, DoD civilian employees, Reservists, Guardsmen, and retired military. The Civil Aeronautics Board has proposed limiting the service to active-duty military members stationed overseas and their immediate families.

AFA President Martin M. Ostrow, in a letter to the committee, has endorsed the Defense Department position that the charter service should be allowed to continue in its present form.

Reduced eligibility for the service would probably lead to a corresponding reduction in the number of charters flown. This could rule out air travel for servicemen on tight budgets if they cannot adjust their periods of leave to available charter dates.

"We also understand," Mr. Ostrow said in his letter, "that this service in no way replaces other transportation facilities and that, in this instance, an aircraft utilized for this service is leased from domestic air carriers. . . . We are hopeful that your committee will persuade the distinguished members of the Civil Aeronautics Board to refrain from taking any action that would limit this low-cost service so important to the men and women of the armed services of the United States."

Retention

A recent sample survey asked USAF personnel what has influenced them most, or what would influence them, in deciding whether to stay in the Air Force.

Job satisfaction was most important for junior officers with up to eight years of service. Twenty-four percent cited it as a positive influence, eighteen percent as a negative influence.

Among career officers, twenty-three percent said job satisfaction was the best thing about a career. Twenty-eight percent said family separation was the worst.

Twenty-two percent of the first-term airmen marked training and educa-

Maj. Gen. (Dr.) Don S. Wenger, USAF (Ret.), who served on AFA's Medical Advisory Council, has joined the Ironside Corp., Arlington, Va., as a consultant in medical programs and systems.

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tion as the top favorable factor. The leading negative factor, selected by twenty percent: policies and procedures.

The retirement system was the most favorable influence for twenty-three percent of the career airmen, while family separation led the list of negative factors, chosen by twenty-five percent.

Air Force Dentists

Air Force dentists will now be promoted to major upon completion of eight years' service. (Dental schooling counts as service time for promotion, so they'll actually pin the rank on after four active-duty years.) Previously, dentists made major in their eleventh year, the same as line officers. The phase point to major for physicians was already eight years—although some M.D.s make majo earlier because of prior commissioned service or extra constructive credit.

Since dental officers are not charge able to statutory grade ceilings, th new policy will in no way affect ad vancement opportunity for other Ai Force officers.

The move came in response to declining number of dentists remain ing in the Air Force beyond thei minimum obligation. The Air Forc requires 1,000 dentists in its caree force, and estimates that it will hav only 674 by the end of this fiscal yea

Brig. Gen. Campbell Y. Jackson, Commander of the 514th Military Airlift Wing (Associate), McGuire AFB, N. J., and CMSgt. J. C. Weathers, top NCO of the 943d Military Airlift Group (Associate), Charleston AFB, S. C., renew an old friendship at the recent 514th Senior NCO dining-in and seminar at Ramey AFB, P. R. General Jackson is the current Chairman of AFA's Air Reserve Council.

Arnold Air Society Executive Secretary Ciccoli Dies

Louis J. "Chick" Ciccoli, second from left, longtime Executive Secretary of the Arnold Air Society, died in November. In his work, he traveled extensively to meet with Society members.

Louis J. Ciccoli, Executive Secretary of the Arnold Air Society for the past seventeen years, and of its coed auxiliary, Angel Flight, for the past ten, died Thanksgiving Day following a heart attack. He was sixty.

When, in 1954, the fledgling Arnold Air Society had grown enough to require a full-time administrator, the cadet membership turned to "Chick" Ciccoli. Since his retirement from the Air Force as a lieutenant colonel in 1947, he had been Dean of the College of Military Science at the University of Maryland—but if a man and a job were ever meant for each other, it was "Chick" Ciccoli in his new role with the independent association of AFROTC cadets.

A succession of young people knew him as a patient, knowledgeable adviser, and as a man who judiciously stayed out of the spotlight while the organization was run by its membership. Colonel Ciccoli and his wife, Sara, worked from office space made available to the Society in AFA's National Headquarters. But "Chick" Ciccoli's exclusive and determined allegiance was to the Society and the Angels, and he was a formidable battler whenever their independence was in question.

A native of Richmond, Va., he entered the Army in 1933, moved to the Army Air Corps in 1937, and served in the China-Burma-India theater during World War II. In addition to his wife, he is survived by a daughter, Linda C. Theurer, of Centreville, Va.; a sister, Albina Ciccoli of Richmond; a brother, Army Lt. Col. Michael J. Ciccoli of Leroy, Mich.; and two grandchildren. He was buried in Arlington National Cemetery with full military honors.

At the request of Arnold Air Society National Commander Norman R. Flemens, James H. Straubel has agreed to serve temporarily as Acting Executive Secretary of the Society, at no expense to the cadet group and as an adjunct to his regular duties as Executive Director of AFA. Mrs. Ciccoli will continue to handle Society administrative affairs, as she has in the past.

Short Bursts

• Any cadet enrolled in Air Forc ROTC can have a II-D ROTC draf deferment if he wants it, even draft boards aren't allowing II-S stu dent deferments. Up to now, on those cadets who were under contra to the Air Force—because of schola ships, their status as Reservists advanced ROTC, or because th

Reserve Brig. Gen. (Dr.) M. I. Ma consultant to AFA's Medical Advis Council, presented at congressional he ings AFA's support for the establishm of a Medical Academy.

were about to enter advanced ROTC —received II-D deferments. Junior cadets without II-S deferments remained vulnerable to conscription.

• A dozen Air Force wives will be among the delegates to the 1972 USAF Worldwide Career Motivation conference at Maxwell AFB, Ala., May 29–June 2. They've been invited to sound off about service irritants as they see them, and to recommend improvements.

• There'll be a longer lapse between the time future promotion boards select temporary and Reserve lieutenant colonels and colonels and the day the results are announced. These promotions must now go to the Senate for approval. Permanent promotion of all regular officers already requires Senate confirmation, and temporary/Reserve promotions to major and below are not affected by the new law.

• A new Air Force regulation approves the sale of 3.2 beer by vending machines in barracks and dining halls when authorized by major commands.

• The Air Force exceeded its goal by 15.8 percent in the federal Summer Youth Employment program, which ended September 30. Air Force appointments totaled 12,448, of which 10,176 were disadvantaged youth, 1,477 were part-time stay-in-school appointments, extended to full-time during the summer, and 537 were Indian youths.

• The Air Force has set an absolute limit on service in Southeast Asia. Forty-eight months is the maximum any individual will be allowed to serve—even if he'd like to do more—and the limit on consecutive SEA service is two years.

• Some 73,000 members of the Civil Air Patrol marked the thirtieth anniversary of their organization December 1. Most famous today for its air search and rescue operations and youth programs, CAP was founded in 1941 by patriotic owners and pilots of light aircraft who were concerned about the growth of airpower in European countries prior to World War II.

• Maj. Gen. David V. Miller, USAF (Ret.), has joined the National Aeronautics and Space Council as deputy to the executive secretary. General Miller was formerly Director of Development and Acquisitions, Hq. USAF, and Vice Commander, Air Force Space Systems Division.

• CMSgt. Roy C. Yeager is the new sergeant major of the USAF Medical Service. He succeeds CMSgt. Raymond T. Smith, who retired October 31.

• A new award—Outstanding Mobilization Augmentee of the Year—will go to one Air Force Reservist in each major command and separate operating agency. Criteria include contributions to the command or Reserve Forces, self improvement, and leadership.

• Donald L. Miller of Bergenfield, N. J., is the new Deputy Assistant Secretary of Defense (Equal Opportunity), replacing Frank W. Render, II, who retired. Mr. Miller is a former vice president of Seatrain Shipbuilding Corp., Brooklyn, N. Y.

• Eighty-one more high schools have been selected to host Air Force JROTC units. This will raise the total number of participating schools to 234 by Fiscal Year 1973. ■

Senior Staff Changes

B/G James R. Allen, from Dep. Dir. of Plans for Plans & Policy, DCS/P&O, Hq. USAF, to Cmdr., 19th Air Div., SAC, Carswell AFB, Tex., replacing B/G Ray B. Sitton . . . **B/G Harry M. Chapman,** from Dep. Asst. for Joint Matters, Dir. of Plans, to Asst. Dir. of Plans for Joint & National Security Council Matters, DCS/P&O, Hq. USAF, replacing B/G William M. Schoning . . . **Mr. Thomas Christie,** from Supervisory Mathematician, GS-15, to Dir., GS-16, Analysis Div., AF Armament Laboratory, Armament Development and Test Center, AFSC, Eglin AFB, Fla. . . . **B/G Richard G. Cross, Jr.,** from Cmdr., 26th NORAD/CONAD Region with add'l duty as Cmdr., 26th Air Div., Luke AFB, Ariz., to Asst. DCS/Ops, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, replacing M/G Alton D. Slay . . . **B/G Peter R. DeLonga,** from DCS/M, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, to DCS/M, Hq. PACAF, Hickam AFB, Hawaii, replacing B/G Paul F. Patch . . . **M/G Ernest C. Hardin, Jr.,** from C/S, Hq. PACAF, Hickam AFB, Hawaii, to Dep. IG for Inspection & Safety, OTIG, Norton AFB, Calif.

B/G Ernest F. John, from DCS/Intelligence, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, to DCS/Intelligence, Hq. PACAF, Hickam AFB, Hawaii . . . **M/G Jimmy J. Hamper,** from Asst. C/S, Plans, J-5, USMACV, Saigon, to DCS/Intelligence, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, replacing B/G Ernest F. John . . . **B/G Robert P. Lukeman,** from Asst. DCS/Plans, Hq. SAC, Offutt AFB, Neb., to ACS/Studies & Analysis, Hq. USAF, replacing M/G Glenn Kent . . . **M/G John M. McNabb,** from DCS/Plans, to C/S, Hq. PACAF, Hickam AFB, Hawaii, replacing M/G Ernest C. Hardin, Jr. . . . **Dr. William Metz,** from Supervisory General Engineer, GS-15, to Dir., GS-16, Armament Configuration Div., AF Armament Laboratory, Armament Development and Test Center, AFSC, Eglin AFB, Fla. . . . **B/G James E. Paschall,** from Dep. Cmdr., 22d NORAD/CONAD Region, North Bay, Ontario, Canada, to Cmdr., 26th NORAD/CONAD Region with add'l duty as Cmdr., 26th Air Div., Luke AFB, Ariz., replacing B/G Richard G. Cross, Jr.

B/G Paul F. Patch, from DCS/M, Hq. PACAF, Hickam AFB, Hawaii, to DCS/M, Hq. MAC, Scott AFB, Ill. . . . **B/G Charles C. Pattillo,** from Vice Cmdr., Oklahoma City AMA, AFLC, Tinker AFB, Okla., to Dep. Dir., Logistics, J-4, The Joint Staff, OJCS . . . **M/G Maurice R. Reilly,** from Dep. Dir., to Dir., Civil Engineering, DCS/Programs & Resources, Hq. USAF, replacing retiring M/G Guy H. Goddard . . . **B/G William M. Schoning,** from Asst. Dir. of Plans for Joint & National Security Council Matters, to Dep. Dir. of Plans for Plans & Policy, DCS/P&O, Hq. USAF, replacing B/G James R. Allen . . . **B/G Ray B. Sitton,** from Cmdr., 19th Air Div., SAC, Carswell AFB, Tex., to Asst. DCS/Plans, Hq. SAC, Offutt AFB, Neb., replacing B/G Robert P. Lukeman . . . **M/G Alton D. Slay,** from Asst. DCS/Ops, to DCS/Ops, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, replacing M/G Joseph G. Wilson.

B/G Henry L. Warren, from Cmdr., 347th TFW, TAC, Mountain Home AFB, Idaho, to Dep. Cmdr., 22d NORAD/CONAD Region, North Bay, Ontario, Canada, replacing B/G James E. Paschall . . . **B/G Donald L. Werbeck,** from C/S, to V/C, AFCS, Richards-Gebaur AFB, Mo., replacing M/G Albert R. Shiely, Jr. . . . **M/G Joseph G. Wilson,** from DCS/Ops, 7th AF, PACAF, Tan Son Nhut Airfield, Vietnam, to DCS/Plans, Hq. PACAF, Hickam AFB, Hawaii, replacing M/G John M. McNabb . . . **Mr. Kenneth Woolsey,** from Dir., Mathematical Services Laboratory, to Dir., Computer Sciences Laboratory, Armament Development and Test Center, Eglin AFB, Fla.

RETIREMENTS: M/G John H. **Buckner;** M/G Guy H. **Goddard;** M/G Donald W. **Graham;** M/G Sherman F. **Martin;** B/G Madison M. **McBrayer.** ■

Freighter Version

For years it has been argued that air cargo is the sleeping giant of the transportation industry. Now a great awakening is imminent as a Boeing-built jumbo freighter prepares to enter Lufthansa service between Frankfort, Germany, and points in the US. With a market potential of hundreds of the gigantic jet transports, an expansive future is predicted for . . .

Boeing's Heavyweigh

THE world's most powerful cargo lifter, Boeing's 775,000-pound 747F (for freighter), was rolled out before an international audience of government, industry, and military officials at the company's Everett, Wash., plant on November 23, 1971. Bearing the markings of Lufthansa German Airlines, the jumbo cargo jet boasts an initial payload capability of 272,000 pounds in transcontinental flights, or 200,000 pounds in transatlantic operation.

Subject to the availability of more powerful engines, the aircraft's maximum takeoff weight could be increased to 800,000 or even 880,000 pounds, according to Boeing officials. Lufthansa's 747F is powered by Pratt & Whitney JT9D-7 engines, which produce 45,000 pounds of thrust each without water augmentation, or 47,000 pounds "wet." In the second half of 1973, a "B" version of this engine will become available, which is to produce 51,120 pounds of thrust with, or 47,120 pounds without, water augmentation. At about the same time, General Electric's CF6-50, with an unaugmented rating of 50,000 pounds, will become available. While there are no plans at present to incorporate GE engines in the 747 design, Boeing officials do not rule out such a modification if there is sufficient demand. A 747 passenger aircraft has already flown at a gross takeoff weight of more than 820,000 pounds. With only minor structural modification, the aircraft's takeoff weight can be increased to about 880,000 pounds with a corresponding increase in either range or payload, according to officials of the Boeing Co.

While the company portrays the 747F as complementary to, rather than competitive with, the C-5A, Boeing officials point emphatically at a range of military missions they claim the 747/747F family of aircraft should be considered for. These are said to include replacing the aging fleet of KC-135 tanker aircraft with 747s, each of which can offload at least four times the fuel load of the former. Tests involving a specially prepared 747 are about to be undertaken by the Air Force and Boeing and were preceded by similar but less extensive evaluation efforts with standard C-5 and DC-10 aircraft. Because structural problems restrict the C-5, a least for the time being, to a gross takeoff weight of 712,000 pound and a payload of 174,000 pounds its suitability for the tanker mission appears to be limited.

Another potential role for which the 747 is being proposed is tha

Lufthansa's 747F freighter is shown here following the aircraft's roll-out with its nose cargo door up, facing what can be considered a typical transatlantic payload. The cargo display represents more than 17,000 cubic feet of material, weighing more than 200,000 pounds. Boeing hopes to sell about 100 of the 747 freighters to commercial carriers by 1980.

The first revenue flight of the 775,000-pound maximum take-off weight 747 freighter is scheduled for April from Frankfort, Germany, to New York. The free world air cargo volume is expected to quadruple within this decade, according to Boeing forecasts. Although the Lufthansa aircraft is the only jumbo freighter sold to date, a number of foreign carriers have indicated the intention of ordering such aircraft in the near future.

ontender—The 747F

of an advanced airborne command post. The windowless freighter rather than the passenger model appears to be better suited for this task because it provides better protection against the so-called electromagnetic pulse (EMP) and other radiation phenomena resulting from nuclear explosions.

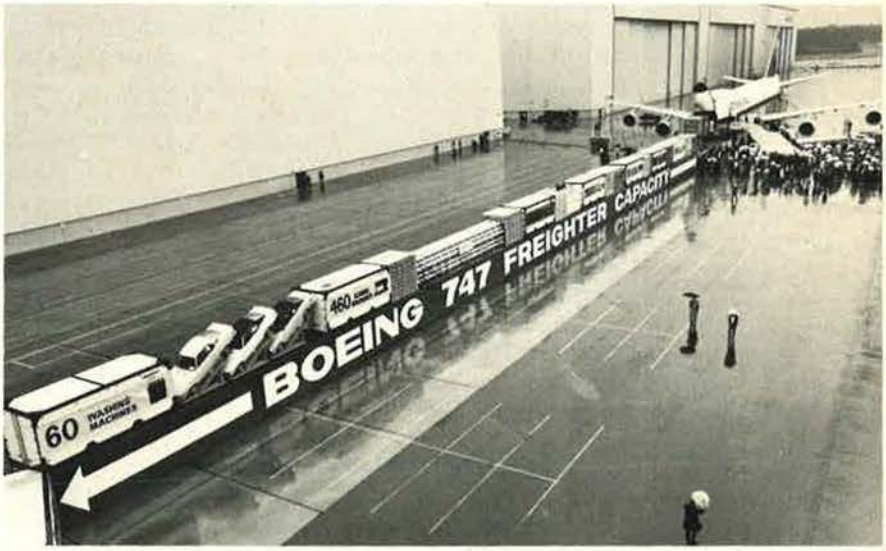
The third military application for which the 747 is said to qualify is AWACS (Airborne Warning and Control System). The present AWACS program specifies the use of modified Boeing 707-320 aircraft. Under certain conditions, a 747-based AWACS may prove an advantage, however. Finally, on a long-term basis, the 747 might be considered for use as an airborne ballistic missile launcher, if and when the state of the art, as well as the requirement, develops sufficiently.

In its standard commercial freighter configuration, the 747 is capable of augmenting military airlift because the aircraft can carry more than eighty percent of the Army's armored, mechanized, and infantry vehicle types, according to tests conducted in concert with military authorities.

Where existing ground facilities permit, military vehicles can be driven onto the aircraft and then secured to standard 436L military pallets or the pallets can be used in concert with the aircraft's integral mechanized cargo-handling system. The latter permits loading or unloading of the aircraft by a two-man crew in approximately twenty minutes.

Lufthansa's freighter, which is to enter transatlantic service in the spring of 1972, according to executives of the German carrier, can reduce ton-mile costs by as much as thirty-five percent from present levels. A single 747F will be capable of hauling up to seventy compact cars or any payload of similar weight and density across the Atlantic. While Boeing's sales efforts with regard to the 747 freighter have been slow in reaching fruition, Lufthansa's example is expected to persuade a number of foreign carriers to order 747 freighters. Because of the depressed state of the US airlines and the slump in domestic air traffic, Boeing officials don't expect any purchases of the new giant freighter by American flag carriers at this time.

—By Edgar Ulsamer



Boeing reports considerable DoD interest in military versions of both the 747 passenger and freighter aircraft, including a tanker and an advanced command post, the latter using the freighter's windowless fuselage, without the nose cargo door.

The Commander in Chief of SAC cites a series of Air Force milestones reached through the support of the Air Force Association. He notes AFA's contributions to public understanding of aerospace power, commends AFA leaders for speaking out on issues of national defense, and urges every member to take an active part in continuing the indispensable role of spokesman for security . . .

AFA—EFFECTIVE VOICE OF AEROSPACE POWER

By Gen. Bruce K. Holloway, USAF
COMMANDER IN CHIEF, STRATEGIC AIR COMMAND

ANNIVERSARY commemorations are traditionally times of stocktaking, coupled with prophecy and projection for the commemorators' future. I should like, as a long-time member of AFA, to discuss some of its past and to look with you to the future of the Association.

The Air Force Association was conceived by General "Hap" Arnold near the end of World War II, in response to what he saw as a need for an independent civilian advocate of military preparedness. Certainly AFA was an idea whose time had come when General Jimmy Doolittle became its first President in February of 1946. The need for making the soon-to-be-born US Air Force an accepted member of the defense community loomed very large. It had taken two world wars to convince many that airpower's third dimension was essential to military victory. Now the confluence of the atomic weapon, the modern bomber, and the strategic air battle plan suddenly meant that airpower could be a decisive factor in military victory, if properly recognized and used.

It was sound theory. In a military dictatorship it could have become the great single impetus for action. But Arnold and his peers had lived through the years of effort just to get where they were. They knew that in our democracy ideas need the support of the majority of the people to become reality. Historian Herman Wolk writes that "they harbored no conspiratorial vision. In the years ahead, they would accomplish their objective fairly in the give and take of democratic politics. Others would have to be convinced, if they were to succeed. Their job became one of persuasion."

Everybody in the fledgling Air Force depended on those in the fledgling AFA for help in that effort to inform the public. There were more than 150,000,000 Americans out there to inform that the ocean could never again for us be a moat of security, that mountain ranges were merely checkpoints in the battlefield of the air, that—given the tools to do the job—we could convince any would-be aggressor to withhold. Because of airpower, he would know that his border, his point of vulnerability, would thenceforth be the target selected by the crosshairs of a bombsight.

But the America of 1946 did not listen readily to ideas on war. It was sick of war and was busy dismantling the most powerful war machine ever. It was busy departing wartime holdings all over the world, leaving behind millions of dollars worth of equipment. The so-called "imperialist" nation was so busy dismantling empire that it failed to listen to talk about defense in a world of "good will."

The world of good will, however, was to reveal itself as still greatly motivated by greed and directed by force. The machinations of Communist powers around the globe soon made Americans aware of the nature of their intentions. And so, the newborn Air Force and its Air Force Association survived together the struggles for independence. And eventually both prospered when—in the aftermath of Korea—it was the citizens who urged defense measures upon the military.

Today, AFA membership stands at more than 100,000, and the organization boasts a myriad of accomplishments past. Many of these are in the minds of men and thus cannot be tangibly credited. Among the efforts toward these accomplishments I would cite the battle for an independent Air Force, the struggles for seventy groups and later 137 wings, the growth

of SAC, the survival of the manned bomber, and the drive for peaceful exploitation of space.

There are more measurable accomplishments. Publications like AIR FORCE Magazine itself, and the literary landmarks it has produced such as the 1957 Air Force history and the other books, *The Wild Blue* and *Speaking of Space,* plus the annual "Air Force Almanac" issues, and the more recent Supplements to *Jane's All the World's Aircraft.*

To me, however, the great value of an AFA publication is its special ability to speak out on the vital issues of national defense and the total use of airpower in its behalf, which is what the Air Force is all about. At the same time, these communications must meet the test for entertaining reading and be so authoritative that they become texts for those less well versed. I would like to note three articles from AIR FORCE Magazine which come very close in my mind to meeting those needs.

- "The Forgotten Americans of the Vietnam War," by Louis R. Stockstill (October '69 issue), stirred the conscience of a nation because it reminded Americans in a manner they could not ignore of a debt many had been happy to forget—the plight of fellow Americans imprisoned or missing from the Vietnam War. Because of the quality of the article, as well as its message, it was widely republished and was the spark for a campaign still under way.
- John Frisbee wrote a piece called "Let's Have Three for Deterrence" (June '70 issue), which became required reading in SAC. It pointed out so clearly the need for a Triad of offensive strategic weapon systems for the contemporary needs of deterrence: the strategic bomber, the land-launched intercontinental ballistic missile, and the submarine-launched ballistic missile.
- Claude Witze includes in his "Airpower in the News" column a division called "The Wayward Press." Witze uses the title and the idea with which he admits having inherited from A. J. Liebling of the old New York *World*—to point out human errors in journalism. Following the network television showing of the program, "The Selling of the Pentagon," he composed a "Wayward Press" column (April '71 issue) intended to dissipate some of the emotional heat surrounding the production. When it was done, the facts of the matter lay exposed with clairvoyance for everyone to see. That article has since been frequently cited by supporters and attacked by detractors; but to my knowledge not one of its facts or assertions has been successfully challenged.

The Association's Industrial Associate Program provides information and interface between about 200 business firms and the blue-suit and civil molders of defense. AFA leaders have never wavered in their support of military-industrial cooperation. They have quite correctly realized that the needs of defense in an age of technology cannot be met without integrated cooperation.

Each day, the facts of research and development reinforce this axiom of modern defense development—Technology Drives Strategy. If you invent a new system of reasonable accuracy, reliability, and economy, then someone will design a strategy to employ it, as well as one to counter it.

Technology does drive strategy. Workable arms agreements may alter the axiom, but concepts cannot. So it is incumbent upon those who design and those who build—and those who employ weapon systems—to work in legal concert. AFA recognizes and supports this need.

The Association has also made great contributions to informing the public through its Aerospace Education Foundation. The Foundation operates out of a realization that the American citizens who make the ultimate decisions on defense issues cannot do so intelligently in this age of specialized weapons without specialized understanding. Some other outgrowths of this realization have been the Arnold Air Society and Angel Flights for ROTC, programs of instruction for educators, and the first attempts to explore systematically and apply military training experience to civil-

Gen. Bruce K. Holloway, a West Point graduate and fighter ace of World War II, commanded the first Air Force jet fighter group in 1946. Among his postwar assignments have been Director of Operational Requirements at Hq. USAF; Deputy Commander of the Ninth and Twelfth Air Forces and of US Strike Command; Commander in Chief of US Air Forces in Europe; and Vice Chief of Staff, USAF. He has been Commander in Chief of Strategic Air Command since August 1968. This article was adapted from General Holloway's recent address at MacDill AFB, Fla., to AFA's Jerry Waterman Chapter.

"There was never a time in free society when there was a greater need to 'tell it like it is.' Yet a great number of AFA members across the country are content to sit behind a mask of silence. . . . How many speak out on the issues of the day?"

ian education needs. The Utah Project, in which the Foundation cooperated, has been extremely successful. Both teachers and students preferred the Air Force courses, adapted to civil needs, over standard teaching procedures.

AFA hosts comprehensive discussions each year on the problems of defense in conjunction with its annual Fall Meetings in the nation's capital and on other occasions, such as SAC's annual Bombing and Navigation Competition. AFA also recognizes and rewards the airmen and air-minded who have done most to promote airpower.

In total aspect, then, I think we can all take pride in the accomplishments of an Air Force Association, just turned twenty-five. Its leaders have moved it to support the greater needs of US defense and—though all the battles were not won—caused it to stand purposefully alongside the Air Force it is committed to serve, without flinching.

Now, a little criticism. In looking back, some of the past practices of AFA members—and they are mainly negative practices, lack of action—if projected into the future, can do the Association, the Air Force, and the nation harm. We need every one of the 100,000-plus people in AFA to become active.

We do not speak out! I am not talking about military leaders who are members. Most of them speak out as they are able. I am not talking about AFA's national leaders. They speak out. I am talking about those many members of the Association all across the country. I am especially talking about those voting members who are not in service. There was never a time in free society when there was a greater need to "tell it like it is." Yet a great number of AFA members across the country are content to sit behind a mask of silence. How many treat their AFA membership as a ticket to a social fraternity, rather than the partnership for advocacy of military preparedness it was meant to be and must be? How many speak out on the issues of the day?

The value of the contributions of those not in uniform can be enormous. The civilian friends of military preparedness can lay it on the line, and can influence through word, act, and vote.

The next thing is—*When we do speak out, we sing to the choir.* Some of us are so used to singing to the choir or listening to the choirmaster that we know all the words by heart. I would venture to suggest that almost every AFA member knows that the Soviet Union has the capacity for clear numerical strategic superiority over the United States by mid-decade if Soviet leaders desire it and we, by default, allow it. I would further venture that they believe that such an eventuality would pose an unacceptable danger for the society we call "America."

We frequently speak about the predicamen to one another. We voice our hopes and fear for success of the Strategic Arms Limitatio Talks. And we demand of one another that de cisions be made on facts and not good wishes We ask each other to remember to support th long-term needs of national defense now, be cause it takes years to bring a B-1 or an F-1 or an ULMS from fancy to fact. How many o us discuss these issues with our friends who ar *not* conversant with the complexities of defens issues? The Aerospace Education Foundatio can only reach a few of the 200,000,00 Americans who need to know and understan So can the leaders of the Air Force and th AFA. It is up to all the members to reach ou to communicate, to educate—to be disciples.

The Air Force Association ought to consi of 100,000 emissaries for adequate nation defense through airpower—emissaries in t greater sense that national defense is not po sible without airpower—and that the Air For is its essence. Our emissaries should ever ke in mind some words General Arnold spo before it was born: "A modern, autonomo and thoroughly trained Air Force in being all times will not alone be sufficient, but wi out it there can be no national security."

THE FRONT RANGE CHAPTER, COLO. . . .

cited for consistent and effective programming in support of the mission of the Air Force Association.

By Don Steele
AFA AFFAIRS EDITOR

Among the AFA leaders attending the Front Range Chapter's recent dinner observing AFA's Silver Anniversary were, from left, Chapter President James Hall; Colorado AFA Treasurer Lee H. MacDonald; Jack C. Price, Vice President for AFA's Rocky Mountain Region; and AFA President Martin M. Ostrow, guest of honor and speaker.

The **Front Range Chapter** of Denver, Colo., has the distinction of being the first AFA unit visited by AFA's recently elected National President, **Martin M. Ostrow** of Los Angeles, Calif.

The occasion was the Chapter's dinner observing the **Silver Anniversary of AFA** and in honor of the Air Force's outstanding military and civilian personnel in the Denver area.

In his address, Mr. Ostrow pledged that informing the public of the overall defense needs and countering antimilitary and antitechnology attitudes are "AFA's central mandate."

"What is needed," Mr. Ostrow said, "is a new order of candor and frankness, with regard to the external threat, military preparedness, and the role of the military in our society. For too long these issues have been the monopoly of the demagogue, the political opportunist, the neoisolationist, the technological know-nothing.

"AFA's blueprint for tomorrow, therefore, is to counter falsehood with truth, ignorance with knowledge, and opportunism with objective dedication."

This effort, he said, was crucial, because "a convergence of factors . . . from the toxic effect of the war in Southeast Asia on public opinion to deliberately fanned antimilitary and antitechnology attitudes . . . is blinding a large number of Americans to a mounting threat from abroad. The result of this condition, not surprisingly, is a derogation of all things military and a spreading apathy with regard to national defense needs."

During the program, Front Range Chapter President **James Hall** presented engraved plaques to the following "Outstanding Airmen of the Year": **MSgt. Nash V. Mines,** Air Reserve Personnel Center; **SSgt. Gerald T. Van Gorp,** Air Force Accounting and Finance Center; **Sgt. Jan Woellhaf,** Lowry Technical Training Center; and **A1C Harold R. Smethills,** Colorado Air National Guard. Sergeant Woellhaf was also the outstanding airman for the Air Training Command, and received another plaque as the Junior Instructor of the Year at Lowry Tech-

H. H. Arnold Memorial Chapter ball, Col. Ward Protsman, Arnold Engineering Development Center Commander, cuts A Silver Anniversary cake for Tennessee AFA President Maj. Gen. James Carter (ANG), AFA National Director Jack Gilstrap, and Chapter President Peter Trenchi.

AF Academy Superintendent Lt. Gen. A. P. Clark cuts USAF 24th birthday cake at Colorado Springs AFA luncheon for Air Force Secretary Robert C. Seamans, Jr., Gen. John D. Ryan, Chamber of Commerce head K. G. Freyschlag, Chapter President James Lancaster, and Mayor Eugene McCleary.

nical Training Center. **MSgt. Gerald J. Green** was named the Outstanding Senior Military Instructor of the Year at the Lowry Technical Training Center. Each airman received a membership in the Front Range Chapter.

A highlight of the evening was Mr. Ostrow's presentation of an AFA charter to the newly organized **Silver and Gold Chapter.** The Chapter is made up of personnel from the **Air Force Accounting and Finance Center** and the **Air Reserve Personnel Center. Theodore J. "Ted" Stell** is first President of the newly chartered Chapter.

Distinguished guests included **Maj. Gen. John S. Samuel,** Commander, Lowry Technical Training Center; **Maj. Gen. Joe C. Moffitt,** Adjutant General for the State of Colorado; **Col. Frank Cloaninger,** Vice Commander, Air Force Accounting and Finance Center; **MSgt. James Griffis,** one of the Air Force's twelve Outstanding Airmen for the year 1971; AFA National Director **George M. Douglas; Jack C. Price,** Vice President for AFA's Rocky Mountain Region; **Roy A. Haug,** Colorado AFA President; and **Mrs. Judy Sigafoos** and **Mrs. Sandy Salzarrulo,** whose husbands are missing in action in Southeast Asia.

In recognition of the Chapter's outstanding efforts, we are pleased to name the **Front Range Chapter** as AFA's "Unit of the Month" for January.

At Colorado Springs Chapter's luncheon, Air Force Secretary Robert C Seamans, Jr., presents Distinguished Service Medals to the all-Ai Force Apollo-15 crew. From left, Colonels David R. Scott, James B Irwin, and Lt. Col. Alfred M. Worden

Air Force **Secretary Robert C. Seamans, Jr.,** presented **Distinguished Service Medals** to the three USAF **Apollo-15** astronauts during their September visit to the AF Academy.

The presentations of the Air Force's highest noncombat award to **Col. David R. Scott, Col. James B. Irwin, and Lt. Col. Alfred M. Worden** took place during a luncheon cosponsored by AFA's **Colorado Springs Chapter** and the city of Colorado Springs to observe the twenty-fourth anniversary of the Air Force as a separate service.

Immediately preceding the awards, Air Force Chief of Staff **Gen. John D. Ryan** pinned pilot astronaut wings on Colonels Irwin and Worden (Colonel Scott won his astronaut wings on a previous spaceflight). Scott, in a surprise announcement, said that th wings presented to Irwin and Worde had been aboard the command shi *Endeavor* during the Apollo flight.

Pennsylvania AFA's 1971 conven tion was held in Lewistown, Octobe 29–30.

Hosted by the **Mifflin Count Chapter,** the convention opened wit an informal party at the AFA Cha teau, a home owned by the ho Chapter and used for its meetings an social events.

W. Brady Hetrick, Mifflin Count Representative to the Pennsylvani General Assembly, was guest speake at the luncheon.

AFA National President **Marti Ostrow** was the guest of honor an banquet speaker. This was Mr. O trow's first speech as AFA's Nation President to an AFA state conventio On behalf of the State AFA, M Ostrow presented the Pennsylvan AFA's "Man of the Year" trophy State President **Robert L. Carr.**

Others honored during the conve tion were **Rear Adm. John A. Sco** USN, Commander, Ships Parts Co trol Center, Mechanicsburg, who ceived the State AFA's "Distinguish Pennsylvanian" award;

The "Carl J. Long Aerospace a Science Award," a $200 check a a trophy presented annually to Pe sylvania's outstanding science stude was presented to **Kenneth C. Leska** of Hummelstown;

Tillie Metzger, Vice President the **Greater Pittsburgh Chapter**

At the Pennsylvania AFA convention in Lewistown, AFA National President Martin M. Ostrow, center, presents the Pennsylvania AFA's "Man of the Year" trophy to State President Robert L. Carr, right, as Master of Ceremonies John Brosky looks on.

Air Force Association

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Membership

Active Members: US citizens who support the aims and objectives of the Air Force Association, and who are not on active duty with any branch of the United States armed forces—$10 per year.

Service Members (nonvoting, nonofficeholding): US citizens on extended active duty with any branch of the United States armed forces—$10 per year.

Cadet Members (nonvoting, nonofficeholding): US citizens enrolled as Air Force ROTC Cadets, Civil Air Patrol Cadets, Cadets of the United States Air Force Academy, or a USAF Officer Trainee—$5.00 per year.

Associate Members (nonvoting, nonofficeholding): Non-US citizens who support the aims and objectives of the Air Force Association whose application for membersh meets AFA constitutional requirements—$10 per year.

Objectives

• The Association provides an organization through which free men may unite fulfill the responsibilities imposed by the impact of aerospace technology on mo ern society; to support armed strength adequate to maintain the security and pea of the United States and the free world; to educate themselves and the public large in the development of adequate aerospace power for the betterment of mankind; and to help develop friendly relations among free nations, based respect for the principle of freedom and equal rights to all mankind.

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AFA News

Clair D. McMahon of the **Mifflin County Chapter** were named "Woman of the Year" and "Man of the Year," respectively, of their Chapters;

Fran Sigmund, State AFA Vice President and **Tillie Metzger** each received a Certificate of Appreciation from President Carr;

The **Joe Walker Chapter** won first place in the State AFA's scrapbook contest, and the **Mothers' Chapter** of Pittsburgh took second honors.

Judge John Brosky, Vice President for AFA's Northeast Region, was Master of Ceremonies for the banquet.

To State President **Bob Carr** and to host Chapter President **David R. Pletcher,** sincere congratulations on a most enjoyable convention.

Meeting in Fairborn, delegates to the **Ohio AFA's 1971 convention** elected **Robert H. Maltby** of Dayton to succeed **Ernest E. Pierce** as State President for 1972. Officers elected to serve with Mr. Maltby are **Robert L. Hunter,** Executive Vice President; **Fred D. Bardwell, Dale B. Hornung, and Gerald W. Kaufhold,** Area Vice Presidents; **Lewis E. Michael,** Secretary; and **Kenneth E. Banks, Jr.,** Treasurer.

The Hon. Clarence J. Brown, Republican Congressman representing Ohio's Seventh District, was the guest of honor and speaker at the convention banquet.

During the program, Representative Brown received the Ohio AFA's **Aerospace Power Award** for 1971. In presenting the award, President Pierce cited the Congressman's support of AFA objectives and support of Wright-Patterson Air Force Base.

Ohio AFA President Ernest Pierce, left, presents the State AFA's Aerospace Power Award for 1971 to Rep. Clarence J. Brown (R-Ohio), center, as AFA National Director Jack Withers, right, looks on. Representative Brown was cited for his support of AFA's objectives and of Wright-Patterson AFB, Ohio.

Others honored during the convention were **Gerald W. Kaufhold**—named Ohio AFA's "Man of the Year";

Maj. Charles Yellner, representing Air Force Academy Liaison Officers in Southwest Ohio—a Unit Citation for conducting an annual workshop for Ohio educators;

Lt. Col. Gene Stergar, Maj. Robert Johnson, and Capt. Robert Frank, all of the Defense Construction Supply Center at Columbus—AFA Awards of Merit for their participation in MIA/POW programs in Ohio;

Howard Glickman, Cleveland Chapter Treasurer, accepted a state Presidential Citation for the Chapter's annual ROTC awards banquet;

Unit Citations were presented to **Junior Air Force Reserve Training Corps** units at **Baker High School,** Fairborn; **Stebbins High School,** Dayton; **Rutherford B. Hayes High School,** Delaware; and **Westland High School,** Galloway.

AFA's national leadership was represented by AFA National Director **Jack Withers** and **Bernard Osborne,** Vice President for AFA's Great Lakes Region.

A capacity audience of AFA'ers and guests attended the **Pope, N. C., Chapter's** November 4 meeting at the Pope AFB Officers' Club. Guest of honor and principal speaker was **Brig. Gen. Howard T. Markey,** USAF Reserve, a former national AFA President and Chairman of the Board, and now a permanent AFA National Director.

General Markey called on his audience to stand up to the current wave of criticism aimed at the nation and its military. "America isn't just things," he said. "It is an ideal—the ideal of human freedom." General Markey was introduced by **Maj. Gen. John H. Herring, Jr.,** Commander of the 839th Air Division at Pope AFB.

The program also included a briefing on the AFJROTC program by **Maj. James Purdue** of Terry Sanford High School and a medley of songs by the Pope Pipers.

Distinguished guests included the **Hon. Jackson F. Lee,** Mayor of Fayetteville; **Maj. Gen. Roger J. Browne,** USAF (Ret.); and **SSgt. William J. Condie, Jr.,** who was awarded an AFA citation as Pope AFB NCO of the Quarter.

Two excellent programs, a **dining-in** and an **awards night** held on consecutive nights in the Hill AFB Officers' Club, kicked off the fall programming of the **Utah AFA.**

The dining-in, on October 20, was the State AFA's annual **"Cadet Night,"**

During a visit to North American Rockwell's Los Angeles plant, AFA National President Martin M. Ostrow, center, receives a briefing on the Air Force's B-1 bomber. Others, from left, J. E. Worsham, General Manager of General Electric's B-1 Engine Program; R. F. Walker, President, Los Angeles Division, North American Rockwell; and Maj. Gen. D. T. Nelson, B-1 Systems Program Director.

AFA News

At the Utah AFA's AFROTC Dining-In, State President Glen L. Jensen, Jr., left, presents "Outstanding Cadet for 1971" plaque to Richard Baldwin, top AFROTC cadet at the University of Utah. Center is Lt. Col. W. MacLachlan, Professor of Aerospace Studies, University of Utah.

at which the Outstanding Cadet for 1971 from each of Utah's universities and colleges was honored. More than 150 Air Force ROTC cadets attended the program.

Those honored were **Glen Curtis** Weber State College; **Sanford Okura** Brigham Young University; **Richard Baldwin,** University of Utah; and **Douglas Iza,** Utah State University.

The featured presentation was a briefing on the search and rescue mission of the **1550th Aircrew Training and Test Wing** at Hill AFB.

The following evening, some 15 AFA'ers and guests attended the Utah AFA's annual **"Logistics Award Night,"** at which the ten top managers at Hill AFB were honored guests.

AFA National Secretary **Nathan H Mazer** was the principal speaker. Mr. Mazer, director of the Weber County Industrial Development Bureau, spoke on ways and means of attracting new industry to northern Utah.

Utah AFA President **Glen L. Jensen, Jr.,** presented AFA plaques to the honored guests. They are **Eugene Stuart, Ray Andersen, Virginia Galloway, Tommy Nixon, Stephen Keogh, Daniel Clift, 1st Lt. Billy Loughridge, SSgt. Russell Dugger, A. L. Nebeker, and Larry Cox.**

Harry Jones, Salt Lake City newspaper columnist, was Master of Ceremonies.

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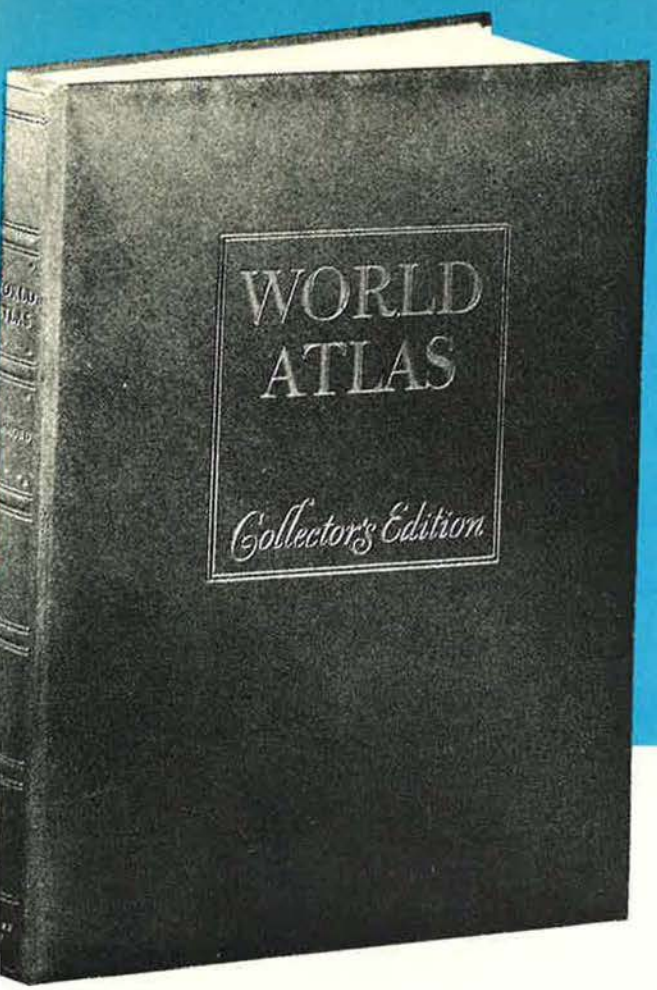

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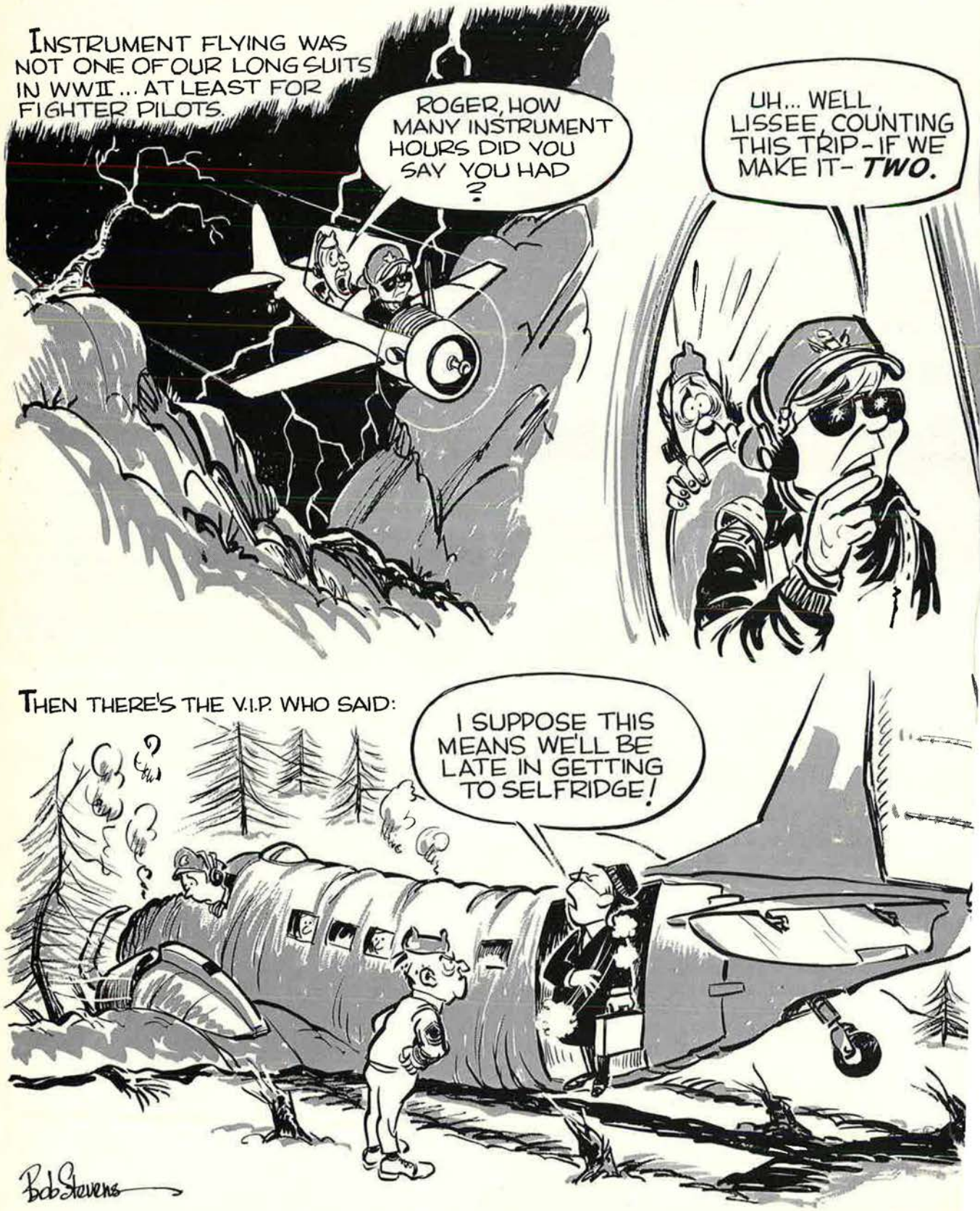

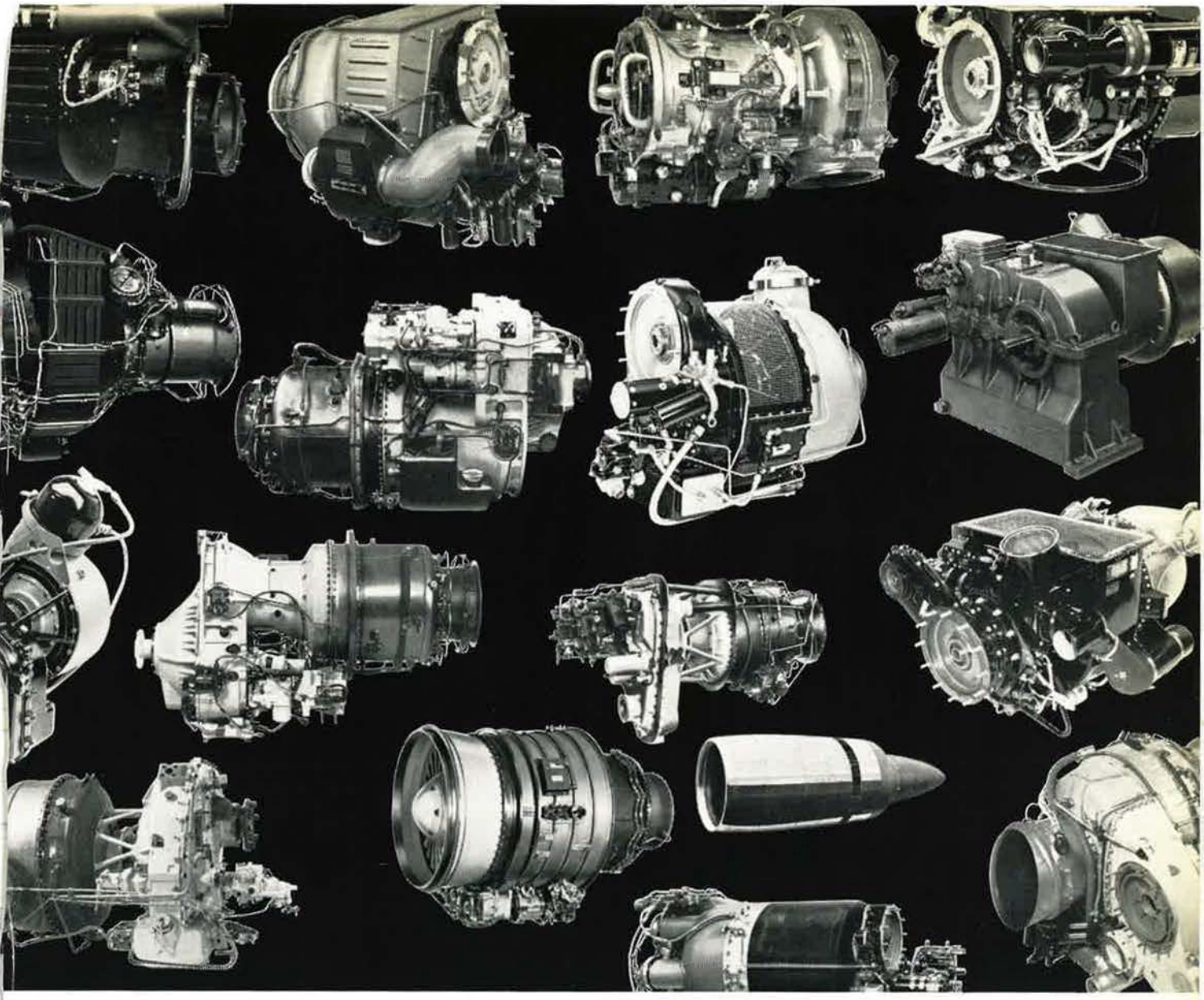

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