

## Features for the Fall

- *Combat Rescue*
- *Doctrinal Origins of "Aerospace"*

**AIRPRESS**



# AIRPOWER

Fall 1990

JOURNAL



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# AIRPOWER

**JOURNAL**

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## Facing the Challenge Ahead

AS tremendous changes occur throughout the world, the time has come for us to consider the possibility of reshaping our force structure to better face the threats of this new era. Specifically, how can we best prepare for contingencies short of war yet remain mindful of our NATO commitments? Perhaps we need to reverse our current force structure by emphasizing our capabilities for special operations, limited war, and airlift in the active force while moving some of our forces for general war into the reserves. As Lord Archibald P. Wavell reminds us, "The ideal officer should be afraid of nothing, not even a new idea."

As the threat in Europe decreases and we consider removing large numbers of our forces, we must nevertheless be able to return those forces to the theater quickly if they are needed. Such an operation would require a substantial amount of airlift. At the same time, we need to realize that operations like those in Grenada and Panama have become a very real part of our military activities. They too require that we be able to conduct heavy airlift and wage limited war. For the most part, these capabilities exist in our reserve forces. Meanwhile, much of our active force is dedicated to interdiction and counterair operations. As the likelihood of large-scale conventional conflict de-

creases, it may be prudent to shift much of our counterair and interdiction capability into the reserves and move the latter's short-notice forces to the active component. Thus, the forces best able to deal with imminent threats would be on active status, and those designed to combat less immediate, though very real, threats would be found in our reserves.

The Soviet threat of the last 45 years is decreasing. Rather than shout wolf in an attempt to maintain a capable military, we should realize that the diminished Soviet conventional threat allows us to turn our attention to other current threats. Part of this realization entails being willing to challenge long-accepted assumptions about our force structure. It may also involve shifting some long-cherished missions within the force. But our job is to meet today's threat, not to refight old threats. Is my suggestion the answer? Perhaps, perhaps not. More importantly, though, the Air Force needs to address the issue. If we simply try to shrink the existing force without considering our mission, we won't end up with the type of force we need, regardless of its size. It strikes us that the pages of *Airpower Journal* are an ideal starting point for an open discussion of our future Air Force.     MAK

# ricochets

Letters to the editor are encouraged. All correspondence should be addressed to the Editor, *Airpower Journal*, Walker Hall, Bldg 1400, Maxwell AFB AL 36112-5532. We reserve the right to edit the material for overall length.

## PROMOTION FLAK

I write to express my outrage at the publication of "How to Get Promoted" (Spring 1990).

The *Airpower Journal* is "the professional journal of the United States Air Force." It declares inside the front cover of each issue its charter as a forum for "innovative thinking on military doctrine, strategy, tactics, force structure, readiness, and other national defense matters." For the life of me, I can't comprehend where an article with the following principal points fits within that charter:

- develop a nice-guy aura;
- look for opportunities to compliment;
- show gratitude; and
- look for recreational opportunities with your bosses.

The article is a professional embarrassment in this forum. The quality of the material needn't be judged; the topic itself is grossly inappropriate. We are the service whose officer corps is most attacked by our peers as careerist. The lead article of the issue of our professional journal is entitled "How to Get Promoted." Perhaps the measure of the editorial offense is whether the publication of the article reflects an irony or a distressing truth.

The need for a serious periodical with the charter of *Airpower Journal* is too great to tolerate this dilution of purpose.

**Lt Col Tim E. Moreland, Jr., Missouri ANG**  
*Chesterfield, Missouri*

When I read this article, I checked the cover date to make sure I hadn't picked up a 20-year-old issue. After I read General Smith's bio and saw the generation to which he belongs, I understood why he might write such smarmy drivel. What I don't understand is why you

would publish such rot. I thought the Air Force was attempting to minimize rampant careerism and concentrate on job performance. You must not agree.

**Lt Col Paula A. Bernard, USAF**  
*Makakilo, Hawaii*

In his otherwise fine article, Gen Dale O. Smith eloquently and no doubt unwittingly revealed the true reason for his failure to be selected to higher rank. In the process, he has done much damage to the careers of our bright young officers who, absent his bad advice, might easily be our future leaders. While I concur in much of this thesis, I must violently disagree with two points he seems to make: don't risk your neck by sticking it out for your troops and learn to be a flattering, gushing toady.

I too have sat on many boards, including those that recommend three-star candidates to the chief. Take it from me, such attitudes shine through and the board will be quick to pass on to a more deserving candidate.

**Lt Gen Otto J. Glasser, USAF, Retired**  
*Sarasota, Florida*

I notice on the inside cover of the *Airpower Journal* that the magazine is "designed to serve as an open forum for presenting and stimulating innovative thinking on military doctrine, strategy, tactics, force structure, readiness, and other national defense matters."

With this guiding purpose in mind, let's look at the article in the Spring 1990 issue entitled "How to Get Promoted." I read the article twice just to make sure it wasn't written "tongue in cheek." I don't know when the article by General Smith was written, but he is clearly out of touch with the Air Force of today (and hopefully yesterday as well).

The article is nothing more than an advertisement for self-serving careerism. He speaks of promotion as an end in itself. There is no mention of an Air Force member serving a purpose greater than himself. There is no mention of the fact that promotions are given not just to satisfy

*Continued on page 72*

# FOR THE COMPOSITE WING

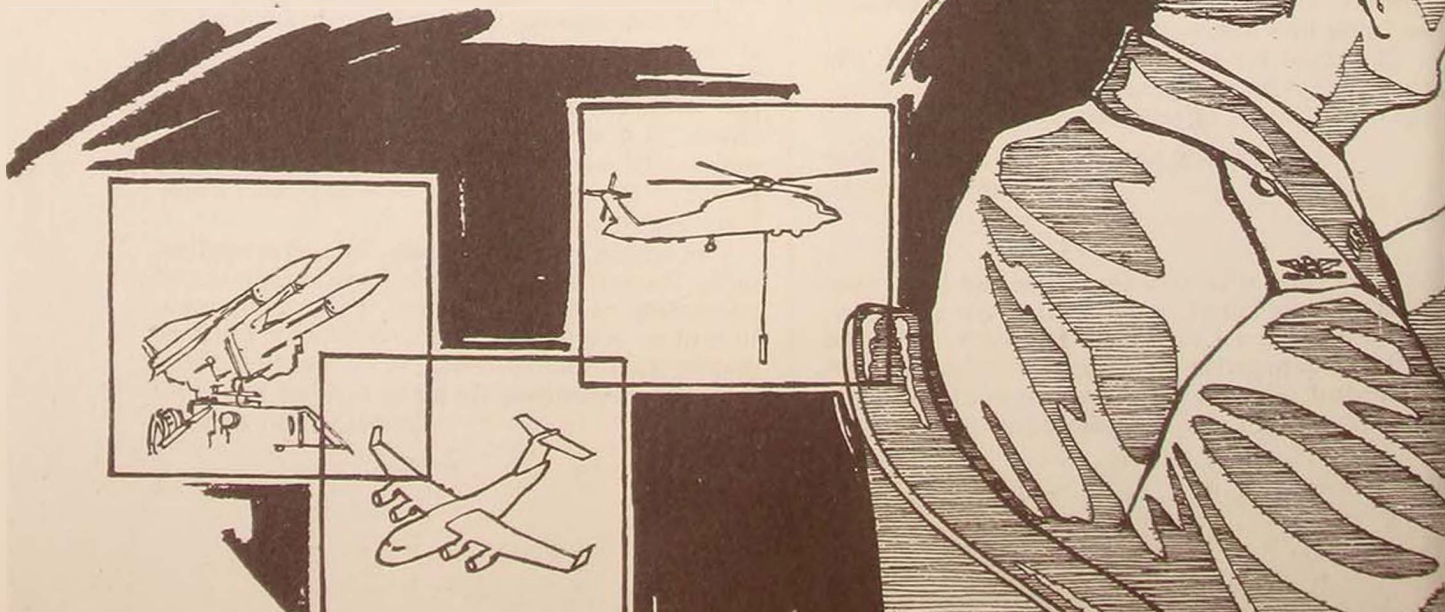
GEN MERRILL A. MCPEAK, USAF

## A Note from Lt Gen Charles G. Boyd, Air University Commander:

The following article was written by General McPeak while he was CINCPACAF, and at a time when there appeared no likelihood he would be the chief of staff. The article was here at AU awaiting publication of the next issue of the *Airpower Journal* at the time he was nominated for the new post. General McPeak immediately called me to withdraw the article with the explanation that although it clearly expressed his views as a theater air component commander, if it appeared in print under his authorship as chief of staff, it might have a somewhat different impact on the readers and tend to quell the very debate it was intended to precipitate. In short, he did not want to bring undue influence on an idea that needed to be examined openly and objectively within our institution.

Our disappointment here at AU was keen for we felt the article, and the idea it contained, was of great importance, particularly at this moment in our rapidly changing history as we think through how best to fashion our Air Force to deal more effectively with evolving national defense needs. Therefore, I asked General McPeak to reconsider publication under the provision of a clear foreword which described the circumstances of authoring—in time and organizational placement. Fortunately, he relented.

**I**N THE Pacific—and elsewhere—our warfighting concept often calls for the creation of composite force packages. These packages consist of a variety of types of aircraft—attackers, fighters, tankers, AWACS, reconnaissance, defense suppression, etc. We will accept here the normal usage and affectionately call the composite force package a “gorilla.”



Flying in a gorilla can be interesting and exciting work. The job of mission commander is particularly demanding. But we often practice the execution part of this problem at Red Flag, Cope Thunder and elsewhere, so we have developed some corporate expertise and a body of lessons learned. The focus here is on higher echelon command and control. How are gorillas planned and ordered up? Can we rely on our command and control structures to work? If not, what should be done about it? The purpose of this article is to address these questions, drawing from recent experience in the Pacific. The conclusions reached would seem to have application wherever we must undertake operations against capable opposition.

## Manufacturing a Gorilla

In theater air warfare, our most difficult operational planning problem is to build a gorilla. And, unhappily, the tougher the target is to attack, the more complex the planning problem. For instance, longer range to the target means more tankers; modern defenses mean more CAP and

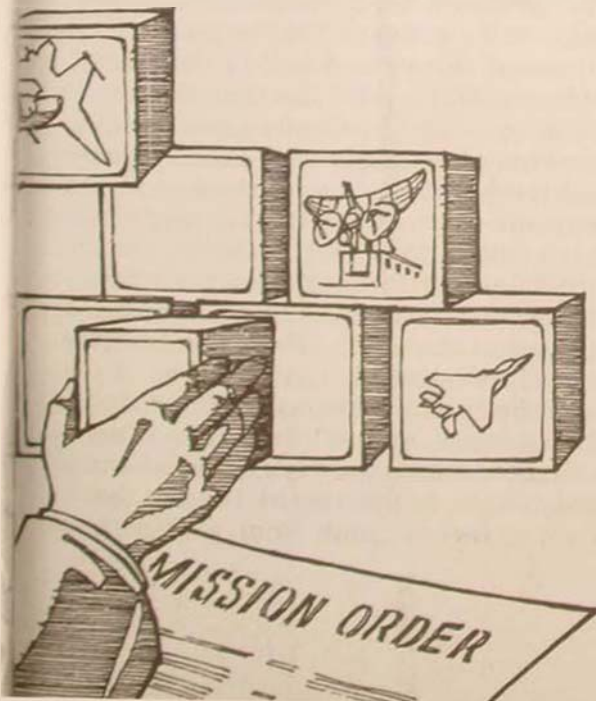
sweep, more electronic warfare support, and so forth. A further, substantial complication arises from the fact that the planning is done at the theater Air Force component commander's Tactical Air Control Center (TACC) and the constituent parts of the gorilla are spread out at a number of bases, perhaps widely scattered throughout the theater. In addition, command arrangements are likely to be complex. Tankers, heavy bombers and Strategic Air Command subordinated reconnaissance assets will be tasked through a SAC advanced echelon (ADVON). If the gorilla supports friendly ground forces to be jumped in or air landed, then a separate MAC organizational structure may be involved.

With enough time for coordination, all these planning difficulties can be overcome. We do, in fact, put together gorillas that deal with precisely these complexities. The SAND EAGLE exercises conducted by 12th Air Force are an example. Contingency arrival operations that open Red Flag and Cope Thunder exercises are another. But these efforts have a handcrafted character. For instance, PACAF starts concept planning for each of Cope Thunder's contingency arrival operations six months in advance of execution. We then negotiate a series of milestones so that, two months prior, we can have a conference for face-to-face planning with all participants. Two weeks before the operation, the mission commander briefs the numbered air force commander. Obviously, this kind of lead time will not be available in actual combat. We will likely put together a gorilla on the first day of the war and then do the same thing daily—or more often—until the target environment becomes permissive.

Let's take a more detailed look at some of the command and control (C<sup>2</sup>) problems we are likely to encounter.

### Theater Beddown

In theater, our contingency plans call for locating combat and support aircraft at for-





ward bases. Some aircraft are already at projected operating locations in peacetime; some aircraft relocate in theater; still other aircraft flow into the theater from CONUS bases. Some of the deploying aircraft will beddown on bases with dissimilar aircraft to form composite units. A squadron of, say, F-15s will fly to an F-16 base and become part of the host wing. Some deployers will beddown with host units, but retain separate command structures. This might be true for tanker or airlift units coming to a fighter base. Finally, some aircraft will go to bare bases or collocated operating bases (COBs) on which there is no normal peacetime theater host. It is the requirement to integrate air operations based in this complex configuration that creates the need for a sophisticated C<sup>2</sup> apparatus.

### *The Air Tasking Order*

The mechanism used to provide daily tasking to all the bases and units supporting the theater air campaign is the Air Tasking Order, or ATO. The ATO gives detailed instructions to each unit, answering the questions of who does what, where and when. The ATO contains an enormous amount of information. Targets, TOTs, ordnance loads and fuzing are all specified. Identification routes and procedures, IFF squawks and radio frequencies are directed. Air refueling times, altitudes and contact points are established. There may be a long section of "SPINS," or special instructions. Rules of Engagement are often stated or amplified in some way. In PACAF exercises, a typical ATO runs to 50 closely spaced pages, and can be much longer.

Naturally, the ATO must be received by the tasked units in time for it to be read and understood—no small task for a document of its length and complexity—and in time for the unit to generate and load aircraft, select a mission commander and aircrews, do flight planning and target study, coordinate with other units, etc. As a rough guide, we would like to transmit the

ATO at least 12 hours before the start of the execution day.

This may seem like lots of lead time, but in practice the transmission problem is not a simple one. It calls for a system of reliable, secure, inter-operable, high speed communications and ADP connections between the central tasking authority and each tasked base. Such a system does not now exist in the Pacific, or elsewhere, in my experience.

It is not that we have paid no attention to the problem. In the Pacific, we have worked hard to lay out a C<sup>2</sup> system architecture, buy hardware, write software and procure the links to lash the system together. Under a program nicknamed CONSTANT WATCH, we have now spent 12 years and about \$200 million trying to do all this, and the results are not encouraging.<sup>1</sup> Suffice it to say that the communications/ADP part of the C<sup>2</sup> system supporting ATO distribution in the Pacific is marginal at best and shows no sign of achieving satisfactory status in the near term. Thus, there is often a considerable lag from transmission of the ATO by higher headquarters and its eventual receipt in usable form by all the tasked units.

### *The 72-Hour Planning Cycle*

The 36 hours we need from transmission of the ATO to the end of the execution day represent the second half of the planning and execution cycle. The first 36 hours are taken up with intelligence gathering and assessment, friendly unit status reporting and tracking, force apportionment planning and approval, and ATO preparation. It is worth noting that the battle situation and friendly force status are likely to change more or less continuously, with the effect that the ATO, when eventually executed, is quite likely to have been overtaken by events. This may not be a disaster if the force is well led and alternate courses of action have been briefed and are understood. In this regard, the fact that executing forces come from various bases

and may not have much experience operating together robs the mission commander of much flexibility to call audibles at the line of scrimmage. Note also that change in the battle situation is not such a difficult problem for the less complex combat operations. For instance, aircraft allocated to close air support or air defense can be tasked for alert, then scrambled as needed during the execution day. It is the planning for more complex operations, like the composite force package, that may lose its relevance through obsolescence during a 72-hour planning and execution cycle.

It is a disgrace that modern air forces are still shackled to a planning and execution cycle that lasts three days. We have hitched our jets to a hot air balloon. Even when this lackluster C<sup>2</sup> system works properly, we are bound to forfeit much of the combat edge we know accrues to airpower because of its great flexibility and speed of response.

### *Status of Forces*

The question of friendly force status is worth examining at greater length. Because so much detail is contained in the ATO, tasking headquarters must have comprehensive knowledge of unit status at each base. This fact imposes a considerable reporting workload on the bases. To cite only a few examples, each commander submits a daily situation report (SITREP). The operations function reports on force generation, launch and recovery, as events occur. Logisticians try to report in real time on munitions and POL status, spare parts and spare engine status, etc. Unit intelligence submits intelligence summaries (INTSUMs) at 12-hour intervals, together with the whole panoply of mission reports (MISREPs). Search and Rescue reports, reconnaissance results, etc. Installation support personnel report on casualties, facility status, non-combatant strength and situation.<sup>2</sup>

Naturally, getting this and all the other required reporting done eats up time and talent at each base. Moreover, upstream reporting competes to use the same often antiquated communications and ADP systems used by downstream ATO transmission. And, by the way, for the tasking to be effective, the information must be accurate. Our common sense tells us that if we limit ourselves to only a few important data points, we are much more likely to get good information. The more data required, the more people involved, and the less attention unit commanders can devote to the reporting process.

This is a very troublesome problem. There is an unlimited amount of data available on status of friendly forces. Our fear of making a mistake impels us to collect and process all we can. The data base thus established will never be more than an abstraction of the real situation, accurate to a greater or lesser degree. But, possessing what looks like comprehensive knowledge, we are tempted to give detailed guidance to the only person who has a chance to achieve genuine understanding of the local situation—the commander on the scene. To say we should avoid doing this is not to argue that higher echelons should be uninformed. It is, rather, a clear call for disciplining our information requirements and for retaining a healthy scepticism about how close our data base corresponds with reality.

It is obvious that all the above also applies with great force to estimates of enemy force status, the distinction being that our side is presumed to cooperate in providing the information (an assumption worth testing from time-to-time). Here again the problem is the commander's (and staff's) discomfort with a fundamental human condition: we can never know everything. The approach adopted—to collect and process all we can—is very expensive and, in any case, often seems to build an impregnable fortress of trivia around information of real importance.

Thus, the need to discipline information requirements extends to intelligence as

well as to our own operations. However, in both these matters we have no real choice so long as we insist on providing such comprehensive direction as is ordinarily included in the ATO. Microtasking requires microinformation.

### *Building a Tactical Air Control Center*

The normal crew complement of a TACC is likely to be quite large. This is true in part because of the requirement to crunch all the incoming data. It is also true because command and control is not a single discipline but a hybrid that requires contributions from a number of specialties: communications, computers, information handling and display, civil engineering, weather, security, intelligence, operations, etc. Most of these specialties must be represented in the TACC, together with the manpower to tear the facility down, move it and set it up again, if it is mobile. Naturally, the TACC must be manned for 24-hour, 7-day a week operations, which means the equivalent of at least two full staffs is needed.

Competence is required in all parts of the TACC, but is of special importance in the intelligence and operations planning staffs. Thus, as things now stand, we are obliged to put some of our very best people in these essentially overhead functions if we are to expect success in combat.

We cannot afford and do not have fully manned TACCs in peacetime. Those available in the CONUS for deployment overseas rely on augmentation to get full up 24-hour staffing. TACCs in-place overseas are largely paper organizations to be activated as needed and manned from the management and combat operations staffs of numbered air force and theater MAJCOM headquarters. Because these headquarters are small—and getting smaller—our plans call for rather substantial CONUS augmentation of theater TACCs. For any large scale contingency, there will be sharp competition for the limited manning resource.

## Summary of the Problem

In brief, on the eve of actual operations, we plan to move our combat units into a new basing configuration, one that distributes the capabilities needed to accomplish our most difficult missions among several bases. We then intend to rely on sophisticated C<sup>2</sup> mechanisms to order up packages that integrate the needed capabilities. Thus, our present concept gives rise to the requirement for detailed, centralized direction. There are lots of reasons to doubt that we can in fact provide effective, detailed, central direction under stressful conditions.

## The Composite Wing

There is an alternative operating concept. In outline form, it calls for us to create composite wings that include, at one base, under one commander, all the resources needed to form composite force packages. Such wings would not be needed everywhere, but should be based at the locations from which we are most likely to launch such operations.<sup>3</sup> There would likely be a considerable variation in the composition of such wings but, for illustrative purposes, let us postulate a composite wing equipped as follows in table 1.

Much may be said about the operational advantages of such a wing, but of primary importance is the prospect it presents of being able to reform the command and control system by cutting back sharply on the need for detailed guidance from above. The composite wing commander can be given "mission type" orders. For instance, he is told simply to attack a certain target during a certain time period. He reports that he can or cannot do it. If he cannot, he asks for the help he needs. So much for 50 page ATOs and volumes of unit status reporting.

The Air Force has had composite units in the past and there are even some contemporary examples. A modest instance is

Table 1

## Possible Makeup of Composite Wing

| <i>Capability</i>                     | <i>Aircraft</i>  |
|---------------------------------------|------------------|
| Multi-Role                            | 24 F-16C         |
| Night/Under Weather Attack            | 12 F-16C LANTIRN |
| Long Range/Precision Guided Munitions | 12 F-15E         |
| Air Superiority                       | 24 F-15C         |
| Air Refueling                         | 6 KC-135R        |
| Surveillance Control                  | 3 E-3            |

found in the many Air National Guard fighter units that are authorized a C-130 or some other aircraft for administrative airlift support. We are about to form a composite wing in Korea, when the OA-10s now stationed at Suwon move to Osan and join with the F-16s of the 51st Tactical Fighter Wing. However, the best example of a composite wing is provided by the modern aircraft carrier, where the typical deck loading creates a true composite unit with a range of capabilities tailored to the mission.

### *The Cost Issue*

We tend to think about combat wings in terms of their force structure equivalents. That is, a tactical fighter wing is 72 authorized aircraft of a single type. Indeed, it is not uncommon to find ourselves actually bedded down in this monolithic configuration. The reason is cost. It is sometimes said that we cannot afford to operate like the Navy.

It is logical to assume that consolidation of like units yields economies of scale. Therefore, we ought to acknowledge at the outset that composite wings may be somewhat more expensive to operate and that the added costs may not be entirely offset

by savings that will accrue through scaling back our C<sup>2</sup> apparatus.<sup>4</sup>

However, there are some points that should be made about cost. First, I know of no actual data on cost differentials. Is the composite wing 10%—or 15%, or 13.4%—more expensive to operate? Some research may be called for here so that we are better able to judge the options.

I suspect that such research would show that the cost differential is driven by the degree of intermediate level aircraft maintenance we wish to do in each case. If we wish to do extensive intermediate level maintenance, cost savings will accrue rapidly to the monolithic wing. However, I favor a move towards two-level maintenance for all our wings, composite or otherwise. This would offload elaborate intermediate level equipment requirements, improving deployability. We could also downsize the maintenance establishment at wing level, including removal of considerable overhead. Retaining only organizational maintenance in the wing permits us to contemplate returning flightline maintenance to the flying squadrons, increasing unit cohesion. Obviously, there are some costs associated with two-level maintenance. In particular, we would need to increase spare parts holdings. These costs would be relatively small for systems like

the F-16C and F-15C, where our reliability and maintainability efforts are beginning to show a return in the form of sharply lower break rates.

Finally, on this matter of cost, it is worth noting that many of our bases already operate several types of aircraft. For instance, table 2 shows the current base loading at Kadena Air Base.

### *Improving the Odds in Combat*

The case for the composite wing rests on its improved performance in combat. Naturally, commanders of composite wings possess a much increased capacity for independent action if contact with higher headquarters is lost.

Forming composite wings also reduces the vulnerabilities now created by our con-

Table 2  
Current Base Loading at Kadena Air Base

| <i>Command</i>                       | <i>Aircraft</i> |
|--------------------------------------|-----------------|
| Pacific Air Forces                   | 72 F-15C        |
| Tactical Air Command                 | 3 E-3           |
| Strategic Air Command                | 13 KC-135       |
| Military Airlift Command             | 6 C-12          |
|                                      | 3 HH-3          |
| Air Force Special Operations Command | 3 HC-130        |

Until quite recently, we also operated RF-4Cs and SR-71s at Kadena. We had programmed to introduce F-16 aggressors at the same base.

Thus, at Kadena, we have created, in effect, a large composite base. Whatever it costs to operate in this configuration, we are already paying the price.

Kadena is certainly not the only such case. We have composite bases in many locations, especially overseas. Take a look at the ramp at Howard, or Elmendorf. What we have not done, by and large, is to build composite characteristics into the design of the organizations. Five MAJCOMs extend command tentacles into Kadena (see table 2). There would seem to be some potential to reduce administrative costs through streamlining this arrangement if we are willing to face the real (but, in my view, manageable) problems associated with building composite units from the ground up.

centration of combat capabilities. If attacked in our peacetime configuration, an opponent might find all our Wild Weasels at one base, all our precision guided munitions capability at another, all our tactical reconnaissance aircraft at still another, and so forth.

A composite alignment ought to involve us in a great deal less preconflict unit shuffling, reducing theater airlift needs during a period when airlift resources will be stretched thin.

Aside from the light it sheds on the cost issue, the situation at Kadena illustrates another aspect of the problem: no one really runs Kadena and, therefore, we fritter away the opportunity to give mid-level officers experience in melding the various elements of airpower and developing a comprehensive vision of air warfare. Contrast this with the knowledge and qualifications gained in similar circumstances by our Navy and Marine Corps

counterparts. As already noted, our current contingency plans call for us to create modest composite wings at some bases by preconflict redeployment of fighter units. Commanders of the wings thus formed will do some serious on-the-job training under less than optimum circumstances.

Finally, a very important operational advantage of the composite wing arises from the friction-filled nature of war. On this point, we are unlikely to improve Clausewitz:

Everything in war is very simple, but the simplest thing is difficult. The difficulties accumulate and end by producing a kind of friction.... Countless minor incidents—of the kind you can never really foresee—combine to lower the general level of performance....

Friction is the only concept that more or less corresponds to the factors that distinguish real war from war on paper.

Our warfighting concept has to take account of the fact that almost nothing ever works right. As with the game of golf, our only real hope is to make smaller mistakes.

The composite wing makes smaller mistakes because it works and trains together in peacetime. It becomes proficient at planning and executing force packages. It knows the playbook. In other words, it can exploit the inherent flexibility of airpower. Moreover, the people live together. Families know one another. Thus are formed the cohort links that are themselves a decisive, war winning factor, in my view. We get a glimpse of the possibilities at Cope Thunder or Red Flag, where we see performance improve daily as we get to know each other.

### **Resource Availability**

For a few capabilities, we do not have enough resources to station some at each

location where we wish to operate composite units. This is probably the case, for instance, with the E-3 AWACS. It is surely the case with electronic warfare and strategic reconnaissance assets. In other words, we may never be able to achieve all the advantages claimed for the composite wing concept. This limitation should not stop us from trying to improve the odds for combat success. And, when a tasked commander must look for outside help, higher headquarters would be well advised to stay with "mission type" orders to all units. The commander at base X can be told to place a certain capability at the disposal of the commander of base Y for a certain period, details to be coordinated by the commanders involved.

## Conclusion

We are likely to face our toughest command and control challenges in the early moments of any combat with reasonably capable opposition. As things now stand, our operating concept is to task a large group of strangers to join up and get acquainted on their way to the target. Inbound, they must coordinate and synchronize some of our most difficult tactical operations. This employment concept is bad enough, but the planning and C<sup>2</sup> structures on which the concept relies are very likely to fail under stress.

We should abandon for now the idea that we can trust complex planning and cumbersome C<sup>2</sup>. To the degree possible we should gather the resources needed to execute projected missions at specific installations under unitary command. We should then give air commanders "mission type" orders and let them get on with the job.

### **Notes**

1 Fixing theater C<sup>2</sup> turns out to be more like a problem in metaphysics than engineering. It is not obvious that elegant solutions are achievable by devoting the appropriate amount of thought and money to the problem. In my view, we can and should lower our expectations for system perfectibility.

A ray of hope springs from the recent move to take responsibility for operating field C<sup>2</sup> systems from Air Force Communications Command and give it to line commanders. The long term effects of this action are bound to be positive.

2. By my count, each operating base in the Pacific must

submit in wartime 185 reports of various kinds—15 PACAF and 170 higher headquarters directed. The "good news" is that peacetime operations require even more reporting. We have worked hard to reduce the reporting workload but, obviously, much more needs to be done.

3. Thus, composite wings would more likely be established overseas, at the forward bases. CONUS-based wings could remain in a monolithic configuration, with the mission of sending squadrons forward as needed. However, it seems to me there would be great value in having at least some

CONUS-based composite wings. Such wings would be available to deploy the whole range of air capabilities to any part of the world. This fits well with the integrating vision now offered by the concept of "Global Power—Global Reach."

4. A recent analysis done by RAND Corp. concludes that the cost differential may be about 3%. If so, it is in the range of normal variation from wing to wing in the present, monolithic configuration. The RAND briefing materials are available at headquarters, PACAF.

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## **Military Air Power**

Compiled by Lt Col Charles M. Westenhoff

The latest book from Air University Press is very different from its previous publications. Designed as a pocket-size ready reference that will fit in fatigues or flight suits, *Military Air Power* is a collection of quotations for military professionals. The chapters consist of thoughts on "Air Power," "War," "Technology," "Principles of War," and "Command." Within each chapter, the quotations are arranged by topic—for example, a section is devoted to each of the accepted principles of war.

In choosing quotations, Colonel Westenhoff said that his primary criterion was the clarity with which each one expressed its major point. Taken together, these collected thoughts raise as many questions as they provide answers. If military history teaches us anything, though, it is that easy answers are often wrong. The questions posed in *Military Air Power* reflect the enduring challenges of the profession of arms.

The book will be available in early December. Organizations and individuals outside the US government can place their orders with the Superintendent of Documents, US Government Printing Office, Wash DC 20402. US government organizations can order from AUCADRE/PTP, Maxwell AFB AL 36112-5532.





## OFFICER PROFESSIONAL DEVELOPMENT FOR LIEUTENANTS

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**I**N AUGUST 1987 Gen Larry D. Welch, Air Force chief of staff, approved the creation of the Officer Professional Development (OPD) Working Group under the auspices of the deputy chief of staff, personnel. This group, headed by the deputy director of personnel plans, was directed to work in tandem with the Officer Evaluation System (OES) Group. The OES Group had been formed earlier at the Air Force Military Personnel Center to examine those institutional processes in the Air Force personnel and education systems

that promoted "careerism" over "professionalism" and to recommend changes in those processes.

Although the resulting changes were ambitious and beneficial, they missed the mark in one important area—the institutionalizing of newly commissioned officers. The OPD Working Group concentrated both on reducing careerism and on promoting professionalism, but it may not have devoted enough effort to defining the latter. The result was that certain initiatives critical to the overall effort were not approved. Had the case for these initiatives been made more strongly and presented in a sociological context, the result may have been different.

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Officers outside the Air Force have also recognized the detrimental effects of careerism. In August 1986 Lt Col Roger A. Wrolstad of the US Marine Corps wrote that reform, whatever its source, should be directed at "one common human characteristic that has a disastrous effect on the military's ability to perform in battle—careerism." He called it the "taproot of military disintegration."<sup>1</sup> Wrolstad blamed careerism on three things: the conservative nature of soldiering, which is characterized by resistance to change; modern materialistic society, which requires tangible evidence of success; and, most of all, the peacetime system itself "in which careerists soon realize that advancement is assisted by their ability to create an illusion of professional competence" through artificial measures. He went on to list four major effects of careerism that erode military effectiveness: sycophancy, which springs from cronyism and the desire to attach oneself to a "sponsor"; superficiality, which reduces complex ideas and hard choices to clichés and gives style triumph over substance; personal aggrandizement above that which is normally associated with rank and status; and selective accountability, with one's loyalty being given to superiors or one's career rather than to the institution.<sup>2</sup>

Wrolstad recommended a treatment that begins with a recognition of the problem and then applies a servicewide regimen from the highest levels down to the grass roots. This was precisely the way General Welch approached the problem in the Air

Force with the OPD and OES groups in 1987–88. The OPD Working Group made 25 recommendations from assignment and utilization policy to military education. These were presented to General Welch on 12 January 1988. He subsequently took the OPD initiatives to two Corona meetings of the Air Force senior leadership to get major command reaction, and he also directed that they be presented to the Air Force Council. The majority of the initiatives were approved and implemented by the appropriate functional offices of primary responsibility beginning in 1989.

## Philosophy of Officer Professional Development

The OPD philosophy is grounded in the idea that it is better for the Air Force (or any military service), and therefore better for the nation, if its corps of officers behaves in ways that support larger, institutional goals in peace as well as in war. But what kinds of behavior characterize this "institutional" orientation? What kinds of behavior are "anti-institutional?"

A general answer to the first question can be found in popular American culture. The public we serve knows what "service" means when it comes to the military. Tom Wolfe illustrates the point in *The Right Stuff*:

They looked upon themselves as men who lived by higher standards of behavior than civilians, as men who were bearers and protectors of the most important values of American life, who maintained a sense of discipline while civilians abandoned themselves to hedonism, who maintained a sense of honor while civilians lived by opportunism and greed.<sup>3</sup>

James Webb does the same in *A Country Such as This*:

I go anywhere in the world they tell me to go, any time they tell me to, to fight anybody they want me to fight. I move my family anywhere they tell me to move, on a day's notice, and live in whatever quarters they assign me. I work whenever they tell me to

work... I don't belong to a union and I don't strike if I don't like what they're doing to me. And I like it. Maybe that's the difference.<sup>3</sup>

The opposite of this selfless dedication to service is a kind of freedom available only to civilians. It is not necessarily the freedom to live by hedonism, opportunism, or greed, but the freedom to behave in ways that are motivated by more self-serving stimuli—money, comfort, personal power, and prestige. In the civil sector this comes from the world of work, from the occupation. In general, we judge success in an occupational sense by how well we perform the specialized tasks associated with the occupation. Does this mean that the concepts of institutionalism and occupationalism are mutually exclusive, that the perfect military man is unconcerned with occupational expertise, and that the civilian professional has no institutional loyalty or values? We characterize both as professionals, but what do we mean by that? What mix of institution and occupation is the best in the military profession, and how do we decide which behavior falls into which category?

Charles Moskos introduced the institutional/occupational (I/O) thesis in 1977. To Moskos, "An institution is legitimated in terms of values and norms, that is, a purpose transcending individual self-interest in favor of a presumed higher good."<sup>5</sup> Members of an institution see themselves following a calling, being apart from the rest of society, functioning in a culture under rules that are unique. They identify primarily with those who share this uniqueness, regardless of what tasks each performs in support of the institution. They are motivated by internal and intrinsic rewards and compensated largely "in-kind."

On the other hand, "An occupation is legitimated in terms of the marketplace. Supply and demand ... are paramount."<sup>6</sup> Members of an occupational group see themselves as sharing a set of skills and tasks designed to accomplish certain definable ends. They have some say in compensation and working conditions (usually



through unions) and determine their relative value in terms of skill in the specialty. They are motivated by extrinsic rewards such as pay and identify more with like specialists outside the employing organization than with the interests of the organization itself or its other members in other specialties.

Since we are not a militaristic society, we cannot expect the civilian world to provide recruits who already have (or even understand) the professional military perspective. We must protect the unique aspects of our institution from dilution in the society in which we are immersed.

The infusion of ... people with moral and ethical backgrounds that may differ considerably from military concepts of ethics and morality can erode professional effectiveness



*Values traditionally expected of military officers are most obvious in war. During an extended period of peace, however, the Air Force must instill those values in new officers who may have only a vague understanding of their chosen profession.*

and cohesiveness. For these reasons, the profession must set clear moral and ethical patterns linked with the best patterns in society.

Also, because it is not the military's job to change society, we must accept the burden of socializing new members while not allowing ourselves to become isolated from society at large. The real issues are ... the intensity and extensiveness of the civil-military interface and the moral and ethical codes that society provides for the profession.... Thus, the moral and ethical patterns of the military profession must be linked with society on the one hand and stem from the unique purpose of the profession on the other.<sup>7</sup>

Perhaps, then, a certain amount of occupationalism in the military is inevitable. Should we be concerned with it? Does it actually hurt the institution and the nation? If so, just how much of it can we stand?

### Effect on the Mission

The traditional military picture of a tight-knit, highly professional and altruistic team like that described in the quote from *The Right Stuff* has been the ideal for centuries. This type of military institution, all other things being equal, has always been more effective than a mass of individuals collected temporarily for the purpose of conducting a war. Even in the modern

age of citizen armies pioneered by the *levée en masse* at the end of the eighteenth century, there was a highly cohesive officer corps to hold the troops together and motivate them to make the ultimate sacrifice. Battles have doubtless been won both by sheer force of numbers in men and materiel and by brilliant generalship alone, but when both sides are evenly matched in terms of tangible assets, it seems reasonable to expect the army with the greater institutional identification to have the superior commitment to winning.

A danger in placing too much reliance on occupational motivators to perform a military mission is that these purely extrinsic rewards "may create behavior that will not be performed in the future except for even greater extrinsic rewards. Extrinsic rewards, moreover, can weaken intrinsic motivation."<sup>8</sup> In the extreme, this could mean that a military member, used to monetary reward for performing a critical task, might be reluctant to perform that task if outside forces reduced or eliminated the reward. This is even more likely

in peacetime, when the immediate consequences of such dollar-driven behavior do not appear to directly affect the security of the nation. Losing these people and their motivation would have a very real effect on readiness. Some sociologists even feel that an I/O orientation may explain attrition rates.<sup>9</sup>

Finally, excessive occupationalism and identification with the civilian sector can deprive the United States of the extremely valuable opinion of its professional military. If the military leadership eventually functions and thinks like the larger society, who will advocate the uniquely military point of view when critical decisions on national policy must be made? Even if we cannot expect a high level of institutionalism in the entire military establishment, we must have an officer corps to

*If junior officers are fortunate, they will find mentors whose traditional military values and professionalism they can emulate. But the Air Force cannot rely on such a haphazard approach to leadership development.*



lead it that is as institutional as we can make it.

The I/O thesis is particularly relevant to the Air Force because of its reliance on technological specialization as well as its relatively short history and subsequent dearth of tradition. According to Frank R. Wood, the Air Force and its officer corps, "because of their extensive use of technology ... tend to be most susceptible to increasing specialization and a diffused sense of purpose.... They face the greatest pressure for occupationalism."<sup>10</sup>

### Goals of Officer Professional Development

General Welch committed the Air Force to OPD in 1988 to address the erosion of officer professionalism and dedication to service that is explained at least partly by the I/O thesis. Among other things, OPD was designed to encourage Air Force officers to behave in a way that puts the institution ahead of the individual and to permit them to apply the military's special expertise in support of national security objectives. But, as Samuel P. Huntington asks, "What is the specialized expertise of the military officer? Is there any skill common to all ... and yet not shared with any civilian group?"<sup>11</sup> What makes the military officer's profession unique and relates it to the institutionalism that promotes cohesiveness and effectiveness?

At first glance ... the officer corps appears to contain many varieties of specialists, including large numbers which have their counterparts in civilian life. Engineers, doctors, pilots, ordnance experts, personnel experts, intelligence experts, communications experts—all these are found both within and without the modern officer corps.... Yet a distinct sphere of military competence does exist which is common to all, or almost all, officers and which distinguishes them from all, or almost all, civilians. This central skill is ... the management of violence.<sup>12</sup>

If indeed the management of violence (as opposed to its execution) is an expertise or competence that most military officers must have and that expertise or competence is exercised best in an institutional environment, OPD should be designed to recognize this common sphere and build the institutional perspective that supports it. Although this was one of the underlying aims of the OPD Working Group, its charter was limited to only those institutional processes embodied in the Air Force officer personnel and education systems.

The OPD philosophy, now officially articulated in Air Force Regulation (AFR) 36-23, *Officer Professional Development*, attempted to place the institution and its mission first, using a professional officer corps whose abilities and effectiveness vary with seniority.

Professional development includes those actions and experiences that enhance an officer's ability to perform his or her job and thereby contribute to the mission of the Air Force as level of responsibility increases.

An officer's professional development involves gaining the necessary depth and breadth of experience to improve performance and potential.... The most important indicator of potential is the way the officer performs daily in his or her job. This performance includes the quality of the specific work ... and ... more universal qualities the officer possesses.<sup>13</sup>

Under OPD, the "depth" mentioned above is the primary objective of the company grade years and involves training and "work that enhances (both) career-specific professional competence and provides opportunities to develop leadership abilities."<sup>14</sup> "Breadth" involves experiences outside the specific career area and normally includes career-broadening and staff assignments. It is most appropriate for senior majors and lieutenant colonels and only rarely for captains. Colonels require a balance of depth and breadth with a wide range of leadership experience and skills.

While the above describes the assignment context of OPD, the role of professional military education (PME) is to "par-

allel and support the requirements of appropriate jobs." It should

build upon a solid foundation of officership laid during precommissioning. The uniqueness of the profession and the particular values and culture of the military officer corps are the bedrock on which all future professional development is based. The focus for company grade officers should be on developing the skills needed to enhance their career specific competence, to include officer leadership. Therefore, leadership and communication skills are paramount, and are a primary focus of the Squadron Officer School, the Air Force's company grade PME. While building on the foundation laid by earlier instruction, the focus for the field grades and, therefore, of Intermediate Service School should shift somewhat to the effective management of people and resources as well as those skills required for effective staff work. Lieutenant colonels and colonels must understand not only the skills taught in earlier PME, but also the elements of aerospace force employment and the policy considerations that drive them. This is the role of the highest level of PME, Senior Service School. In the final analysis, the appropriate role of PME in officer professional development is the right PME at the right time with the right focus.<sup>15</sup>

At first glance, the OPD philosophy and role of PME seem consistent with the goal of enhancing institutionalism in the Air Force. However, a comparison between the OPD philosophy as originally written by the OPD Working Group and the words that now appear in AFR 36-23 is troubling.

When discussing the "most important indicator of potential" (the behavior for which the officer will be rewarded), AFR 36-23 identifies daily job performance, which includes "the quality of the specific work" as well as "more universal qualities the officer possesses." The original intent of the OPD Working Group was that the Air Force should reward both performance of primary duty (rather than peripheral activities or "square-filling") coupled with the officership attributes common to the profession of arms that the OPD Working Group called "universal officer qualities."

This carries a different connotation than "universal qualities an officer possesses," which could include qualities not exclusive to the military profession.

When describing the appropriate professional activities of a company grade officer, the OPD Working Group wished to convey the equal importance of career-specific competence and leadership qualities common to all officers. In AFR 36-23, this became "career-specific professional competence" and "leadership abilities." The addition of the adjective "professional" implies that it is the specialty that makes one a professional, not membership in the officer corps. The substitution of "abilities" for "qualities" implies that leadership in a military context is a menu of skills rather than the virtual way of life it should be for a military professional.

While these differences may not seem very important, they indicate a denigration of the value of more universal officership qualities, particularly at the junior level, in favor of an emphasis on skill-specific performance. In other words, while OPD's overall goals are institutional, it seems to contradict itself with respect to the officer with less than four years of commissioned service. Officership is treated as a worthy foundation to be taught prior to commissioning but is then moved to the back burner while the officer concentrates on learning an occupational skill.

## Formative Commissioned Years

Most of us believe we form the bulk of our personalities very early in life. The same can be said for those who aspire to be military officers. Officer candidates bring preconceived ideas about the military into the Air Force Reserve Officer Training Corps (AFROTC), the USAF Academy (USAF), and Officer Training School (OTS); but these ideas are modified

by the education and experience that follow. OPD recognizes that one of the most important functions of all precommissioning programs is to instill in the potential officer a sense of what the commission really means. This focus on the responsibilities of officership is appropriate for the precommissioning level because it is fundamental to all that follows and must be instilled early, so that subsequent experiences can be seen through the appropri-

*Newly commissioned Air Force officers typically find that their jobs occupy most of their time; thus, they have little chance to learn about professional responsibilities until they attend Squadron Officer School. By then, however, they often resist those military values because they may already be following a careerist path.*

ate lens. The OPD Working Group felt that precommissioning can best support OPD by developing the correct mind-set in new officers—one that orients them toward behavior that emphasizes the institution rather than the individual.

The essence of the OPD recommendations for precommissioning programs was that the focus of all must be on officership, on developing a self-image or state of mind that recognizes the unique roles and responsibilities of the professional commissioned officer. This included an emphasis on service vice self (a calling, not a job), fewer rights and more responsibilities than a civilian executive (being subject to both military and civil courts), restrictions on fraternization, leadership over management, the importance of teamwork, the re-





sponsibilities of command, and recognition that one is an officer first and a specialist second. The OPD Working Group agreed that the basis of officership lies with values and traditions established in military history, embodied in military leaders of the past, and forged in war. Other subjects would continue to be taught, but officership was to be the central theme at the entry level.

Col Wayne Gosnell complained over a decade ago that the Air Force was making occupationalists of its junior officers, but he did not blame the precommissioning programs. He believed that the best officership education could not possibly lay the necessary groundwork for an institutional outlook unless it took place in a real-world military context.

The precommissioning programs can at best ... plant the seeds from which professional, dedicated, competent military officers develop. The feeding and nurturing which allows this development to take place must be done during the first few years of active military service. It is during these years that the young officer moves from the classroom and theory to the "real" Air Force and begins to learn what his profession is all about.<sup>16</sup>

By "profession" Gosnell did not mean flying an airplane (although he himself was a military pilot) or programming a computer. To him, professional expertise is gained through Samuel Huntington's two phases of professional education: "the first imparting a broad, liberal, cultural background, and the second imparting the specialized skills and knowledge of the profession."<sup>17</sup> However, the specialized skills referred to by Huntington do not mean occupational skills, since these do not define the profession of arms. "The second ... phase of professional education ... is given in special institutions operated by or affiliated with the profession itself."<sup>18</sup> These educational institutions are not flying or technical training schools; they are PME schools.

The first phase of education to gain professional competence should take place in

college (one of the reasons every commissioned officer must be a college graduate) and in precommissioning programs. Unfortunately, the Air Force's perceived need for technically specialized degrees for many career fields significantly narrows commissioning opportunities for those with a broader, less technical college education. "Specialized career patterns can detract from (Huntington's) first phase of expertise (and therefore) ... military persons might neglect to obtain the broad background necessary to serve as the foundation for expertise."<sup>19</sup>

Gosnell relates that he was constantly reminded, both before and after commissioning in the early sixties, that he was an officer first and a pilot second. He suspected that in 1980 most young pilots saw their roles in reverse. Gosnell places the blame for this overidentification with Air Force specialty on "the almost total emphasis placed upon occupationalist performance during (the) first few years of service."<sup>20</sup> Now, 10 years later, OPD seems to have legitimized that complaint.

While OPD emphasizes "depth development" for company grade officers in policy documents, it also rewards it very directly. The OES is a part of OPD that is highly performance oriented. Although the performance that is evaluated on both the Performance Feedback Worksheet and the company grade Officer Performance Report (OPR) includes areas related to officership, the emphasis is on specialty skills. The officership evaluations on the OPR are simply "pass/fail." The officer either meets the standards (the vast majority) or does not. The parts of the OPR that truly communicate relate to performance of primary duties.

Descriptions of the mission of the unit to which the ratee belongs and the job the ratee performs in support of that mission set the stage for "Impact on Mission Accomplishment," which is "designed specifically ... to document performance unique to ... primary duties."<sup>21</sup> While this type of performance is again mentioned in the instructions for the "Rater (and Additional Rater) Overall Assessment(s)," there

is no specific guidance on other types of performance that demonstrate purely officer qualities. This despite the fact that paragraph 3-3.d in AFR 36-10, *Officer Evaluation System (OES)*, says, "OPRs are assessments of both duty performance and performance as an officer." However, the very next entry, paragraph 3-3.e, adds, "OPRs document each officer's unique qualities and abilities as demonstrated in job performance" and fails to identify any other kind.<sup>22</sup> None of these rules prohibit

comments that evaluate the ratee's officer-ship as long as the comments do not touch on some prohibited area. Nevertheless, from the policy guidance in AFR 36-10 to the fact that "Job Knowledge" comes ahead of both "Leadership Skills" and "Professional Qualities" on both forms, the perception that the OES is designed to reward specialty performance in the company grade officer above all else is clear.

The reasons behind this approach to evaluation are understandable. Evaluation based on "ticket-punching" or "square-filling" activities unrelated to the appropriate pursuits of a junior officer is discouraged by the OES, as it should be. Unfortunately, it leaves little room to evaluate the officer on how well he or she knows and values the profession of arms.

*The Air Force's heavy emphasis on technology and its close working relationship with civilian contractors make Air Force officers especially susceptible to the pressures of occupationalism.*



Nevertheless, one might legitimately ask why the precommissioning programs cannot provide a strong enough officership foundation to weather the occupational storms of the formative commissioned years. The answers lie in diversity and time.

While the three programs have generally standardized curricula, they have too little in common to guarantee the same preparation to every second lieutenant. USAFA conducts its precommissioning instruction in an essentially military context over a four-year period, interspersing officership instruction with academic instruction. Without arguing the merits of the academic curriculum (technological versus liberal arts) the Academy has the best opportunity to develop a solid professional foundation in officership. OTS has the military environment but must do its job in only 12 weeks. Albeit formal training and not the "real" Air Force, it shares an advantage with USAFA in that graduates of both programs usually go directly on to active duty.

AFROTC produces the largest number of officers. Its major weaknesses are the overwhelmingly civilian context in which the instruction is given (except at schools like Texas A&M University, Virginia Military Institute, Norwich University, and The Citadel) and diversity of instruction from detachment to detachment. Despite the fact that lesson plans are the same for all, the relative isolation of AFROTC units (including multiple field training locations) makes total uniformity of instruction difficult, if not impossible. Therefore, the message the officer candidate receives on officership is as much a function of the individual AFROTC instructor as it is of AFROTC as a whole.

Finally, AFROTC graduates have, in the recent past, been subjected to delays of several months before being allowed to come on active duty. These delays, coupled with up to a year of flying or technical training, put a great deal of distance between the officership instruction in the precommissioning program and the first taste of the operational Air Force.

## Professional Military Education in Officer Professional Development

According to current OPD guidance, an officer's first formal professional education outside his or her specialty comes at the first tier of PME. The OPD initiatives with respect to PME were conceived and presented originally as an integrated four-tier program built on the foundation provided by the precommissioning initiatives.

This PME philosophy of building on the foundation laid by precommissioning education was official policy in the three-tier system before OPD. While Air Force PME has undergone many changes as the result of OPD, such as increased resident opportunity and a decoupling of the resident selection process from promotion boards, the building-block approach has not changed.

OPD divided the officer corps into four relatively distinct phases with different education needs: newly commissioned officers, company grade officers, field grade officers, and colonels. Newly commissioned officers need solid grounding in officership; company grade officers need the leadership qualities necessary to carry out their jobs through supervision of others; field grade officers (defined as majors and lieutenant colonels) need the knowledge and perspective to add breadth through career-broadening assignments such as staff jobs (including those on joint staffs); and colonels need an ability to think in even broader and more global terms in order to prepare themselves to develop strategy and plan for and conduct the joint employment of aerospace forces in war.

The OPD recommendations for PME were based on these educational needs and assumed all officers would complete all phases of PME at the appropriate times. The OPD Working Group was responsible for changes in all three current PME levels and recommended a fourth to bridge the gap between precommissioning and Squadron Officer School.

## Professional Military Education for Lieutenants

Based on the belief that each level of PME must build on the previous level, the OPD Working Group felt that the most critical education level was the first. It not only provides the foundation upon which all subsequent PME is based, but it is also the lens through which every aspect of the military profession is subsequently viewed. In short, officership, introduced in precommissioning, must be kept fresh and alive until it is formally reinforced in SOS. However, the realities of these early years make this extremely difficult.

The OPD Working Group recognized a serious gap in officer education between precommissioning and SOS that allows young officers to interpret their first, formative active duty experiences through (in some cases) an incorrect perspective. As Gosnell explained, it is imperative that lieutenants interpret their environment as professional military officers, not ex-civilian college students who have just been taught a particular skill. During the often extended period between commissioning and completion of formal training, the young officer is in an environment in which he or she is surrounded either by civilians or by other officers engaged in learning the same skill and destined for similar jobs.

This narrow focus during the formative commissioned years can easily dull identification with all officers past and present, rated and nonrated, Air Force and non-Air Force who share the profession of arms. It is much too easy after being recruited with incentives related to the chance to fly rather than to simply serve as an officer, waiting months for an undergraduate pilot training class, and spending another year in pilot training to believe that one's profession is "pilot" and not "military officer."

To firmly reestablish the officership foundation that must carry lieutenants through the necessarily specialized en-

vironment of their formative commissioned years, the OPD Working Group recommended institutionalizing a lieutenants professional development program (LPDP) at every command. To provide minimal competition with the unit-level integration necessary for success in the first assignment, to interfere as little as possible with essential depth development, and to encourage decentralization, the proposed LPDP encompassed the following elements:

a. A common core of information that recognizes that all lieutenants have the profession of arms in common and that focuses on those things that make the profession unique—the responsibilities and restrictions a military officer accepts: no fraternization, health and welfare of subordinates, limitations on political activity, conflict of interest rules, 24-hour-a-day duty, representing the Air Force to the civilian community, force of orders, officer-noncommissioned officer relations, integrity, setting the example in both word and deed. All would be tied to and in preparation for the common SOS experience.

b. Enough flexibility to allow relearning the unique elements of the profession in a local (and more believable) context. For example, lessons would be taught using familiar wing organization situations, by senior wing leadership instead of other junior officers. The teaching method could fit the needs of the unit to which the lieutenant is assigned—class meetings in squadron day rooms, central classrooms, officers clubs, etc.—and would be taught full time in two or three days or part time over a longer period.

c. Length that would not take away from depth development. Therefore the entire course should not exceed 25 hours, should be tailored to fit the schedule of the primary job, and should be given as soon after arrival in the unit as possible.

d. Protection from being subverted into a vehicle for unrelated ancillary training or for instruction not directly related to pure, blue-suit officership.<sup>23</sup>

While the LPDP concept was approved in spirit, some major commanders ex-

pressed concern that mandating what appeared to be another level of PME in the first few years could be seen as undermining the effort to focus lieutenants on their primary jobs. This initiative was therefore not included as part of the Air Force-wide changes produced by OPD and left to the discretion of each major command.<sup>24</sup>

### Recent History of Lieutenants Professional Development Programs

While some commands used lieutenants programs prior to OPD, they were neither standardized nor focused on officership. In the early eighties the most common LPDP was the program developed and run out of the Air University (AU) Leadership and Management Development Center (LMDC). Due to fiscal constraints that reduced manpower at LMDC (renamed the Center for Professional Development—CPD—by the time OPD was born), the course material was suffering in currency and quality.

The initial OPD recommendation for a lieutenants program temporarily revitalized the concept of LPDP at Air University. CPD and SOS sponsored a paper on the subject by Lt Col Steve Boyer, a research associate at the Center for Creative Leadership. Boyer's Company Grade Professional Development Program (CGPDP) is a course designed to address areas of low competency in leadership and management skills that were identified by a needs assessment. The assessment was done by the Commissioning Education Committee (CEC) from 1986 to 1988 and included 2,300 first lieutenants with at least three years active duty.

The CEC needs assessment found "that by the third year of active duty, many junior officers, while technically talented, are 'leadership impoverished.'" These deficiencies are evident in their abilities to motivate, provide negative feedback, assign responsibility, and give personal counseling to subordinates.<sup>25</sup>

Specifically, responses from both 2,300 lieutenants and their 2,300 supervisors

rated 10 task areas lowest: employs discipline, reads (understands) others, motivates others, corrects behavior, gives negative feedback, engages in team building, determines appropriate response, assigns responsibility, follows up, and offers personal counseling. According to my conversation with Colonel Boyer in October 1989, the same survey administered to USAFA graduates of the class of 1982 and their supervisors produced the same results.

While leadership and officership are not synonymous, in the military context they share several characteristics. An officer who is reluctant to employ disciplinary measures, motivate subordinates to achieve unit goals, correct inappropriate behavior, or spend time building an effective team is failing as a leader. He or she is also demonstrating a failure to grasp the special requirements of officership. The type of discipline unique to the military must be judiciously and consistently employed by the officer corps. Troops must be motivated to risk their lives on the orders of their officers, counterproductive behavior must be eliminated before it can affect mission accomplishment and cost lives unnecessarily, and few military objectives can be attained by individual actions. In fact, it could be argued that officership is simply the unique context in which an equally special kind of leadership takes place.

While CPD was struggling with funding for their LPDP and the CEC and Boyer were compiling and analyzing their data, several major commands remained very interested in some type of education for lieutenants. In the fall of 1989 I asked 11 commands about their programs. Nine responded. By and large, these commands had used the LMDC/CPD LPDP and continued to run it (or a similar, locally tailored program) without outside assistance. For example, Military Airlift Command (MAC) has used the LMDC/CPD LPDP since 1984, and eight of 12 MAC bases are currently conducting the program. However, when and if the CPD course is

discontinued, MAC has no plans to substitute a program of its own design. Tactical Air Command (TAC) does not have any programs at any base though some wings have used the LMDC/CPD LPDP in the past. Their command education staff believes that lieutenants professional development should be left to individual supervisors. Strategic Air Command (SAC), on the other hand, has embraced the concept of lieutenants education.

SAC began developing its LPDP almost immediately after the February 1988 Corona meeting at which the OPD initiatives were presented. A few months later, the SAC staff contacted members of the OPD Working Group and asked for an outline of subject matter relating to officership. They were provided with an outline for a 20-hour sample course. The initial SAC pilot LPDP was very similar to the OPD Working Group's outline. Headquarters SAC/DPAE suggested that the military portion of the program be supplemented with a management skills portion taught by civilian professors and contracted out to a college or university much like the older Minuteman Education Program. This two-part LPDP was tested in early 1989 and was approved SAC-wide later that year.

In an effort to interest other commands in their approach to LPDP, SAC briefed its program to the Worldwide Personnel Conference in September 1989. The response was largely characterized by polite interest, but there was no rush to jump on the bandwagon. The less than enthusiastic reaction may be due in part to the perception that the SAC LPDP involves a civilian contract. The education services officer at one large command commented that "we don't have the money to contract a program like SAC's." Unfortunately, the civilian portion of the SAC LPDP may have, at least for some, overshadowed the more valuable (and cheaper) military part.

### Lieutenants Education in Sister Services

The professional education of lieutenants is addressed in all three sister ser-

vices. There are many similarities in the way in which they approach the subject, beginning with the fact that structurally none makes as clear a separation between education and training as does the Air Force. Virtually all education and training is the responsibility of the Training and Doctrine Command (TRADOC) in the Army; of the chief, naval education and training in the Navy; and of the deputy commander for education and training, Marine Corps Combat Development Command (MCCDC) in the Marine Corps. All three services conduct precommissioning programs, as well as basic and advanced officer courses for O-1s and O-2s related to their military occupational specialty (MOS). There are differences, however, in how these courses are integrated.

The Army conducts both screening and training/education in its precommissioning programs in a manner very similar to the Air Force's. The instructional program is based on the first of three levels of military qualification standards (MQS I). New lieutenants then attend basic courses taught by the various branches where a common core of instruction geared to platoon level (MQS II) is integrated into branch training and given the branch flavor. MQS III is integrated into the advanced course at the company/battalion level and covers many subjects that the Air Force addresses in SOS. This approach would be similar to the Air Force's integrating a common core of instruction in officership/leadership into all Air Training Command (ATC) technical and flying training programs. Those subjects common to all Army officers are covered at all three MQS levels and are designed to build on each other, each in a different military context; and according to an official 1988 TRADOC letter, "serve as the vehicle for integrating the efforts of our schools, units, and the individual officer."<sup>26</sup> The responsibility for MQS at all levels lies with the Center for Army Leadership at the Command and General Staff College, Fort Leavenworth, Kansas.

While it is somewhat difficult to pick out those subject areas of MQS II that re-

late specifically to officership, the following are part of the core of instruction given to all Army lieutenants:

Ethical Solutions  
 The Officer as Role Model  
 Professional History of the Army  
 Responsibilities of the Profession of Arms  
 The Professional Army Ethic  
 Leadership Doctrine  
 Duties, Responsibilities, and Authority of Officers (including Officer-NCO Relations)  
 Military Law<sup>27</sup>

The goals of Navy precommissioning are similar to those of the Army. After commissioning, all unrestricted line officers receive a one-week leadership and management education and training (LMET) course as part of basic skill training. LMET is given in conjunction with the Division Officer Basic Course at either Coronado, California, or Little Creek, Virginia. Aviators, submariners, and surface warfare officers receive the LMET tailored to their respective specialty basic course. The LMET was developed under contract by identifying the qualities and competencies that characterize the successful division junior officer (initially in surface warfare) and designing a curriculum to teach these qualities and competencies.

According to comments made to me by the training program coordinator, chief of naval technical training, LMET is largely a survival course designed to teach skills for the first-time supervisor. There are only about 1.5 hours of contact time devoted to subjects directly related to officership: team building, ethics, and values.

The Marine Corps uses its precommissioning programs primarily for screening. Once they have commissioned a physically and mentally qualified and motivated lieutenant, he or she is sent to the basic course for officers taught at Quantico Marine Base, Virginia. Since the Marine Corps is relatively small, all officers attend the course at Quantico and receive the same instruction. MOS training takes place at advanced courses in and out of the Marine Corps.

The Marines believe that the most fun-

damental role of their education/training process is teaching what it means to be an officer. Motivation in this direction is critical. It is exemplified in a comment I recorded during a briefing to Air War College students by a Marine general officer intimately acquainted with training and education: "If someone comes to us because he wants to fly the F/A-18, we don't want him... We only want people who want to be officers of marines."

The Marine Basic Officer Course teaches many subjects common to Air Force precommissioning programs and SOS, but at a time when most Air Force officers are receiving instruction only in their specialty. Made up of almost 1,560 academic hours, its purpose is "to educate the newly commissioned Marine officer in the high standards of leadership traditional in the Marine Corps in order to prepare him for the duties of a company grade officer in the Fleet Marine Force...."<sup>28</sup> Two of its three main goals are "to develop an understanding of and commitment to the leadership responsibilities and standards of conducts expected of a Marine officer" and "to educate the officers on the structure, values, and philosophy of the Marine Corps and, thereby, to develop a unity of purpose shared by the entire leadership of the Corps."<sup>29</sup> The course provides appropriate "knowledge, attitudes and values," and "the officer students are continually exposed to and taught those intangible traits and characteristics that distinguish them as Marine officers."<sup>30</sup>

About 20 hours of instruction are specifically related to issues that apply to officership in any military service. They include

Meaning of the Commission  
 Challenges to Future Leadership  
 Professional Reading Program  
 Responsibilities of Leadership  
 Military Professionalism  
 Role of the Staff NCO  
 Fraternalization  
 Demands of Combat on an Officer  
 Speaker on Motivational Military Leadership  
 Marine Corps History  
 Adherence to the Code of Conduct<sup>31</sup>

## Conclusions

As world events move the United States Air Force closer to a smaller, tighter active force constrained by budgetary limitations, the requirement for a totally dedicated and professional officer corps increases. The officer corps will be most effective as a relatively small, closely knit cadre that studies and understands the unique aspects of the military profession so it can lead and train future forces that may be called up to augment the standing forces. Military officers cannot afford to be peacetime careerists or bureaucratic managers of human and material resources like many of their civilian counterparts. Similarly, officers must avoid too much identification with their occupational counterparts in the society at large or be prepared to lose that which sets the professional military apart.

No matter how well the case for an institutional versus an occupational officer corps is made, there is no longer any way it can be totally institutional. The peacetime environment in which it operates, the search for a credible threat in the era of Gorbachev, and the society from which its members come and in which they must live all dictate a degree of integration with civil institutions that military professionals cannot avoid. The most reasonable goal should be to minimize occupational integration and maximize the institutional aspects of the profession wherever and whenever possible.

OPD was a good start. To a large degree, it put the house in order in those personnel and education areas that touch every officer. It reversed the trend toward centralized control and execution that kept officers from exercising real leadership as military professionals, and it provided a structure that encouraged and rewarded appropriate behavior, and that made sense. But OPD is only three years old and still has some problems.

Despite the opinions of many observers, a substantial number of young officers seem to be on the right track. They seem to sense what is expected of them but are

confronted with mixed signals, particularly after commissioning. The Air Force needs to send a consistent message to all of them from the very beginning. That message should be that they are officers first and specialists second; that they are practitioners of the profession of arms before they are programmers or personnel experts; that serving a greater good is better than serving themselves; and that they have more of those things that really matter in common with other officers than with civilians who happen to share their occupation.

OPD in its present form does not send that message clearly. As long as the Air Force uses occupational opportunities like the chance to fly a fighter or work in a state-of-the-art engineering lab as recruiting incentives, it starts off behind the institutional power curve. Then, despite disparities in environment and duration, the precommissioning programs do their best to teach the common officer characteristics and responsibilities. But commissioning brings complications. Some officers remain in a civilian environment and forget the message, most go to flying or skill training where the common bonds of officership may rarely be mentioned. All arrive at their first assignments with occupational skills fresh in their minds and the institutional lessons of officership a fading memory.

If that memory is revived, it is done by mentors, individuals (usually superiors) who believe in the profession of arms and who lead by example. This is the best way to teach officership and make it stick; and it makes a lasting impression wherever it is used. The problem is that not every junior officer has such a mentor. It is possible that in too many cases the mentor who makes the biggest impression is actually an occupationalist. This is most likely in first assignments where role models tend to practice the same specialty as the lieutenants.

The occupational tendency is reinforced by some of the tenets and realities of OPD. The lieutenants' focus is to be on "depth development." This, by itself, is clearly oc-



cupational. The fact that depth is to be built on a solid and constantly reinforced foundation of officership seems to have been lost in the shuffle. OPD in its present form leaves the impression that officership is something you learn about before you are commissioned and then becomes subordinate to depth until promotion to major, when both become subordinate to gaining breadth of experience. Even the officership aspects of leadership are put off until at least the four-year point when the SOS eligibility window opens. The OES reinforces this perception by appearing to encourage evaluation on purely occupational performance for lieutenants.

It is therefore not surprising that a substantial number of junior officers approach their first career decision point with a detached view of their place in the military. They have not been presented with the all-or-nothing requirements of a true institutionalist to either accept or reject but instead make their decisions based on a cost-benefit analysis.

Though there is no way to guarantee that every lieutenant will get the message and arrange his or her priorities accordingly, some kind of common "reblueing" is at least part of the answer. Both the Army and the Marines use this approach, believing that officership/leadership must be taught when the young officer is developing his or her self-concept as a professional and in conjunction with skill training—perhaps to offset occupational tendencies.

A common core of instruction to reinforce institutional officership is critical during these formative years, and it cannot be left to mentors who may be passing on the wrong perspective. However, I do not believe it is ATC's job to do it for the whole Air Force. While today's OPD has missed the mark in some ways, its emphasis on decentralization and unit/command identification is right on target. Officership is infinitely more believable in a practical or operational rather than an artificial training context. While the subject matter and objectives of such an Air Force-

wide program should be the same everywhere, the way it is taught does not have to be. An LPDP (or whatever one calls it) must have a local or command flavor to be really true to the philosophy of OPD.

## Recommendations

The Air Force must make some adjustments missed by the OPD Working Group and implement the OPD initiative on the education of lieutenants that was not approved. This will provide the best opportunity for the officer corps of the future to maximize institutionalism. This also means deciding that the Air Force wants its officers to be military professionals first and communicating that desire clearly and consistently from the beginning of their careers.

The Air Force must put less recruiting emphasis on occupational incentives like flying and explain the often unpleasant aspects of officer responsibilities to officer candidates even at the risk of turning them away. The lower accessions expected in the future may make the 1990s the best time to begin this approach. The Air Force might also look at Huntington's first phase of expertise and try to bring in officers with broader backgrounds in the liberal arts. Perhaps the range of specialties that require an engineering degree is not as great as previously supposed.

OPD needs to make a clear statement of the value of officership throughout one's career and communicate it widely, starting with AFR 36-23 and AFR 36-10. The impression that depth development is the only worthwhile pursuit of the company grade years must be changed and officership made number one at all levels, with depth the focus in the early years only to preclude broadening too early. In the same manner, the OES should reintroduce some measure of professional qualities, if only to the extent that these qualities specifically enhance unit mission accomplishment.

Finally, the Air Force should implement a mandatory LPDP along the lines of the original OPD Working Group initiative.

This concept is pure blue-suit, designed to produce an emotional as well as an intellectual response. It must be flexible and make the most of local leadership and situations. The core content, once developed, would have a very long shelf life since the unique aspects of the military profession do not change often. Responsibility for developing the core, as well as suggested lessons and support material, is rightly the province of Air University. However, each command should have complete freedom of execution as long as every lieutenant receives the course, the core subjects are covered, and the program is not diluted by any other type of training.

These recommendations refine the OPD concept with regard to junior officers. They recognize the research and discussion about I/O theory and other concepts of military professionalism that have occupied many respected social scientists over the past 20 years. They also reflect the beliefs and goals of true military professionals, even if they do not take the time to think of their profession in these terms. Military institutionalism, however desirable, must be taught to the young so that they may pass on these same beliefs and values to those who follow them.

When these beliefs and values become part of every officer, their continuation can be safely left to informal mentors. But until that time arrives, some formal steps are needed. The need was articulated 10 years ago by Gen B. L. Davis, commander of Air Training Command, and, unfortunately, has not changed:

I have a disquieting feeling that perhaps our officer training programs have not met our needs in terms of what an officer is all about. ... The young officers really don't seem to grasp that a military organization is uniquely different from any other institution in this country. ... A common finding among our young officers is that they have never heard that their purpose in serving ... is to lead forces on or over the battlefield or support those who do.

As we drift toward the job concept and away from a military rank system ... it's no wonder our young officers keep comparing "options" in the private sector—the only difference some of them see is a change of clothes.

In my view, we should review our officer training curriculum to insure it meets our basic officer needs—leadership, military history, how our ground and sea forces are employed, as well as the meaning of a commission and officership.<sup>32</sup> □

#### Notes

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## Writing for the *Airpower Journal*

Over the years and throughout the various units to which the editors of *Airpower Journal* have been assigned, we have known many people who debated whether or not to write an article for the Air Force's professional journal. Most decided not to do so for a variety of reasons.

**I'll get hammered!** This was the reason heard most often. People perceived that speaking out was something Air Force members shouldn't do and that those who did suffered for it. They felt that if they wrote, even for an approved Air Force publication, their commanders, their major command, or the Air Force as a whole would take actions to show disapproval. As you may have read in our premier issue (Summer 1987), Gen Larry D. Welch, then Air Force chief of staff, addressed this issue in a most positive light. The Air Force recognizes the need for its members to speak up and write about the profession of warfare, even if that means writing that the US Air Force could be doing it better. We can't guarantee that someone won't oppose your views, but it is not Air Force policy to penalize its people for writing in a publication. So go ahead and share your thoughts with your fellow airmen.

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**They only want to hear about ops.** Not so. We interpret the term *operational level of war* very broadly. It is how we fight. And that depends on how we train, how we operate our logistics systems, how we manage and lead our people—in short, all the day-to-day functions that create a capability to apply combat power effectively.

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Second, don't try to solve the problems of the world in one article. We look for articles of between 2,500 to 5,000 words (approximately 15 to 25 typewritten, double-spaced pages). So concentrate on a specific area. A topic such as "Defending against the Soviets" is too broad. "Effective Use of Air Base Ground Defense Teams" is more appropriate.

Next, be straightforward in your writing. Don't try to make it look more impressive by using multisyllable words where they're not needed, but don't shy away from sending your readers to the dictionary when necessary. Remember that your readers are probably not as familiar with the subject of your article as you are. Write to your audience. Organize your thoughts in a logical way, and stick to the subject. Cite sources and data where appropriate (endnotes are in addition to the 15 to 25 pages). Papers containing unsupported assertions are not the type that get published.

Finally, if possible, send photos, maps, and other appropriate illustrations that support your article. If you don't have

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# THE UNITED STATES AND THE LAVI

LT COL JAMES P. DELOUGHRY, USAF

**I**N FEBRUARY 1980 the Israeli government announced plans to develop a low-cost, low-technology, primarily ground-support aircraft—the Lavi—to replace its aging A-4 and Kfir inventory.<sup>1</sup> Seven years later, the Lavi program was formally canceled as a result of divisive debate within Israel and heavy pressure from the United States government.

The history of the Lavi is noteworthy, not so much because it documents the cancellation of the most costly Israeli weapons program ever attempted, but because it reveals the heavy involvement of the United States in the aircraft's financing and development. Over \$2 billion of US aid and the latest US technology went into



the Lavi project.<sup>2</sup> An examination of the history of the Lavi program, the background and extent of US involvement, and the effect on US interests suggests that US participation in the project was ill conceived and executed.

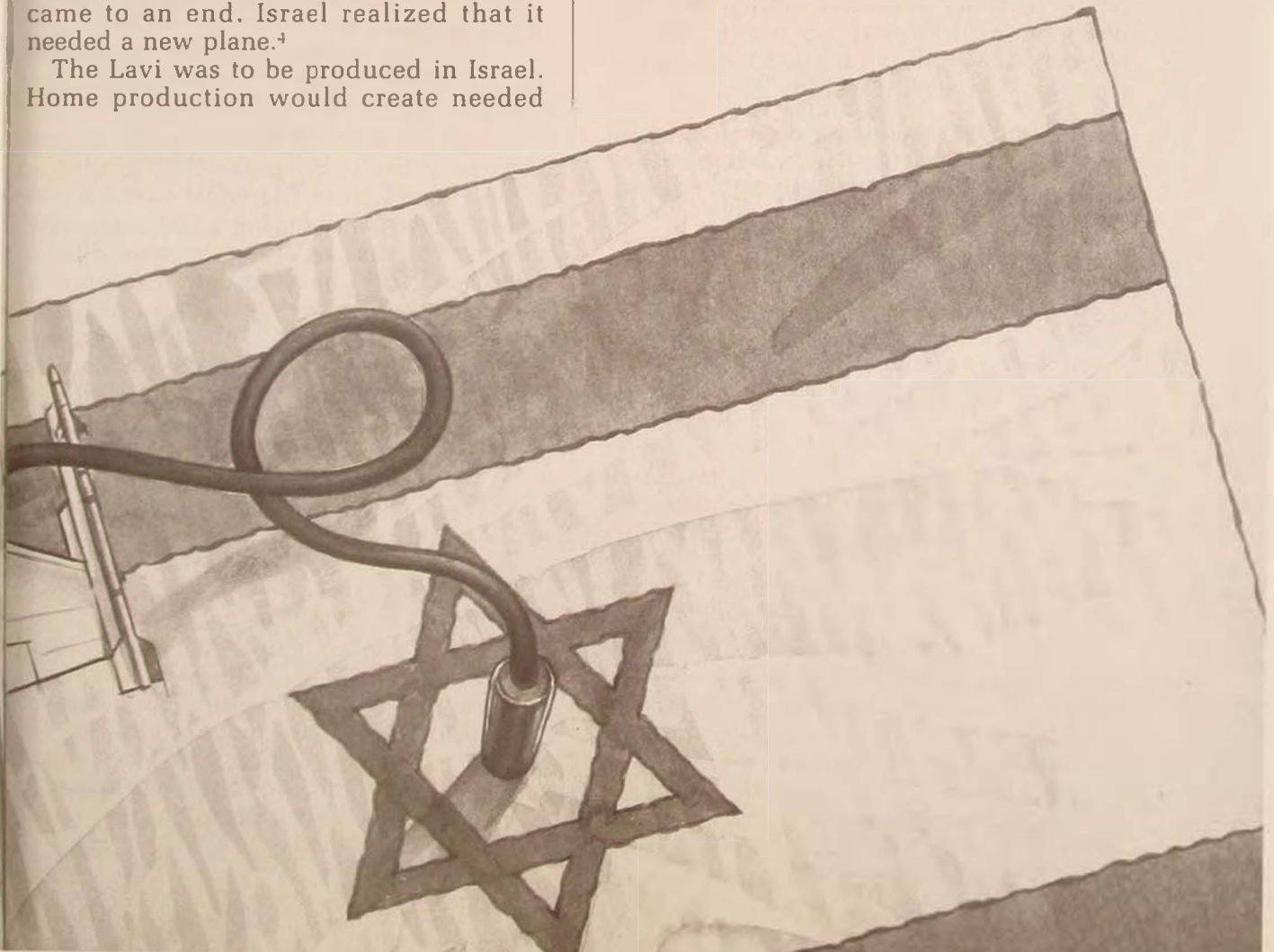
### History of the Program

The 1973 Arab-Israeli war shattered the myth of Israeli military invincibility: the intelligence warning system failed, ground defenses were overrun, discipline and mobilization were major problems, almost 500 main battle tanks were destroyed, and the Israeli Air Force lost close to one-third of its frontline combat aircraft.<sup>3</sup> Postwar analysis led to planning for an aircraft specifically designed to attack ground targets. The Kfir was an interim solution based on the French Mirage III, but as the seventies came to an end, Israel realized that it needed a new plane.<sup>4</sup>

The Lavi was to be produced in Israel. Home production would create needed

jobs, encourage aerospace workers to stay in Israel, lead to high-technology offshoots and products for export, and lessen US political influence over Israel.<sup>5</sup> Moshe Arens, former defense minister and a vice president of Israel Aircraft Industries (IAI), builder of the Lavi, pointed out another advantage of an Israeli-produced aircraft: It "would be ... exclusive to Israel's inventory," unlike advanced US aircraft, which are found in other Middle Eastern air forces.<sup>6</sup> Israel estimated that development costs would be \$750 million and that each aircraft would cost \$7 million to manufacture.<sup>7</sup> In 1980 the Israeli government approved the Lavi program. The United States supported the project in principle and was willing to allow Israel to use its foreign military sales (FMS) credits to buy US components for the Lavi.<sup>8</sup>

In 1982, however, the concept of the Lavi as a replacement for the A-4 abruptly



changed: "The aircraft was changed to a high performance fighter-bomber capable both of close support and of air defense and air superiority missions."<sup>9</sup> According to Yitzhak Rabin, then the Israeli defense minister, the Israeli Air Force demanded the change, telling IAI, "If you want to develop this aircraft, make it better than what we have now."<sup>10</sup> Arens commented that "the original concept of an A-4 replacement was an unusual one and not very good.... It would have had to be canceled sooner because it would not have been a survivable aircraft."<sup>11</sup> The Israeli government authorized prototype construction for the revised Lavi in 1982, with full-scale development starting in October of that year. Production goals specified at least 300 aircraft and 60 combat-capable trainers.<sup>12</sup>

On paper, the Lavi was becoming very similar to the F-16 and F-18. In reality, however, Israel possessed neither the technology nor the capital required for such a project. According to a 1983 General Accounting Office (GAO) study,

Israel will be significantly dependent on US technology and financing for major portions of the aircraft. Israel will also require US approval for the planned third country sales because of the US engine and the significant amount of US origin high technology used in the Lavi's airframe construction, avionics and planned weapons system.<sup>13</sup>

Examples of this technology include Pratt and Whitney PW1120 engines; graphite epoxy composite materials; electronic countermeasures (ECM) parts; radar-warning receivers and their logarithms; wide-angle, heads-up display; programmable signal-processor emulator; flight-control computer; single-crystal turbine technology; and computer and airframe system.<sup>14</sup>

By 1983 the estimated research and development (R&D) costs for the Lavi had increased to approximately \$1.5 billion, and the cost per aircraft had jumped to \$15.5 million.<sup>15</sup> At this time, the US began a unique involvement with the Lavi program. Before the project was termi-

nated, the US would set far-reaching precedents in the areas of FMS and technology transfer and would finance over 90 percent of the Lavi's development costs. In 1987, because of the massive outlay of US money on the Lavi, both the GAO and the Office of Management and Budget (OMB) were commissioned to study the program. GAO estimated the cost per aircraft at \$17.8 million and OMB at \$22.1 million.<sup>16</sup>

Pressure was mounting within both Israel and the US to cancel the program. In Israel, critics included members of the army and the air force who saw huge segments of the defense budget being eaten away by a plane that was years away from development (after seven years, only two prototypes had been produced) and millions of dollars over cost.<sup>17</sup> US critics projected that by 1990 spiralling Lavi costs would consume nearly half of all military assistance funds to Israel. Even worse, the Lavi would compete against US aircraft in world markets.<sup>18</sup>

Finally, on 30 August 1987, the Israeli cabinet voted 12 to 11 (with one abstention) to cancel the Lavi program.<sup>19</sup> The cancellation was devastating to the Israeli aerospace industry. According to Moshe Keret, president of IAI, most of the 4,000 IAI employees (including 1,500 engineers) assigned to the Lavi program would have to be laid off.<sup>20</sup> The cancellation was also a blow to the country's pride and prestige because development of the Lavi was the biggest project ever undertaken by Israel. Ironically, the Israeli military ordered additional F-16s to replace the Lavi—an idea originally proposed by US industry executives well before the Lavi program was under way.<sup>21</sup>

Although Israel lost a symbol of technological prowess, it gained access to the latest US aerospace technology, obtained sophisticated US aerospace industry computers—which have a variety of other uses—and gained irreplaceable experience in state-of-the-art aeronautical processes.<sup>22</sup> Indeed, in 1988 Israel surprised the world with its first space launch.<sup>23</sup> More than likely, the technology and experience gained from the Lavi project, together with

space technology acquired in joint Strategic Defense Initiative research with the US, provided Israel with the technological base for this achievement.

## US Involvement in the Lavi Program

US involvement with the Lavi began in 1980 when Israel requested that the two countries coproduce an engine for the new Israeli fighter. The US agreed but demurred on Israel's request to use FMS credits for the Lavi in Israel.<sup>24</sup> The position of FMS credits in the overall picture of US aid to Israel is crucial to understanding the effect of the Lavi program on US interests.

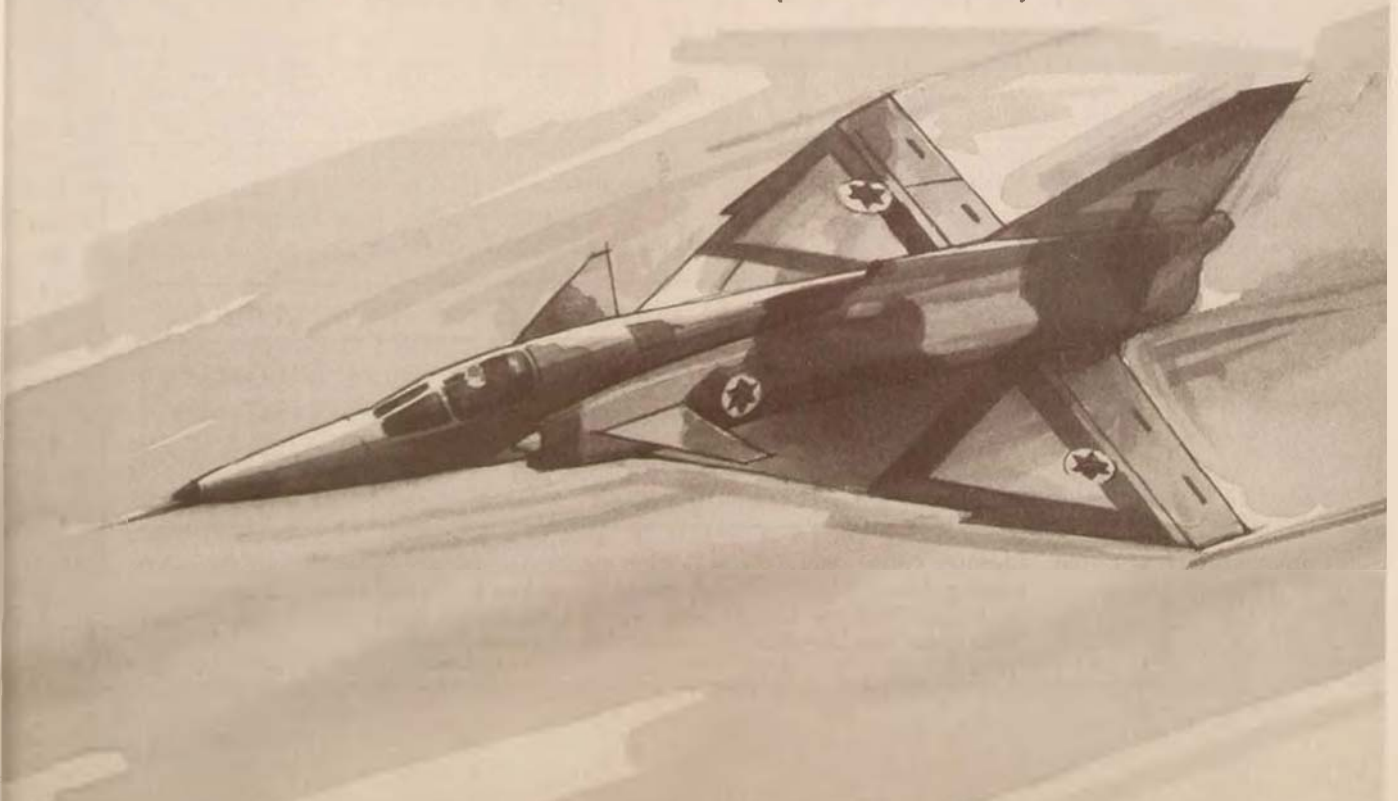
American aid to Israel falls into two categories—recurring and nonrecurring. FMS credits are an example of recurring aid.<sup>25</sup> According to the GAO, these credits to Israel serve two major purposes: to reaffirm US political support and to ensure the adequacy of Israel's security.<sup>26</sup> The GAO made another point which became a major area of contention between Israel and segments of the US government: "DOD [Department of Defense] believes

and we concur that FMS was intended for the purchase of goods and services in the United States to support U.S. firms."<sup>27</sup>

Had the Lavi remained a low-cost replacement for the A-4 and Kfir fleet, issues such as technology transfer and the appropriateness of FMS use would not have arisen. However, by 1982 the concept of the Lavi had changed considerably. Israel desperately needed the technology to produce the upgraded aircraft and the money to finance production. There was only one place to look for both technology and financing—the United States. Israel then began an all-out effort, using whatever means were necessary, to get what it needed.

### *The Technology Issue*

At the time the Lavi program was terminated, US contractors were building approximately 40 percent of the aircraft's systems. According to Defense Minister Rabin, 730 US firms were either subcontractors or vendors on the program.<sup>28</sup> The issue of technology transfer was a prime point of contention, and Israel initially found itself at odds with the US State Department and Department of De-





fense.<sup>29</sup> To resolve this roadblock, Israel played on the personal relationship between Israeli minister of defense Arens and US secretary of state George P. Shultz.

According to an investigative report in the *Washington Post*, Pentagon officials had been instrumental in blocking several critical licenses for technology transfer.<sup>30</sup> In 1983, though, Arens—former Israeli ambassador to the United States—became Israel's defense minister. Arens was one of the original champions of the Lavi and had made many friends during his tenure in Washington. According to the report, Marvin Klemow, Washington's representative for IAI, flew to Tel Aviv with Dan Halperin, the economics minister at the Israeli Embassy in Washington. Klemow recalled advising Arens to go over the heads of Defense Department officials: "Our strategy should be that the Pentagon doesn't exist. This is a political decision.... We should go to State and the White House."<sup>31</sup> Halperin is reported to have urged Arens to call Secretary Shultz to "expedite three crucial licenses which the Pentagon was holding up." According to Halperin, "Arens made the call, and in a few days the first licenses were approved."<sup>32</sup>

In April 1983 the Reagan administration approved license requests for "phase I of

the wing and tail design (composite construction), and released production technology licenses for the servo actuators and flight control computers."<sup>33</sup> By 1984 phase I and phase II technology license requests were approved, and phase III requests were nearing approval.<sup>34</sup>

During the course of the Lavi's development, Israel was able to take advantage of US R&D on a variety of systems such as derivative engines, composite-materials technology, avionics, and ECM for the F-15, F-16, and F-18.<sup>35</sup> In addition to the formal technology licenses and the plethora of US subcontractors and vendors, who also provided direct insights into the US aeronautical system, Israel pursued another source of technological information: scientific exchanges. "In March of 1984 the U.S. and Israel signed a Memorandum of Agreement concerning exchanges of scientists and engineers, and cooperation in research, development, procurement and logistics support for selected defense equipment."<sup>36</sup> Here was yet another area where technology transfer was not only possible but encouraged. Whether or not Israel obtained data on aerospace technology pertinent to the Lavi program through scientific exchanges is unknown. However, the source was available and certainly could have been used to do an

TABLE  
US FOREIGN MILITARY SALES

| <i>Fiscal Year</i> | <i>In Israel</i> | <i>In the US</i> |
|--------------------|------------------|------------------|
| 1985               | \$250 million    | \$150 million    |
| 1986               | \$300 million    | \$150 million    |
| 1987               | \$300 million    | \$150 million    |
| 1988               | \$400 million    | \$150 million    |

Source: Clyde R. Mark, "Israel: U.S. Foreign Assistance Facts," *Congressional Research Briefing*, 16 June 1989, 6, 8-10; House Committee on Foreign Affairs, Subcommittee on Europe and the Middle East, *Foreign Assistance Legislation for Fiscal Year 1985—Hearings and Mark Ups*, 98th Cong., 2d sess., 1984, xiv.

end run on any bureaucratic obstacle. The relative ease with which Israel obtained licenses for technology transfer indicates that barriers erected by the US bureaucracy were no match for a concerted Israeli effort. The best example of Israel's tactics, however, involved its pursuit of funds for the new plane.

### *Funding for the Lavi*

The Arms Export Control Act of 1976, the vehicle for FMS funding, permits offshore procurement only if it will not adversely affect the United States. It also restricts funds for building foreign defense industries except in special cases, such as helping to rebuild European defense industries after World War II and making a one-time allowance for Israel to produce the Merkava tank.<sup>37</sup>

The Israelis had wanted to use FMS funds for R&D in Israel since 1979. However, successive US administrations had disapproved their requests, and there was little hope for approval in 1983.<sup>38</sup> But Congress was a different story.

In an article for the *Middle East Journal*, Duncan Clarke and Alan Cohen noted that "the congressional process that resulted in American support for the Lavi was rushed and superficial. The substantive issues raised by the project were examined by the Defense and State Departments but were not weighed carefully (or at all) by Congress."<sup>39</sup> This indictment of Congress's role in the Lavi project comes up often in criticism of US funding of the Israeli fighter.<sup>40</sup>

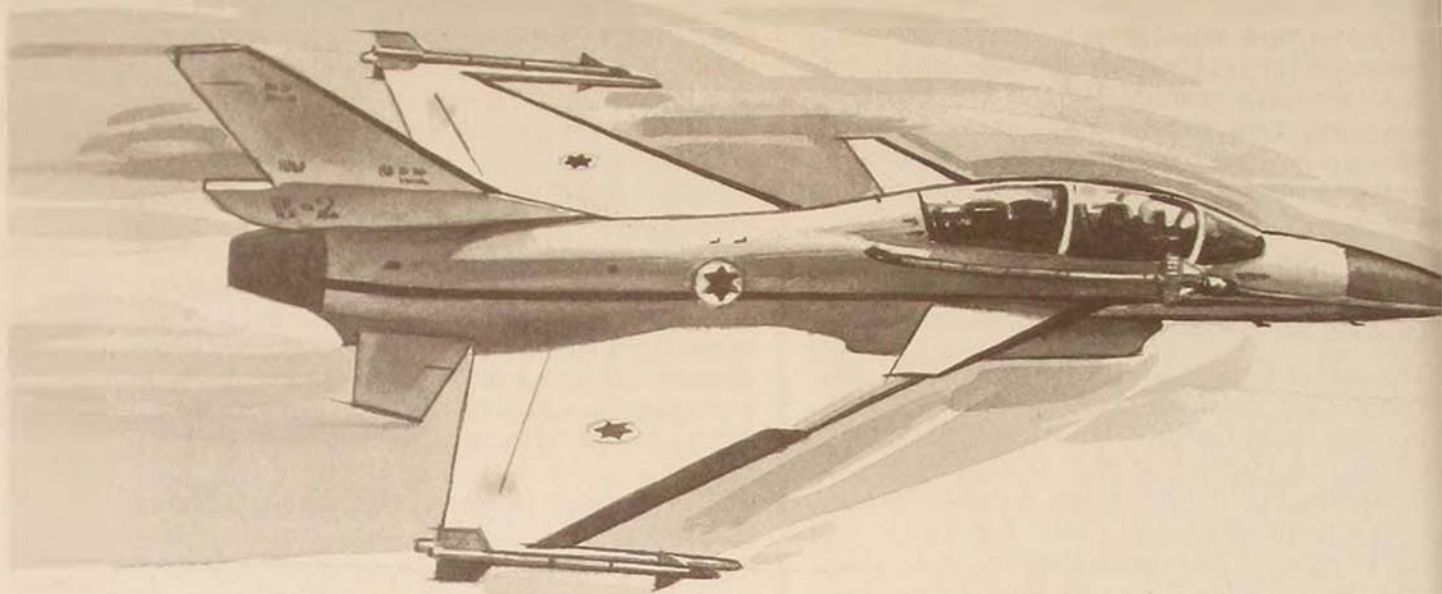
Having been repeatedly blocked by the Pentagon in their quest to use FMS credits in Israel for the Lavi, Israeli officials in the fall of 1983 took their case directly to Congress. According to a *Washington Post* study of the Lavi, Rep Charles Wilson of Texas, a friend of Moshe Arens and a key member of the subcommittee responsible for appropriating foreign aid, advocated congressional funding of the Lavi.<sup>41</sup> The chronology of events included a meeting between Representative Wilson, an Israeli

business lobbyist, and a staff member of the Senate Appropriations Subcommittee controlling foreign aid. Reportedly, this meeting produced a plan for an amendment allowing a major exception to US policy so that FMS could be spent in Israel for the Lavi.<sup>42</sup> Congressman Wilson acknowledged that he asked the American Israel Public Affairs Committee (AIPAC), the influential pro-Israel lobbying group in Washington, to draft the language for the amendment.<sup>43</sup> AIPAC has repeatedly played a major role in shaping US policy regarding Israel and the Arab world. The extent of AIPAC's influence is such that it has on at least two occasions been directly involved in negotiations with the US State Department concerning foreign policy issues: the proposed sale of Stinger anti-aircraft missiles to Jordan and the location of the US Embassy in Israel.<sup>44</sup> The funding request, an amendment to the fiscal year 1984 Continuing Budget Resolution, asked for \$150 million more than IAI required and committed US financing to the Lavi.<sup>45</sup> Further, the amendment allowed Israel to spend \$300 million of US FMS funds for the Lavi in the United States and \$250 million in Israel.<sup>46</sup>

The amendment was introduced in November 1983, just prior to the Christmas recess,<sup>47</sup> and involved lobbyists from all quarters. AIPAC mounted a major effort to get the legislation passed, sending written memoranda to every member of the House and Senate and calling upon key members of the appropriate committees.<sup>48</sup> Pro-Arab lobbies worked the other side of the issue, as did representatives from US aerospace firms such as Northrop Corporation and General Electric, which objected to US funds being used to finance an aircraft that might compete with their own.<sup>49</sup>

However, four days after its introduction in the House (and with no committee hearings and little debate), the Lavi package was approved.<sup>50</sup> According to Representative Wilson, the only controversy concerning the Lavi had to do with which congressmen would get credit for the amendment when it passed.<sup>51</sup>

Nevertheless, DOD and the State Depart-



ment still vigorously opposed the Lavi, especially the related FMS issue. In fact, in early 1984 DOD was able to delay the release of funds by interpreting the amendment to mean that Israel's \$250 million were for production rather than R&D.<sup>52</sup> Again, heavy lobbying succeeded in affirming that the funding was indeed to be used for R&D.<sup>53</sup> Thus, Israel cleared the final hurdle, opening the way for further funding with FMS monies (see table).

By 1987 rising costs, as evidenced by the GAO and OMB estimates, had put the Lavi program in serious trouble in Israel and the United States. Consequently, the US raised the procurement amount in Israel for fiscal year 1988 to \$400 million to pay Lavi cancellation costs and to substitute the purchase of 75 to 100 F-16Cs over the next three to four years (see table).<sup>54</sup> Over the course of the Lavi project, the US government invested over \$2 billion of taxpayers' money, established foreign policy precedents, and transferred sensitive technology. Feelings are still raw in many quarters of the US government over the way the Lavi issue was handled, and many

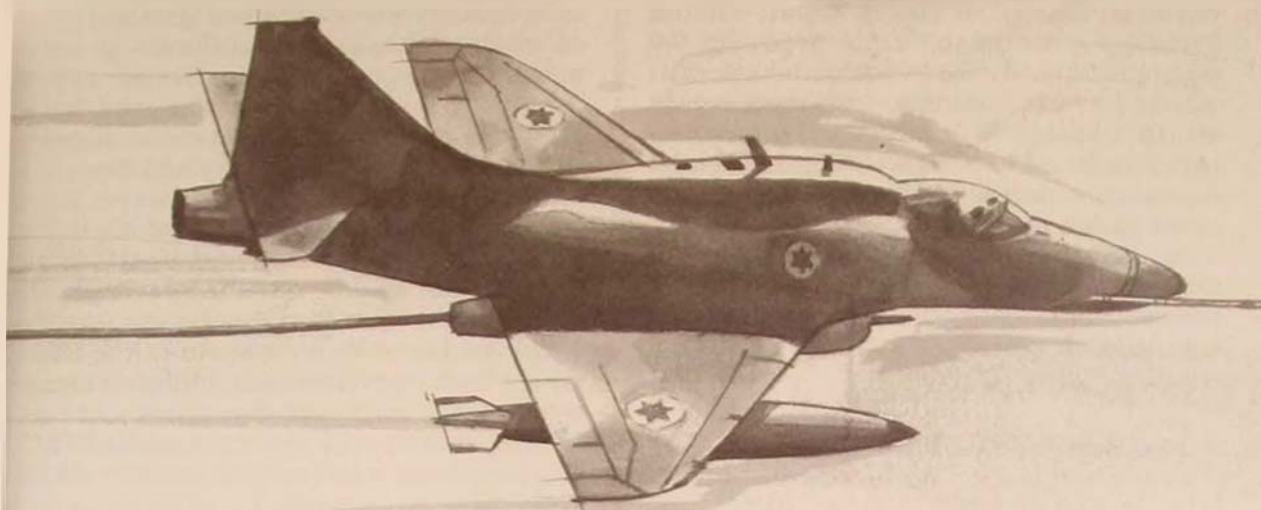
people question whether the program was in the best interests of the United States.

### Effect of the Lavi Program on US Interests

Four consequences of the Lavi program (1982-87) suggest that this project did not serve the best interests of the United States. These include (1) transfer of advanced technology, (2) unprecedented use of FMS credits, (3) loss of American jobs, and (4) perpetuation of a pro-Israel bias.

#### *Transfer of Advanced Technology*

According to a 1983 GAO report, "Israel more than any other country has been provided with a higher level of military technologies having export potential."<sup>55</sup> On more than one occasion, this technology transfer occurred over the objections of DOD and US aerospace firms and placed Israel in a more advanced technological position than even the closest



US allies, such as Great Britain and West Germany.<sup>56</sup>

A 1983 study of the Israeli defense industry raises another point about sharing technology with Israel:

A number of U.S. companies have expressed concerns that doing business with an Israeli company would probably result in all of the U.S. company's ideas and designs being appropriated without proper compensation. The U.S. company could expect to find itself competing with its own technology and designs in the international marketplace.<sup>57</sup>

Although this sentiment may be too generalized, it represented the feelings of some US industry officials, based on prior experience with the basic Sidewinder and AIM-9L air intercept missiles.<sup>58</sup>

Despite assurances to the contrary, Israel probably would have exported the Lavi because of the small domestic market and the immense national stake in advanced-technology exports as a means of financial recovery. The *Washington Post* report on the Lavi revealed the existence of an IAI marketing document of the early 1980s

that outlined plans to sell the aircraft to third world countries.<sup>59</sup> Further, Moshe Keret, the head of IAI, stated in 1987 that IAI had no specific customers in mind but that by the mid-1990s the Lavi "would be able to speak for itself in export competitions. [At that time,] it might be possible to sell a stripped version of the aircraft in the export market."<sup>60</sup> While there is no firm evidence indicating that Israel has offered the Lavi or its technology to other nations, some open source reports suggest that the People's Republic of China has purchased a sophisticated Lavi radar system and is seeking Lavi avionics.<sup>61</sup>

#### *Use of FMS Credits*

Both GAO and DOD believed that the primary purpose of the FMS program was to support US firms by buying US goods and services.<sup>62</sup> Thus, the fact that Israel was able to finance 90 percent of the Lavi's R&D—much of it in Israel—with FMS credits from the United States was a sore point with many US government officials and aircraft manufacturers.<sup>63</sup> Northrop, for

example, built the F-20 Tigershark without benefit of government funds, exporting the fighter to third world markets where it would have to compete with the Lavi. In all, \$1.5 billion of Lavi financing went directly to Israel to support its industry and economy—money that could have been spent in the United States.<sup>64</sup>

In 1983 the GAO noted that, because of the Lavi precedent, the US might be hard pressed to refuse similar treatment to other countries:

We take no position on the level or terms of assistance to Israel, but believe the precedents being set by the liberalized method in implementing the program could be a problem if other recipient countries ask for similar concessions.<sup>65</sup>

Indeed, the US now extends several unique aspects of Lavi funding to other countries: (1) cash-flow financing for multiyear purchases (now used in Egypt and Turkey), (2) FMS loan-repayment waiver (now given to Sudan and Egypt), and (3) FMS offsets and FMS drawdowns (requested by other countries).<sup>66</sup>

### *Loss of American Jobs*

One can argue that, because of coproduction and subcontracting with Israel, the Lavi program created far fewer jobs in the US than it should have. For example, statistics for the year 1985 show that the US authorized \$400 million of FMS for the Lavi, but only \$150 million of that was spent in the United States. That \$150 million produced between 3,780 and 4,659 American jobs. However, 10,080 to 12,424 jobs would have been created had all \$400 million been spent in the United States.<sup>67</sup>

Furthermore, on 17 November 1986 Northrop terminated its F-20 Tigershark program after receiving no financial support from the US government.<sup>68</sup> Although Northrop canceled the program for a variety of reasons, including lack of sales to the US Air Force, \$1.2 billion of private investment and 2,000 American jobs were lost, nevertheless.<sup>69</sup>

Northrop's experience is a grim example of what can happen when the US government supports a foreign competitor rather than a US company acting in good faith and with reasonable expectations of profitability. Congressman Mervyn M. Dymally of California, the representative from Northrop's home district, raised a similar point during congressional hearings in 1984 on the Middle East aid package. He was told that much of the money used to build the Lavi would be spent in the US.<sup>70</sup> As we have seen, however, that sum represents only a portion of the money and jobs that US firms could have enjoyed had FMS funding been used as intended by DOD and GAO.

### *Perpetuation of a Pro-Israel Bias*

There is a strong perception in the Arab world and in some quarters of the US government, specifically the Department of State and DOD, that US Middle East policy is skewed towards Israel at the expense of US interests in the rest of the region. This perception is the result of decades of special treatment for Israel, and the Lavi program served to reinforce that view. After all, by supporting the Lavi, the United States financed the expansion of the Israeli arms industry despite the fact that Israel again had invaded Lebanon, laid siege to Beirut, and used US-supplied weapons in an offensive role. Further, a special commission had cited senior Israeli military personnel, including the defense minister, for failing to anticipate and prevent the massacre of Palestinians at the Sabra and Shatilla refugee camps in Beirut.<sup>71</sup> What other signal could the Arab world receive than that the United States did not consider those events serious enough to halt cooperation with Israel?

On several occasions, the United States has been unfairly accused of complicity in military actions undertaken by Israel, such as the raid on the Iraqi nuclear reactor in 1981, the invasion of Lebanon in 1982, and the attack on Palestine Liberation Organization (PLO) headquarters in Tunis in

1985. AIPAC has even used these accusations to encourage closer cooperation between the two countries, arguing that they should reap the advantages of a closer relationship since everyone assumes that they are cooperating anyway.<sup>72</sup> In the case of the Lavi, though, the cooperation was explicit and acknowledged.

Last, by supplying such massive aid for the Lavi, the US was in effect freeing Israeli money for the war in Lebanon—a conflict that provoked widespread disapproval in the Arab world and flew in the face of US policy in the Middle East. Thus, US declarations about its evenhandedness and its desire for peace in the region did not ring true to moderate Arab states.

## Conclusion

The United States made a serious error when it became directly involved in the Lavi project with Israel. The resultant loss of US technology, money, and jobs, as well

as the ill will generated among other Middle Eastern allies, is testimony to an ill-conceived, hastily executed policy. Further, the pattern of behind-the-scenes maneuvering that typified the project is eye-opening and indicative of the overwhelming support enjoyed by Israel in Congress, the influence of Congress on foreign policy, and the ease with which bureaucratic roadblocks can be overcome by a skillful, determined effort.

The Lavi story is not a happy one for any of the participants, and its termination—while justified on both financial and political grounds—left bitter feelings in many quarters. The Lavi represented a dream for Israel and galvanized tremendous support and enthusiasm. Completely redesigning the aircraft in 1982 proved to be a fatal flaw, leading to major cost overruns and drawing the United States into the role of major partner, banker, and provider of technology. The Lavi project was not in the best interests of the United States, and we should have recognized that fact in 1983. □

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# DOCTRINAL CONFLICT OVER THE WORD

## AEROSPACE AEROSPACE

---

LT COL FRANK W. JENNINGS,  
USAFR, RETIRED

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**W**HEN THE word *air/space* began inserting itself into the lexicon of the military world in 1957, it was welcomed warmly by some as a useful term for what appeared to be a new concept and, at the same time, was rejected and ridiculed by others.

In the following year, the Air Force refined *air/space* to *aerospace*. By combining the words *air* and *space* and describing the earth's atmosphere and the regions beyond it as one operational medium, the Air Force created a term that symbolized a new meaning. Yet, 33 years after the word gave wings to the concept, *aerospace* is still misunderstood and often misrepresented.

*o-space* (*âr'ô-spās'*) *adj.* 1. Of or designating the atmosphere and the space beyond. 2. Of or pertaining to space or technology of flight. — *aer'o-space'* *n.*  
*sphere* (*âr'ô-sfir'*) *n.* The lower portion of the atmosphere in which both unmanned and manned aircraft operate.  
(*âr'ô-stāt'*) *n.* An aircraft, esp. a dirigible, that maintains its lift from the buoyancy of a gas lighter than air from aerodynamic means.  
*stato*, standing  
*stāt'*  
in

Its application to doctrine, to space operations, and to the assignment of roles and missions among the military departments is still being debated, even within the Air Force. A review of the genesis of the concept by the term's originator seems in order—even many years overdue.<sup>1</sup>

Last summer, the widely respected journalist and Pulitzer prize-winning author Russell Baker wrote in his nationally syndicated column:

In World War II there was an American hymn to bombing. It ended exultantly with the words, "Nothing can stop the Army Air Corps!" Not even the end of the war, as it turned out. War over, the Army Air Corps shed its old Army skin and turned into the US Air Force.

Along came rockets carrying atom bombs. Here was a devastating new form of artillery that could deliver doomsday swift as lightning. It made the Air Force's lumbering old bombers as obsolete as the battering ram.

Control of the new superweapons (and their sweet billion-dollar budgets) might logically have gone to Army artillery. To avert this catastrophe, which would have reduced it to a minor power, the Air Force invented aerospace.

What it did was simply invent this brand new word: "aerospace." It was silly, but silliness often works wonders on Congress. "Aerospace" embodies the idea that air and space, the airless void beyond earth and air, were one and the same. Since air was the Air Force's domain, did it not follow that space was too? Of course not, unless you could say "aerospace" without laughing.<sup>2</sup>

You can't justly fault Mr Baker for making this statement for three reasons: (1) it's been "common knowledge" for decades that the Air Force invented aerospace as a ploy to massively enlarge its operational responsibilities and jurisdiction; (2) the Air Force did get the long-range missile mission; and (3) there has been no clear Air Force explanation of exactly how and why the term was originated.

What Russell Baker wrote in 1989 recalls the colloquies during congressional hearings 30 years earlier between Congressman John McCormack of Massachu-

setts and Air Force Chief of Staff Gen Thomas D. White—and, again, between McCormack and Maj Gen Dwight E. Beach, the Army's director of air defense and special weapons in the Office of the Deputy Chief of Staff for Military Operations.

The hearings on "Missile Development and Space Sciences" were conducted by the House Committee on Science and Astronautics. When the Air Force chief of staff was questioned on 3 February 1959, part of the testimony went like this:

*Mr. McCormack.* General, on the light side still, the matter that I would like to get information about, because the word "aerospace" is something new to me and I know that has significance from the Air Force angle, where was that coined?

*General White.* Within the last year and by the Air Force, I am willing to add. I would like to explain it if you wish.

*Mr. McCormack.* I appreciate that it was coined by the Air Force. I imagine within that space that many of these conflicts between the Air Force and the Army and the Navy in outer space would be very easily adjusted from the Air Force angle because everything then will come under "Aerospace."

*General White.* Well, I do not think the conflicts are as serious as some people would like to make them, Mr McCormack.

*Mr. McCormack.* I noticed you stressed the word throughout your whole statement, so I assumed this morning there was some significance in this wording. Why not call it "space-aero?"

*General White.* That is a little more euphonious, perhaps.

*Mr. McCormack.* You notice I say "on the light side." I can see where it developed, however. We will see what the future holds as to the term "aerospace" and the claim for its jurisdiction....<sup>3</sup>

Six days later, on 9 February 1959, Congressman McCormack questioned Army general Beach:

*Mr. McCormack.* We have heard witnesses of another service use the term "aerospace." What service do you think should have overall responsibility for military space activities?

*General Beach.* Well, I never heard of that term before. I always heard of "armospace."

*Mr. McCormack.* Well, we encountered it the other day, a very sweet term, a very all-embracing term. As I said to somebody in the Army, whoever coined it ought to be made a full general. But my question is, what service do you think should have overall responsibility for military space activities?

*General Beach.* Congressman McCormack, I don't believe any one service should have overall responsibility. It should be a national effort. As General [Maj Gen W. W.] Dick has outlined, the Army has specific requirements in space, and our position is that no single military department should be assigned sole responsibility for military space operations....<sup>4</sup>

Developing military doctrine as it applies to aerospace has not been easy for the Air Force or the rest of the Defense Department. In fact, even today, the Air Force's official definition of aerospace differs from the one used by the Department of Defense and endorsed by the other services.

From the beginning, the Air Force defined aerospace as "an operationally indivisible medium consisting of the total expanse beyond the Earth's surface." That's the way it was defined in an Air Force glossary in October 1959.<sup>5</sup>

The current Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, states that

aerospace is the total expanse beyond the Earth's surface; it is the multidimensional operating environment where Air Force forces can perform all of their missions.... Space is the outer reaches of the aerospace operational medium. In fulfilling US national security objectives, the Air Force has the primary responsibility for maintaining the United States' freedom to act throughout the aerospace.<sup>6</sup>

As can be seen, the doctrine manual reaffirmed, 25 years later, the Air Force's original "single operational medium" concept. It states further: "Throughout this manual, 'aerospace' and 'air' are used interchangeably. The use of 'air' should not be construed as a more limited treatment of the aerospace medium."<sup>7</sup> Today's use of

aerospace also is in keeping with the 1959 definition spelled out in Air Force Pamphlet (AFP) 11-1-4, *Interim Aerospace Terminology Reference*. The Air Force's 1959 "terminology reference" had been its first effort to develop a coordinated definition of aerospace. It was compiled in cooperation with the entire Air Staff under the leadership of O. T. Albertini of the Directorate of Administrative Services and distributed throughout the Air Force and to key defense agencies.

Yet, the definition in the Joint Chiefs of Staff Publication 1, *Department of Defense Dictionary of Military and Associated Terms*—which carries endorsements by the Department of Defense, NATO, and the Inter-American Defense Board—does not acknowledge a single medium but speaks of "two separate [emphasis added] entities."<sup>8</sup> Thus, one could reason that it does not recognize Air Force primary entitlement to the realm beyond the atmosphere but leaves "space" as an "entity" open to the claims of any military department.

This may have been unintentional, but adoption of the official Air Force definition would have made unambiguous the question of roles and missions in aerospace. Under the JCS definition treating "space" as separate from "air," the assignment to the Air Force of the primary responsibility among the armed forces "to gain and maintain general air supremacy" could be ignored as it related to space.

Assignment to the Air Force of the air supremacy role had been the result of the National Security Act of 1947 and the Key West Agreement of 1948, which provided for the effective strategic direction of the armed forces and for their operation under unified control and for their integration into an efficient team of land, naval, and air forces.

The "roles and missions" were spelled out in March 1954 in Department of Defense Directive 5100.1, *Functions of the Armed Forces and the Joint Chiefs of Staff*—"the Functions Paper."<sup>9</sup>

It seems certain that those who negoti-

Gen Thomas D. White. It was during his tenure as Air Force chief of staff (1957–1961) that the term aerospace was matured.

ated the roles and missions agreements in 1948 and later did not intend to limit the altitude of air operations or to fix a boundary for Air Force operations beyond the earth's surface. However, today, in the minds of some people, the primary responsibility for the total aerospace mission remains unclear.

The approved DOD definition of aerospace, as published in JCS Pub 1 in 1986, is as follows:

Of, or pertaining to, the earth's envelope of atmosphere and the space above it; two separate entities considered as a single realm for activity in launching, guidance, and control of vehicles which will travel in both entities.<sup>10</sup>

Unfortunately, the definition is incorrect in stating that space is "above" the atmosphere. If you were to look at our planet from the Moon you would see that the Earth's atmosphere and its contiguous regions are not only "above" the Earth, but "under" and "beside" it. Aerospace is actually beyond the surface of our globe, not merely above it.

It seems evident that writers of the DOD definition—which also is echoed in the definition of aerospace by NASA in its 1965 dictionary—adapted the definition written by Woodford Heflin, editor of the widely admired and indispensable *United States Air Force Dictionary*, which was published as an "unofficial" guide by the Air University's Research Studies Institute in 1956.

The Heflin definition of aerospace seems also to have influenced several commercial dictionaries, including one by the Oxford University Press in 1972.<sup>11</sup> Heflin's definition appeared in *Interim Glossary: Aero-Space Terms*, which he compiled in February 1958 and published in March.

Here is his definition:



Aero-Space, n. Of or pertaining to the earth's envelope of atmosphere and the space above it, the two considered as a single realm for activity in the launching, guidance, and control of ballistic missiles, earth satellites, dirigible space vehicles, and the like.<sup>12</sup>

The interpretation of "two separate entities," as implied in Heflin's definition and also in the JCS Pub 1 definition of aerospace—instead of "an operationally indivisible medium"—has been in contention from the early days of its use by the Air Force.

Secretary of the Air Force James H. Douglas gave the Air Force's rationale in 1957 before the Senate Armed Services Committee when he said that

the Air Force has been engaged in explorations of outer space and all of the associated technical fields since the end of World War II. In cooperation with the NACA [National Advisory Committee for Aeronautics, forerunner of NASA], we have had a continuous program in research aircraft with the objective of experimental flights at ever-increasing speeds and altitudes. It was with the first of

these aircraft, the X-1, that man, in 1947, first exceeded the speed of sound. With the X-2, man first soared to altitudes of more than 20 miles. The current model of these aircraft under development is the X-15, which should permit man to fly at speeds greater than one mile each second and altitudes above 100 miles.

I recount this continuity of development efforts to illustrate the fact that *there is no easily recognized boundary between the atmosphere and space* [emphasis added]. The one merges into the other and we must learn to use both. The techniques and developments involved in the X-15 are one path to man's flight into space. The X-15 is a step toward a manned satellite.<sup>13</sup>

The concept propounded by top Air Force civilian and military leaders since 1957 that there is no clearly defined operational dividing line between atmosphere and space is still being questioned nearly 30 years later.

In 1983, Lt Col David Lupton, USAF, Retired, wrote in *Strategic Review*:

There are three major doctrinal pitfalls in the aerospace concept. First, it places dissimilar forces—air, space and ballistic missile—under the same doctrinal umbrella. This generates spurious doctrinal issues such as: "Is space a place or a mission?" Second, the concept assigns the characteristics of air forces to space and ballistic missile forces. In doing so, it perpetuates the myth that space forces are merely high-flying aircraft, notwithstanding 25 years of experience to the contrary. Finally, it generates a semantic fog which combines with the normal confusion over roles and missions that accompany doctrinal debates to obscure thoroughly the fundamental issues.<sup>14</sup>

Two Air Force officers wrote an article in the Winter 1988 issue of *Airpower Journal* that had as its objective

not only to focus on the invalid applications of air doctrine to space capabilities but also to prescribe those "unalterable truths" that actually characterize military space operations. Instead of being extrapolated from air experience, these concepts are based on fundamental knowledge that has been well tested and proven by military space practitioners during the past quarter century.<sup>15</sup>

In the article, Col Kenneth A. Myers and Lt Col John G. Tockston argued that

military missions that are now (or will soon be) conducted in space should subscribe separately to elements of a "fundamental doctrine" for military forces. Once space is recognized as a distinct realm of military operations, it can be more effectively integrated with other US defense forces by a well-articulated environmental and organizational doctrine for space forces.<sup>16</sup>

The authors' description of the characteristics of the space medium is reminiscent of the air power doctrines of Giulio Douhet in 1921:

The pervasiveness of space forces reflects the ethereal nature of their operations and capabilities. The space medium is all-encompassing—surrounding the media of land, sea, and air. This fact permits an omnipresence or a proliferation of space forces for support of defense requirements at any air or terrestrial location.<sup>17</sup>

They write also that "space control becomes a prerequisite to the success of air, land and naval forces in battle."<sup>18</sup>

Douhet wrote in his influential book, *Command of the Air*:

[In a future war] the side dominated from the air would have to fight an unequal fight and resign itself to endure implacable offensives. Its army and navy would have to function with bases and communication lines insecure, exposed to constant threat, against an army and navy with secure bases and lines of communication. Its sea traffic would be cut off at the ports. All the most vital and vulnerable points in its territory would be subject to cruelly terrifying offensives.<sup>19</sup>

One of the chief criticisms of Air Force doctrine regarding aerospace stated by Myers and Tockston is that "the capabilities of airplanes are ascribed to satellites."<sup>20</sup> Another criticism is that the Air Force contends that "no boundary separates air from space."<sup>21</sup>

If these criticisms are true, then obviously whoever in the Air Force is proclaiming that satellites are much like airplanes, or that no boundary separates air



*The Bell X-1 (formerly the XS-1) was a rocket-powered experimental plane built for transonic flight. Piloted by Capt Charles Yeager, it made its first supersonic flight on 14 October 1947.*

from space, not only does not understand aerospace doctrine but has strayed far from the concept explained and expounded by Gen Thomas White and many others since the 1960s.

No one knows better than the US Air Force that the atmosphere and the space beyond it are different environments and that the vehicles that travel in one or both realms must be designed to meet special operational, tactical, and strategic demands. But the Air Force has always contended that operationally there is no effective obstruction between the environments.

Air power experts know this about aerospace just as naval experts know this about the sea: there is a distinct difference between the surface and the subsurface of

closely related operational environments. Yet, in the case of the employment of naval forces, both environments require nautical know-how, technology, and experience. Although the surface and subsurface operations are contiguous and often interdependent, both are conducted in separate realms and call for different vehicles and tactics. But both remain distinctive naval specialties, and the Navy overcomes the hindrances of the physical environment in operating effectively throughout the full expanse of the sea.

Naturally, much has had to be learned in the 33 years since the aerospace concept was first observed and articulated. And a great deal has been learned about space operations since that time. Technology has leaped ahead. But nothing has invalidated the basic idea of an operational continuum, even though a vehicle operating both in the atmosphere and in orbit must meet different requirements in each realm.

The Air Force has demonstrated for decades the use of the aerospace medium for

terrestrial operations: electronic communications; "flight paths" of intercontinental ballistic missiles; orbiting satellites and their recovery by aircraft in flight; the launching of large payloads into space; the use of transmissions from satellites to give us special information about activities on earth; and numerous other earth operations that depend on aerospace.

Before too long, the National Aero-Space Plane, or transatmospheric vehicle (TAV)—known also as the X-30—will demonstrate this operational continuum.

You have only to read the voluminous writings on space and aerospace in past issues of Air Force publications going back to the 1960s to see how forward-looking, open-minded, and willing to change the Air Force has been in the never-ending updating of its thinking on aerospace doctrine.

For example, in a series of articles on aerospace force in the 1960s, published in the combined Winter and Spring 1960–1961 issues of the *Air University Quarterly Review*, the editors say that

the roles of the strategic force, the tactical force, the defense force, and the strategic airlift force will progressively become less separate and distinct. By the end of the decade, their missions probably will be, at a minimum, global in range, cislunar in altitude, hypersonic in speed. Already in the areas of concept, of command and control, of over-all military tasks and missions, there have been foreshadowings of overlap and merging of the lines of demarcation between these responsibilities.<sup>22</sup>

That was a respected Air Force view three decades ago. More recently—last year, in fact—James W. Canan, senior editor of *Air Force Magazine*, stated that

the Air Force is moving to endorse indivisible airpower as official writ. It is updating the doctrine by which it lives, the doctrine for employing airpower. In the process, distinctions long drawn between strategic and tactical airpower and between the combat locations of air and space are going by the wayside.<sup>23</sup>

Canan quotes Maj Gen Charles G. Boyd, director of plans for Lt Gen Jimmie Adams, Air Force deputy chief of staff for plans and operations (XO):

We can't think of the future without thinking about space.... Most, if not all, of the missions that we perform in the atmosphere today we will be able to perform in space.

We should not turn to performing them from space just to be able to say we can. However, as technologies evolve, and if they make it possible for us to do our missions more efficiently, more effectively, and at less cost from space, then we must do so, whether those missions be close air support, interdiction, offensive counterair, defensive counterair, or whatever.<sup>24</sup>

So now, after 33 years of facing skepticism and even ridicule, the Air Force is still speaking of the earth's atmosphere and the space beyond it as an *operationally indivisible* medium.

Was aerospace invented by the Air Force in order to steal the strategic missile mission from the Army, as Russell Baker seems to have indicated last summer?<sup>25</sup> Was it dreamed up deliberately by the Air Force as a stratagem for denying the space mission to the Army and Navy, as Congressman McCormack intimated 30 years ago?

No. I can tell you how it started because I was the first person—as far as I have been able to discover—to write of the atmosphere and space as a continuum for use by US military vehicles, to combine the words *air* and *space*, and to use *aerospace* as a single unhyphenated word. It happened almost by chance in October 1957, when I was an Air Force civilian writer and editor preparing features and editorials that were mailed to base newspapers throughout the Air Force.<sup>26</sup>

Since 1954, I had been writing informational, educational, and motivational features and editorials for Air Force base newspaper readers about the importance of the Air Force mission and how dependent it was on dedicated people. Many of these articles talked about the vast regions

beyond the earth's surface in the realm the Air Force was charged with protecting.<sup>27</sup>

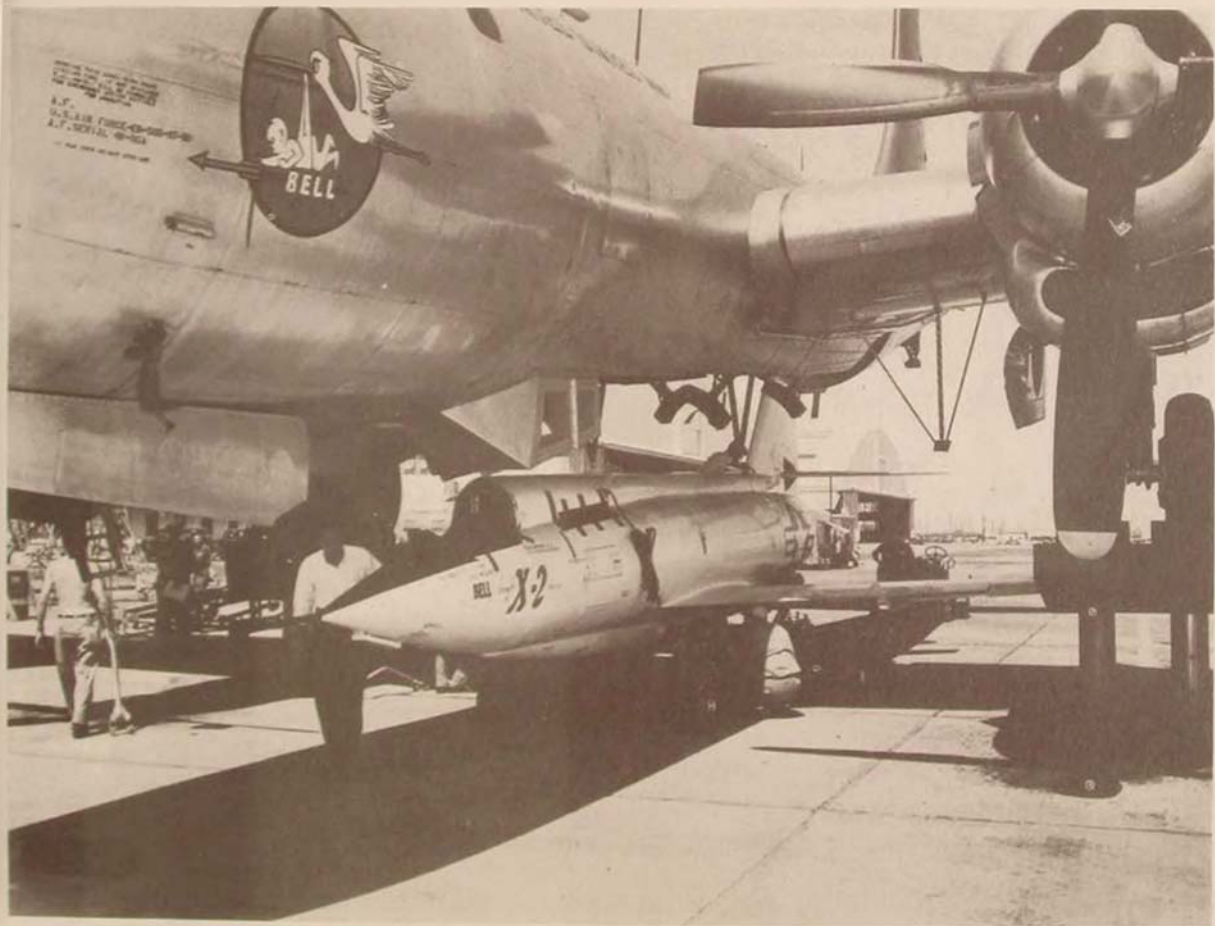
At that time, there were two writers for the Air Force News Service (AFNS) in the Internal Information Division of the Office of the Secretary of the Air Force. Our offices were on the fifth floor in the C Ring in the Pentagon. Flint DuPre wrote the news, and I wrote the editorials and features. The review process for our releases was minimal.

As I look back, I can see that (although I was unaware of it at the time) these editorials and features had a point of

view that (1) envisioned earth as a planet observed from somewhere in space, (2) stressed that operations in space must be earth-oriented, and (3) based its understanding of the Air Force's mission on the DOD 1954 "Functions Paper," which spelled out the primary and collateral responsibilities of each of the armed forces—land, sea, and air.

In support of the national policy at that time, which was to avoid wasteful duplication of resources and systems and to improve effectiveness, the DOD directive on functions gave each of the military departments primary responsibilities related to their traditional realms of expertise. The Army was charged with seizing, occupying, and defending land areas; the Navy's assigned function was "to gain and maintain general sea supremacy"; and the Air

*The Bell X-2 is shown being raised into its position below the bomb bay of a Boeing B-50 "mother plane." Carried aloft by the B-50 and released at the desired altitude, the rocket-powered X-2 achieved supersonic speeds as it probed the thermal barrier.*





Force's assignment was "to gain and maintain general air supremacy."

Beginning in August 1954, these weekly informational and motivational editorials or features often spoke of the vast operational realm for which Air Force people had the prime responsibility—the enormous reaches of the sky.

For example, on 6 August 1954, readers of Air Force base newspapers were told in an AFNS editorial:

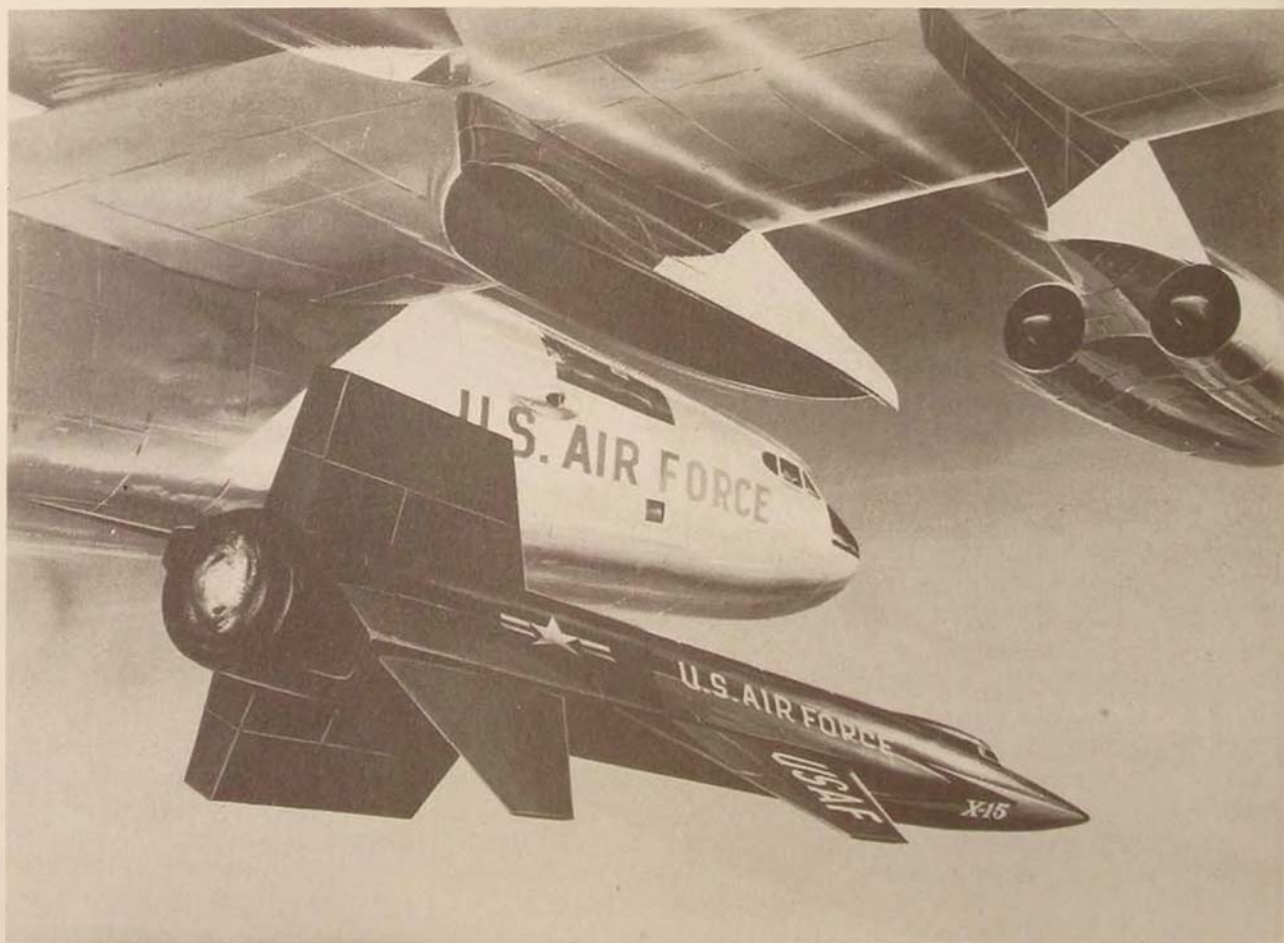
The Air Force's job is as big as the sky and its future as unlimited as space.... The Air Force has primary interest in all operations in the air. Now, when you consider how much space is involved when you speak of "the air," you can see what a big job the Air Force has. The area of the Earth is about 197 million square miles, and the area of the air immediately above it is, of course, even

greater. From there on out, the space distance is measured in feet, then miles, then in many millions of light years. So, "to maintain general air supremacy"—even in 1954—is a mighty big assignment. In 1964 it will be an even bigger job.<sup>28</sup>

Other editorials had similar messages:

To gain and maintain general air supremacy, the Air Force has to keep ahead of any possible enemy throughout the boundless air ocean around our Earth.<sup>29</sup>

*An artist's conception of a North American X-15 being released from the wing of a Boeing B-52. The X-15 was the product of a joint Air Force/Navy/National Aeronautics and Space Administration program to build a manned aircraft that could fly at speeds up to Mach 7 and reach altitudes over 250,000 feet. Like the X-1 and X-2, it had to be launched in midair from a mother plane.*



One hundred percent of the Earth's surface is surrounded by air. And that is one of the reasons why the Air Force has such a giant-sized job.... The Air Force must be able to exert its tremendous striking power anywhere there's air.... It's a job as big as the sky....<sup>30</sup>

Air doctrine is an ever-developing set of principles. Today it involves astronautics as well as aeronautics—the science of the operation of spacecraft as well as the science of aircraft. (Both sciences include missiles as well as other kinds of air and space vehicles.)<sup>31</sup>

The italicizing shown here is in the original article and can be seen as the first step in combining the words *air* and *space* and *aero* and *space*.

But the first actual combining of the two words was in an AFNS editorial inspired by a public statement of an Army general. In testimony before the Senate Subcommittee of the Committee on Appropriations on 12 June 1957, Lt Gen James M. Gavin, chief of research and development for the Army, had made the statement that "*in the missile era, the man who controls the land will control the space above it [emphasis added]. The control of land areas will be decisive.*"<sup>32</sup> He repeated this later in speeches that were quoted widely. He said he believed that, with the advent of the new surface-to-air missiles, the day of 100-percent perfect air defense had arrived.

Of course, this statement flipped on its head the traditional Air Force doctrine, first published at the Army's Air Corps Tactical School in 1931. In a textbook titled *The Air Force* was this dictum: "Victory is practically assured to the commander whose air force has gained and can maintain control of the air."<sup>33</sup>

A historic AFNS editorial of 29 October 1957 responded to General Gavin's statement without mentioning his name. The general's apparent belief that the military could control the vastness of space from the land somehow evoked for the editorial writer the thought that weapon systems of the future would have to include "air/

space vehicles" as well as air and space vehicles. This editorial stated, in part:

So this idea—that if you control the land you control the space above it—is contrary to basic air doctrine and does not stand up under experience.... What happens to air offensive forces—airplanes, missiles, or air/space vehicles of the future? According to this "new" theory they would be rendered completely ineffective. The defense would be invulnerable. Defense would be 100% effective.... It is the overall Air Force mission to "gain and maintain general air supremacy." This air mission is not confined to any altitude. It includes the farthest reaches of the "air"—far into space. The American people have given us the primary responsibility for this.... The Air Force believes that in the event of war in the missile era, "air defense measures, coupled with strong air counterblows against the sources of the enemy's strength, will provide the best security."<sup>34</sup>

In March 1958 an AFNS feature reported on the new term in the unofficial *Interim Glossary: Aero-Space Terms*, published earlier in the year at the Air University. Although unofficial, the hyphenated term in the glossary was the first use in print of *aero* instead of *air* to denote the air/space concept whose development was begun at Air Force headquarters in 1954.<sup>35</sup>

To correct the record, and for historical accuracy, I must point out here that the *Dictionary of Technical Terms for Aero-space Use*, published by the National Aeronautics and Space Administration in 1965, is incorrect when it states under its definition of aerospace: "The term *aero-space* first appeared in print in the *Interim Glossary: Aero-Space Terms* (edited by Woodford Agee Heflin) published in 1958 at the Air University, Maxwell Air Force Base, Alabama."<sup>36</sup>

In truth, the combined term, *air/space*, was first printed in Air Force base newspapers, beginning in 1957, after release in AFNS editorials and features. Reference to air/space forces was printed also in the December 1957 *USAF Information Services Program Bulletin*, a monthly newsletter published by the Office of Information

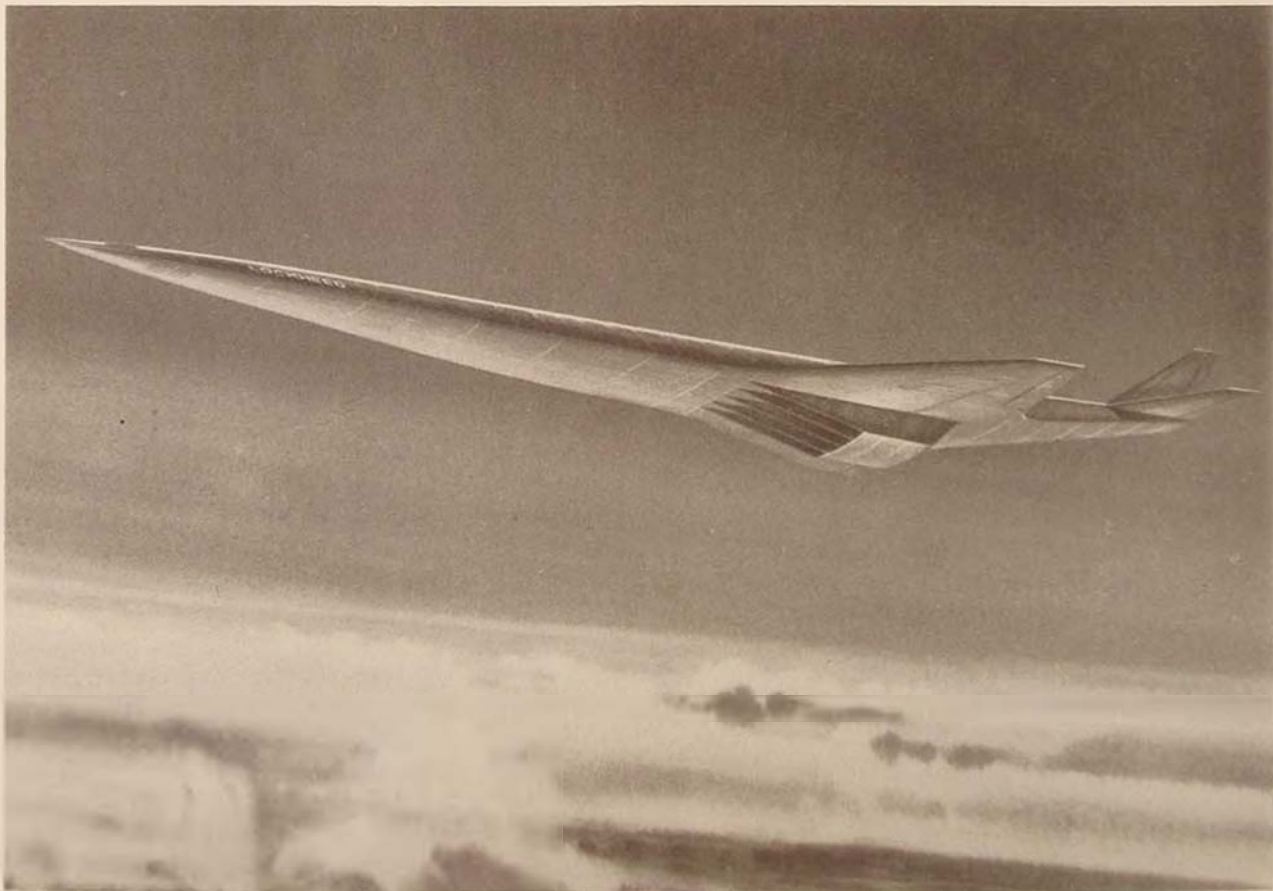
Services, Office of the Secretary of the Air Force.<sup>37</sup>

And the first use of the unhyphenated term aerospace was in an AFNS release on 8 July 1958. The feature referred to "piloted and unpiloted air and aerospace vehicles."<sup>38</sup> The first use in an Air University glossary of the unhyphenated aerospace came later, in 1959, in *The Aerospace Glossary*, by Woodford Agee Heflin. The *Second Aerospace Glossary*, published in

*The United States is currently engaged in a research program to develop a national aerospace plane capable of Mach 30 speed and single-stage-to-orbit space flight. This transatmospheric vehicle (TAV), or X-30, would be a combination spacecraft and conventional air transport that could operate equally well on transcontinental routes or at the fringes of space. The illustration below depicts one artist's concept of the TAV.*

1966, persisted in repeating its first definition, even though Air Force headquarters had published officially in 1959 its significantly different definition of aerospace in Air Force Pamphlet 11-1-4.<sup>39</sup>

Throughout 1958, Air Force News Service introduced a variety of new aerospace terms: *the Nation's aerospace arm, aerospace power, aerospacecraft, aerospace offense, aerospace defense, and aerospace warfare*. During that time I had many discussions about air/space and aerospace with Air Force speech writers in the E Ring of both the fourth and fifth floors of the Pentagon. The first general officer to use the air/space term in a speech was Lt Gen C. S. Irvine, Air Force deputy chief of staff for materiel, who spoke before the National Defense Transportation Association in Washington on 21 November 1957. General Irvine said that we have not



deluded ourselves into believing that the types of ICBMs now being developed will be the ultimate weapon. In fact, the most knowledgeable airpower proponents—within the Air Force as well as those civilians who are working closely with us—recognize the real possibility that the dramatic vehicles of today may not play a significant role in the next war. It is well within reason that air/space ships will fight the next major conflict, and that control of space will determine victory.

This, by the way, reminds me of a fallacious statement recently published in a national magazine to the effect that "he who controls the land will control the space above it." Such a twist of words is a 180-degree reversal of proved fact, as any student of air/ground warfare knows. Until air—or space—supremacy is achieved, the land itself can always be made untenable.

We are concentrating the bulk of our immediate output on day-to-day defense effectiveness. However, as a natural continuation of Air Force responsibilities, we have active research endeavors aimed toward both manned ballistic vehicles and the so-called space platforms.

These will take their place in the logical progression of air/space weapon systems.<sup>40</sup>

Introduction in the late 1950s of the term *air/space* filled a definite need for an expression denoting the operational medium that was just beginning to be actively probed and traversed with missiles and satellites. Since then, its utility has been confirmed by the adoption and general use throughout the world of the term *aerospace*.

It would be a mistake to give any individual the credit for the Air Force's adoption of the term. Credit must be shared by all those who instantly recognized the term as one whose time had come. It was welcomed and used by virtually every Air Force official who saw the need to match Air Force terminology with the new technology that had expanded the operational environment that everyone in the past had always called "the air."

The Air Force chief of staff, Gen Thomas D. White, first used the term *air/space* on

16 May 1958 in a speech to the Los Angeles Chamber of Commerce. In an article in the August 1958 *Air Force Magazine*, he used *aerospace* publicly for the first time. This was in reference to Soviet aerospace power. The Air Force used the term more and more frequently in 1958 and adopted "Aerospace Power for Peace" as its slogan in January 1959.<sup>41</sup>

Today, in 1990, the Air Force describes its primary realm of operations as aerospace—"the total expanse beyond the Earth's surface." This is the domain first called to the attention of Air Force members in August 1954, when they were told, "The Air Force's job is as big as the sky and its future as unlimited as space."

It's interesting that the single word *aerospace* still has the power after three decades to arouse bitterness and ridicule. More than likely, this is because the true reason for the development of the term has been so frequently misunderstood and often misconstrued. Its genesis has never, until now, been explained.

What power surges in a single word, that it can move whole nations, if but heard!

"By words the mind is winged," said the Athenian poet and dramatist Aristophanes.<sup>42</sup> *Aerospace* is actually a guileless and logical concept expressed in a word that came naturally to the mind as one could clearly see mankind's technological horizons expanding.

Aerospace  
Is another word  
For sky.  
From here,  
It goes beyond,  
Where planets ply.     □

#### Notes

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3. House, *Missile Development and Space Sciences: Hearings before the Committee on Science and Astronautics*, 86th Cong., 1st sess., February and March 1959, 76-77.

4. *Ibid.*, 247.

5. AFP 11-1-4, *Interim Aerospace Terminology Reference*, 30 October 1959, 2-3.
6. AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, 16 March 1984, 2-2.
7. *Ibid.*, viii.
8. Joint Chiefs of Staff Publication 1, *Department of Defense Dictionary of Military and Associated Terms*, 1 January 1986, 8.
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11. R. W. Burchfield, ed., *A Supplement to the Oxford English Dictionary*, vol. 1 (Oxford: Clarendon Press, 1972).
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13. Senate, *Inquiry into Satellites and Missile Programs: Hearings before the Preparedness Investigating Subcommittee of the Committee on Armed Services*, 85th Cong., 1st and 2d sessions, November and December 1957 and January 1958, 841-42.
14. Lt Col David Lupton, USAF, Retired, "Space Doctrines," *Strategic Review*, Fall 1983, 37.
15. Col Kenneth A. Myers and Lt Col John G. Tockston, "Real Tenets of Military Space Doctrine," *Airpower Journal*, Winter 1988, 55.
16. *Ibid.*, 58.
17. *Ibid.*, 59.
18. *Ibid.*, 64.
19. Giulio Douhet, *The Command of the Air*, trans. Dino Ferrari (Washington, D.C.: Office of Air Force History, 1983), 202-3.
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21. *Ibid.*
22. "Part II: Combat and the Aerospace Force," *Air University Quarterly Review* 12, nos. 3 and 4 (Winter and Spring 1960-1961): 52.
23. James W. Canan, "Global Power from American Shores," *Air Force Magazine*, October 1989, 38.
24. *Ibid.*, 40.
25. Baker, 5-C.
26. Brig Gen H. J. Dalton, Jr., director of public affairs, Office of the Secretary of the Air Force, to Maj Gen H. D. Armstrong, USAF, Retired, letter, subject: [Origination of the term Aerospace], 25 February 1980.
27. "Frank Jennings Receives AFA Citation of Honor," 29-30.
28. Air Force News Service (AFNS), "The Air Force Job Is Big!" editorial no. 54-1. Office of Information Services, Office of the Secretary of the Air Force, 6 August 1954.
29. AFNS, "Our Job in Seven Words," editorial no. 54-3, 20 August 1954.
30. AFNS, "USAF Must Go 'Anywhere There's Air,'" editorial no. 55-17, 11 February 1955.
31. AFNS, "What Good Is 'Air Doctrine'?" editorial no. 57-6, 21 February 1957.
32. Senate, *Making Appropriations for the Department of Defense for the Fiscal Year Ending 30 June 1958, and for other Purposes: Hearings before the Subcommittee of the Committee on Appropriations*, 85th Cong., 1st sess., 12 June 1957, 869.
33. Quoted in Wesley F. Craven and James L. Cate, eds., *The Army Air Forces in World War II*, vol. 1, *Plans and Early Operations, January 1939 to August 1942* (Chicago: University of Chicago Press, 1949), 46.
34. AFNS, "Will Missiles Stop Any Air Offense?" editorial no. 57-39, 29 October 1957.
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36. William H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, NASA SP-7, 1st ed. (Washington, D.C.: National Aeronautics and Space Administration, 1965), 7; see also page ix of introduction.
37. Office of the Secretary of the Air Force, *USAF Information Services Program Bulletin* 4, no. 12 (December 1957). Also refer to the releases that contained the word *air/space* in the bulletins of November 1957 and January 1958. These bulletins provided official guidance to information officers and base newspaper editors throughout the Air Force.
38. AFNS, feature no. 70-58, 8 July 1958.
39. Aerospace Studies Institute, *The Second Aerospace Glossary*, ed. Woodford Agee Heflin (Maxwell AFB, Ala.: Air University, 1966), 4. The glossary has a disclaimer that "personal views or opinions expressed or implied in this publication are not to be construed as carrying official sanction of the Department of the Air Force or the Air University." (p. ii) In acknowledging sources for his 1966 dictionary, Heflin names only the three publications that he had produced and the NASA *Dictionary of Technical Terms for Aerospace Use*. While saying that "the Glossary is intended as a reference source, particularly for Air Force people," the author makes no mention of AFP 11-1-4 published in 1959.
40. Excerpt from speech by Lt Gen G. S. Irvine on 21 November 1957 before the National Defense Transportation Association, 21 November 1957, Washington, D.C., as quoted by AFNS, feature no. 92-57, 10 December 1957.
41. "The Air Force slogan used during 1959 will be continued through 1960. 'U.S. Air Force—Aerospace Power for Peace' should be used wherever appropriate to keep Air Force members and the general public aware of the Air Force's primary area of responsibility in the Nation's land-sea aerospace military team." Letter in *Air Force Information Policy Letter for Commanders* 13, no. 8 (1 December 1959), 3, signed by Maj Gen Arno H. Luehman, director of information, Office of the Secretary of the Air Force.
42. Aristophanes, *The Birds* (414 B.C.), line 1447.



SUMMER 1990

## IRA C. EAKER AWARD WINNER



Lt Edward H. Feege, Jr., USN

for his article

### NATO Air Operations after Arms Control

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# AIR RESCUE SERVICE

## *A Direction for the Twenty-first Century?*

CAPT EDWARD B. WESTERMANN, USAF

The Air Rescue Service was established in 1946 ... and has served the USAF proudly since its inception. Rescue's worth has been proven time and again—996 combat saves in Korea and 2,780 in Southeast Asia.... Since then, our rescue resources have slowly declined to the point that we have only limited capability.... We will continue to press forward on several fronts to ensure that the USAF has an effective rescue capability. Our goal is to again be able to say with confidence, "These things we do that others may live."

—Gen Duane Cassidy  
Commander in Chief  
Military Airlift Command





capability, avionics for pinpoint navigation, active/passive detection, and defensive systems) are necessary to fulfill the CSAR mission. The command decisions made in the next two to three years will set the course of the ARS for the next 10 to 15 years. Throughout the history of the ARS, it has either received the necessary equipment/materiel to accomplish its mission or accepted something less. If the latter holds true, the burden for successful mission completion in hostile theaters of the next century would fall to aircrews limited by 1970s and 1980s technology. In order to understand the problems faced by the ARS today, one must briefly review the history of this organization.

The establishment of Headquarters Air Rescue Service on 13 March 1946 was a response to the need for a peacetime search and rescue (SAR) capability involving USAF fixed-wing and rotary-wing assets. The aircraft inventory was a mixture of B-29s, C-47s, OA-10s, L-5s, R-5s (later H-5s), and AT-11s. In the succeeding three years, these assets would assist in disaster relief within the continental United States (CONUS) and overseas, as well as extend their mission to the recovery of downed US aircrews in areas such as Nicaragua, Greenland, and Bermuda.<sup>1</sup> With the outbreak of the Korean War in June 1950, the ARS was sent into Korea to conduct an ill-defined CSAR mission. By using a combination of sheer guts, good luck, and a learn-as-you-go mentality, the ARS logged hundreds of combat saves and was responsible for the evacuation of 9,898 United Nations personnel by the end of the war.<sup>2</sup>

**T**HE establishment of a new Air Rescue Service (ARS) in August 1989 at McClellan AFB, California, confronts the US Air Force with the challenge of organizing and equipping a viable combat search and rescue (CSAR) arm for operations into the twenty-first century. Not only must the Air Force decide what type of aircraft the service requires but also which critical capabilities (e.g., air refueling, night/adverse weather

During the war, the helicopter performed superbly in rapidly extracting downed aircrews and evacuating wounded or besieged personnel. Its performance led to a growing awareness and appreciation of the unique capabilities of rotary-wing aircraft for the conduct of CSAR operations on the battlefield. The development of the H-19 as a replacement for the H-5 expanded the helicopter's promise by providing a more capable and longer-range platform, dramatically demonstrated by



the transatlantic crossing of two H-19s in July 1952.<sup>3</sup> With the cease-fire agreement in Korea came a drawdown of CSAR forces, and the ARS reverted to its more conventional role of peacetime SAR and disaster relief.

The postwar years, however, were not devoid of drama. In a number of cases, fixed-wing amphibious rescue assets recovered both commercial and military flight crews shot down in the vicinity of the USSR and the People's Republic of China.<sup>4</sup> While fixed-wing aircraft enjoyed the spotlight, rotary-wing counterparts proved their worth in such diverse roles as providing support to avalanche victims in Austria and flood relief in Iraq.<sup>5</sup> The worldwide exploits and capabilities of ARS forces did not go unnoticed by authorities in the United States, who recognized them by establishing the first National Search and Rescue Plan in March 1956.<sup>6</sup>

The object of the plan was to provide central coordination for all SAR operational assets within the CONUS. The worldwide employment of rescue assets not only provided good public relations in the world community, but also cultivated a talented cadre of fixed-wing and helicopter crew members. But the decision by Headquarters USAF to proceed with Operation Wring Out continued a cycle of drawing down CSAR capabilities in a peacetime environment while leaving little or no provision for the future employment or training of ARS assets for a hostile environment.<sup>7</sup> Indeed, the USAF enunciated this policy in a 1958 ARS directive that mandated reorganization:

ARS will be organized, manned, equipped, trained, and deployed to support peacetime air operations.

No special units or specially designed aircraft will be provided for the sole purpose of wartime search and rescue.

Wartime rescue operations will be dictated by the capabilities of equipment used for peacetime SAR.<sup>8</sup>

By committing to a peacetime-only SAR force, the USAF displayed a lack of foresight and/or failure to recognize the need for viable CSAR.

By the end of 1960, the ARS was a skeleton command consisting of three squadrons and 1,450 personnel.<sup>9</sup> It continued to provide worldwide support in missions involving commercial/military aviation or shipping disasters, and emergency disaster relief. At home the ARS supported the National Aeronautics and Space Administration's fledgling space program and assumed the local base rescue (LBR) mission with the new HH-43—a small, lightweight rescue helicopter of the type called for by Operation Wring Out. The reemergence of a viable CSAR capability would again depend on the direct involvement of US forces in a theater of conflict: The US presence in Southeast Asia (SEA) prompted the organization of the most effective combat rescue capability that a wartime theater had ever known.

Following the Gulf of Tonkin incident in August 1964 and the ensuing rapid buildup of American forces in SEA, the Air Force tasked the ARS with establishing four provisional detachments, two to be stationed in the Republic of Vietnam (RVN) and two in Thailand. In the following 11 years, the ARS—subsequently the Aerospace Rescue and Recovery Service (ARRS)—flew a combination of HU-16s (amphibious aircraft), HH-43B/Fs, CH-3s, HH-3s (later HH-53s) and logged 4,120 saves, including 2,780 combat saves.<sup>10</sup> In so doing, it became one of the most decorated air-mission elements in the SEA theater, boasting one Medal of Honor and 38 Air Force Crosses awarded to its crew members.<sup>11</sup> In SEA the ARRS demonstrated the utility of *daylight* combat rescue operations involving combined fixed/rotary-wing assets in a low-to-medium threat environment.<sup>12</sup>

In 1964, though, the ARS was ill prepared to conduct CSAR operations in Southeast Asia. CSAR tasking was left to the local base rescue assets—the HH-43Bs. Although well suited for LBR operations, this small, lightly armored, underpowered

aircraft was completely inadequate for extended operations in a combat environment, especially in the thin air of the Vietnamese highlands. The introduction of the HH-43F in September 1964 increased the capability of the airframe by providing an improved power plant, increased range, and additional armor protection for the crew and vital aircraft systems. Despite the introduction of the HH-43F, rescue forces were not adequately prepared for the conduct of CSAR operations in Vietnam, as Earl H. Tilford, Jr., explains in his history of the rescue effort in Southeast Asia: "Still [despite the HH-43F] the rescue mission in Southeast Asia suffered from inadequate forces, nonexistent doctrine, and ill-suited aircraft."<sup>13</sup> Not until July 1965 did the ARS receive its first CH-3C, an air-

craft considered "an adequate aircrew rescue vehicle."<sup>14</sup>

With the introduction of the air-refuelable HH-3E in June 1967 and the delivery of the HH-53 (the first helicopter specifically designed for CSAR operations) later that year, the ARRS began to build its reputation as the world's finest combat rescue force. However, the ARRS continued to be plagued by its own shortsightedness, even as new tactics and doctrine for combined rescue operations were developed. As late as October 1970, Col Frederick V. Sohle, commander of the 3d Aerospace Rescue and Recovery Group, would say, "Our development ... has been a history of relearning lessons already learned by someone else, but who unfortunately could not or did not document it for others to profit by."<sup>15</sup> This lack of documentation and the inability to integrate an institutional memory among ARRS forces (with the possible exception of the pararescue force) would detrimentally affect CSAR units into the 1980s. Consequently, the CSAR mission became subor-

*Early in its history, the ARS used fixed-wing aircraft during peacetime to rescue both civilian and military accident victims. This peacetime orientation, however, hampered its performance during combat, as is the case today.*



dinate to daily support and auxiliary mission roles. However, if one lesson can be drawn from the SEA conflict, it is that we needed an effective CSAR force. Unfortunately, we did not learn this lesson well because ARRS assets experienced the same neglect and lack of funding which plagued its predecessor.

The withdrawal of US combat forces from the SEA conflict was reminiscent of the massive drawdown of CSAR assets that occurred following the Korean War. After Vietnam, a few notable rescue operations took place, such as the deployment of ARRS helicopters aboard the USS Saipan in June and August 1979, in support of a possible emergency evacuation of US personnel in Nicaragua following the Communist takeover.<sup>16</sup> However, such missions occurred infrequently. Ironically, a classic

contingency/rescue operation proved to be the death knell of the ARRS. Even more ironically, no ARRS helicopter units participated in the operation.

The aborted mission to rescue the hostages in Iran dramatically demonstrated the need for close, realistic coordination and planning of joint-service operations. As usual, it is easy to speculate after the fact about what we could have done differently to make the mission successful. No doubt, the ARRS Pave Low III aircraft was better suited to the operation. But the

*Between the Korean and Vietnam wars, the ARS extended its coverage to the high seas—witness this rescue of US Army personnel from a tugboat off the coast of Okinawa in 1956.*



modified Marine Corps H-53 was used instead, for two possible reasons: either the Pave Low system was not yet ready for this type of mission because it had just finished lengthy operational testing or the H-53 was used to placate the Marine Corps.<sup>17</sup> Certainly, one must concede that Pave Low aircrews, who were trained in the CSAR arena and routinely relied on C-130s in their daily operations, were the logical choice for this type of mission and had a better aircraft with which to conduct it. Whatever the case, one point is clear—

*The increased range and lift of the amphibious H-19 significantly improved the ARS's capability. But the Air Force's reorganization of ARS after the Korean War decreased the rescue service's effectiveness.*

the entire operation was critically dependent on helicopters. As a result of the botched operation, the Air Force transferred all ARRS HH-53Hs (Pave Low III aircraft) to the 1st Special Operations Wing (SOW) in May 1980. This transfer signaled the end of the ARRS's role in CSAR and precipitated the present enmity between "rescue drivers" and "special operators."

Thus, the ARRS was left with an aging fleet of UH-1 (various series), CH-3, and HH-3 aircraft. In effect, the ARRS had no means to accomplish the CSAR mission in the threat environment of the 1980s and 1990s. Just as the Polish cavalry of 1939 was an effective force within its own borders but completely inadequate when confronted by German tanks, so too had the ARRS become an anachronism in a





world where contingency and rescue operations relied on high-tech avionics and split-second timing. A 20-year-old aircraft like the H-1, with 1960s and 1970s avionics, was no longer useful. Nevertheless, the HH-3 continued to provide a measure of effectiveness because of its air-refueling capability and the use of night vision goggles (NVG). The latter allowed aircrews to operate under the cover of darkness, thus decreasing their vulnerability in low-to-medium threat environments.

Although ARRS no longer had the aircraft to conduct modern CSAR operations, it did at least have the foresight to continue to train crews in the CSAR environment, with emphasis on NVG operations. However, the inactivation of the H-1 CSAR units in September 1987 closed a valuable

pipeline of CSAR-trained aircrew members and limited the combat rescue role to a total of four overseas HH-3 units and a stateside MH-60 squadron. Furthermore, the latter was unsure whether it would be affiliated with ARRS or special operations. This is the situation in which the new ARS finds itself today. Questions must be answered about the training, manning, and equipping of planned ARS units. Perhaps the most important question is whether to employ these assets in a theater of conflict or in support of contingency operations.

When I look forward, I see conventional warfare—low-intensity conflict in particular—as the most likely battlefield of the future.

—Gen P. X. Kelley  
Commandant of the Marine Corps

*In Korea, the 3d Air Rescue Squadron could pick up injured personnel (left) and rapidly transport them to medical facilities (right), substantially increasing their chances of survival.*

The primary mission of the ARS is to conduct search and rescue operations during both peacetime and wartime. This mission requires a global capability, which, in turn, mandates a long-range rotary-wing or vertical takeoff and landing (VTOL) aircraft (e.g., V-22). Because the Air Force withdrew from the V-22 program in favor of the MH-60, the long-range requirement will have to be met by an air-refueling capability. Further, the likelihood of flying long distances and the probability of operating in and from remote third-world areas require a precise navigation capability independent of civil/commercial systems. And if crews are to operate at night or in bad weather in unfamiliar—possibly mountainous—areas without detailed charts or maps, they must rely on the global positioning system (GPS) for satellites. Specifically, the Navigation Satellite Tracking and Ranging (NAVSTAR) system is vital to a rescue force looking to pursue worldwide operations into the twenty-first century. Clearly, the present generation of night vision goggles will not be adequate for rescue operations past the mid-1990s.

But advances in NVG technology have improved aircraft night operations. In fact, the development of NVG for jet aircraft has provided better in- and out-of-cockpit technologies which can substantially increase rotary-wing crew performance. However, we must not tailor the helicopter CSAR mission to rely solely on NVG technology. Rather, we must integrate terrain following radar (TFR), forward looking infrared (FLIR), and—most importantly—low altitude navigation and targeting infrared system for night (LANTIRN) technology into the CSAR force. LANTIRN is now available to the fixed-wing force (e.g., F-16) and—with further modifications for helicopters—could provide a vital upgrade to CSAR aircraft in the mid- to late 1990s.

Capabilities such as air refueling, TFR,



GPS navigation, improved NVG and/or LANTIRN will permit sustained CSAR operations in current and future threat environments. Further, these capabilities must be enhanced by an avionics package designed to detect threats. Daylight rescue operations in SEA were protected by a search and rescue task force (SARTF), which used supporting fixed-wing aircraft to locate survivors and suppress hostile fire. Although SARTF may still have a place in certain threat environments, we must recognize that the proliferation, improved lethality, and portability of surface-to-air missiles (SAM) and antiaircraft artillery (AAA) jeopardize this method of recovery. A night/adverse weather capability, however, meets these challenges. Aircraft operating at night and/or in bad weather are less susceptible to threats from visually targeted systems. Furthermore, upon penetration to the recovery area, CSAR helicopters must be able to identify radar-directed SAM and AAA threats. This would allow recovery crews to use terrain masking or ingress/egress route deviations



to avoid or reduce threat exposure. Finally, we should augment this passive capability with active electronic countermeasures (ECM), either in-cockpit or in conjunction with standoff, fixed-wing assets used during the recovery portion of the CSAR operation.

The high-tech capability outlined here is available today and could enhance CSAR operations considerably. It facilitates penetration of the threat environment without extensive MiG combat air patrol (MiG-CAP), forward air controller (FAC), and A-1E ("Sandy") firepower support, which were so typical and necessary in SEA. Additionally, it makes possible single or two-ship helicopter CSAR operations at night or in adverse weather—environments which significantly decrease the detectability of rescue assets. Finally, when recovery crews use this capability in conjunction with in-cockpit ECM and/or standoff threat assistance by ECM or airborne warning and control system (AWACS) aircraft, they dramatically improve their chances for successful recovery of a downed aircrew.

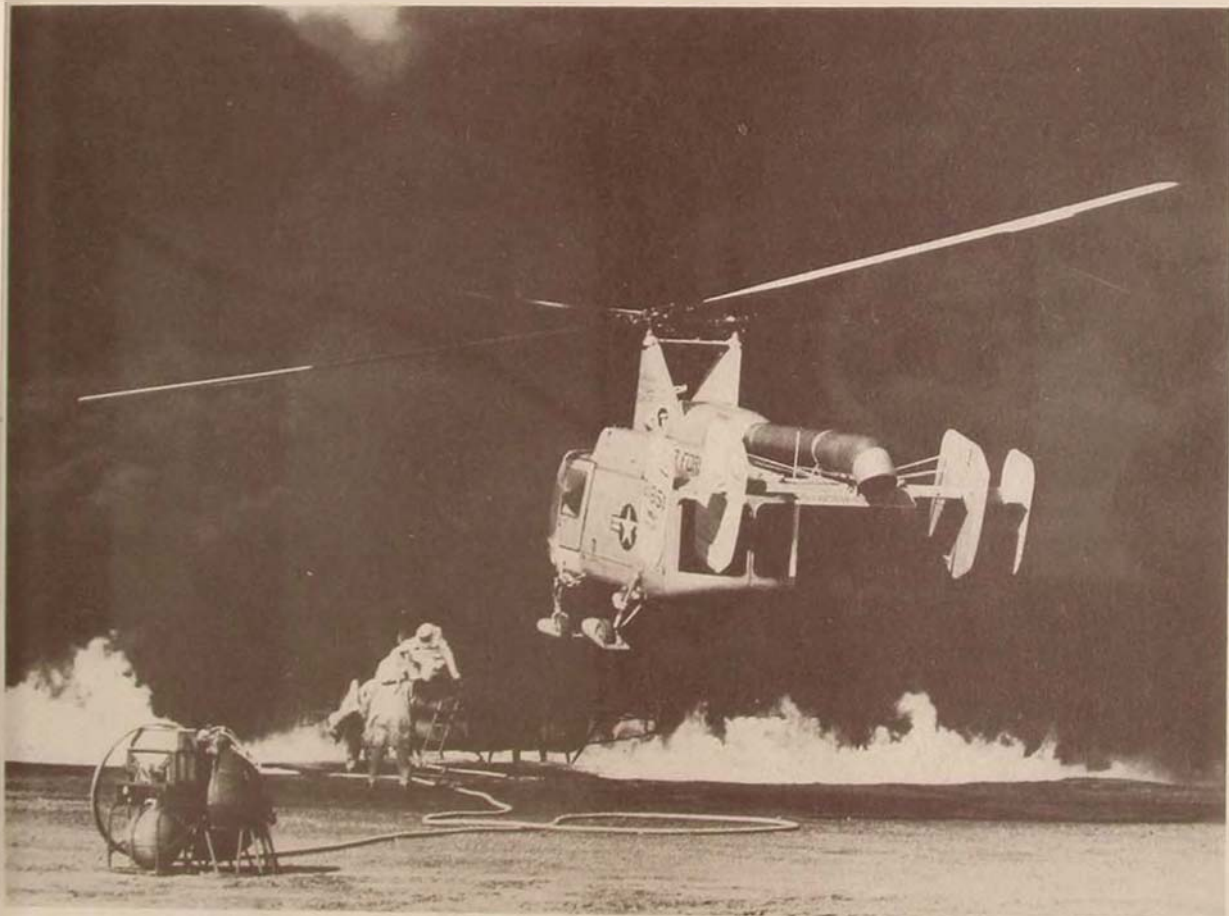
Properly equipping and training CSAR personnel to operate independently in a hostile environment gives us the extra benefit of having a force which would be ideally suited for such secondary missions as the evacuation of US military personnel and/or civilians in flash points throughout the world. Additionally, this force could perform low-visibility and clandestine operations as well as support the National Search and Rescue Plan as it pertains to peacetime operations involving the civilian population. However, the CSAR force's aptitude for clandestine operations may renew a long-standing rivalry between the rescue and special operations communities.

*Neither the ARS's equipment nor its doctrine was suited to the war in Vietnam during its early stages. Available rescue aircraft were too small and lightly armored for the hostile combat environment of Southeast Asia.*

ARS and special operations must recognize that cooperation is essential. For example, some missions come exclusively under the purview of special operations, but others require ARS assets (e.g., helicopters). Thus, rescue forces could provide capable assistance in operations such as embassy evacuations, weather/reconnaissance team insertions or extractions, and so forth. Certainly, both forces would benefit from mutual trust and cooperation. However, it is not their rivalry that poses the greatest barrier to achieving a viable CSAR capability.

*The H-43 Pedro did a good job of performing the missions for which it was designed—fire fighting and local base rescue. Combat, however, required an aircraft with different capabilities.*

Since the introduction of rotary-wing aircraft into the Air Force inventory, many people have been reluctant to regard helicopter pilots and their aircraft as “real pilots or real aircraft.” The tendency to focus on the needs of the fixed-wing force has often left the rescue service—particularly its helicopter assets—out in the cold. The type of rescue force outlined here requires a significant outlay and investment of Air Force funds. However, one of the political realities of the 1990s is that the Department of Defense will once again have to do more with less. The tightening of fiscal resources will require planners at the highest echelons of the fixed-wing force to have enough foresight to commit resources that will enable the Air Force to continue a viable CSAR capability into the twenty-







*The UH-1 Huey has become a symbol for lifesaving of Army troops in Vietnam. Nearly 20 years later it still provided local base rescue and utility transport for USAF's air rescue forces.*

*The HH-3 Jolly Green Giant was a welcome sight to downed aircrews in Vietnam. Its size, range, and air refueling capability made it an excellent combat rescue aircraft.*



first century. One thing is certain: we can no longer afford to have our CSAR aircrews operate only with area maps, NVG, unsecure radios, and a basic, commercial instrument/navigation package. Thus equipped, no one could be expected to perform successful recoveries in a threat environment. We can no longer conduct CSAR operations in the style of the Vietnam era. Instead, we must now prepare our forces for combat in the increasingly complex and lethal environment of the twenty-first century. □

*Although designed specifically for combat search and rescue, the HH-53 Super Jolly now belongs to the special operations community, a situation that clouds the future of combat search and rescue.*

#### Notes

1. Donald D. Little, *Aerospace Rescue and Recovery Service, 1946-1981* (Scott AFB, Ill.: Office of History, Military Airlift Command, 1983), 1.
2. *Ibid.*, 3.
3. *Ibid.*, 8.
4. *Ibid.*, 11.
5. *Ibid.*
6. *Ibid.*, 12.
7. Operation Wring Out provided for the establishment of a number of small detachments equipped with lightweight helicopters to perform local base rescue.
8. Earl H. Tilford, Jr., *Search and Rescue in Southeast Asia, 1961-1975* (Washington, D.C.: Office of Air Force History, 1980), 16.
9. Little, 18.
10. *Ibid.*, 24.
11. *Ibid.*, 26.
12. Although the ARRS attempted a few night rescues, they succeeded only under the most advantageous circumstances. The HH-53 Pave Low III system was thus developed to meet the need for a night/adverse weather capability.
13. Tilford, 61.
14. *Ibid.*, 69.
15. *Ibid.*, 94.
16. Little, 56-57.
17. A group headed by Adm J. L. Holloway, former chief of naval operations, reviewed the rescue attempt. It found that "the appropriate helicopters and their maintenance capability should have been joined with an operational unit compatible with mission requirements." *Aviation Week & Space Technology*, 1 September 1980, 44-46.



**Ricochets***Continued from page 3*

the individual, but to meet the needs of the Air Force. There is no mention of the fact that those who do a good job and have demonstrated a capacity for greater responsibility generally do get promoted. While not everyone can be selected for O-6 or flag rank, good people are generally recognized up to that point where the percentages by necessity eliminate some good ones. There is no mention of the new evaluation systems developed for both the officer and enlisted ranks with a greater emphasis placed on job performance.

If General Smith truly believes what he writes, then his own achievement of two-star rank is testimony to nothing more than his ability to golf with the big boys and flatter the boss just prior to OER time. I would hope that there is more substance to his career than that!

I hope this article is one of a kind in the *Airpower Journal*. Referring back to the stated purpose of the *APJ*, I fail to see the relevance of the article to military doctrine, strategy, tactics, force structure, readiness, or any other national defense matters. In fact, I fail to see any relationship of the article to air power. In my opinion, the predecessor to the *APJ*, the *AU Review* suffered its demise because it lost sight of its purpose. It lost focus and ultimately failed to be relevant to its readers. It ended up being read only in barber shops rather than in fighter and bomber squadrons, where the readers ought to reside. The issue is not whether the *APJ* should be kept an open forum; it is whether *APJ* should remain relevant and stick to its stated purpose.

**Lt Col Donald O. Ross, Jr., USAF**  
*Headquarters USAF, Washington, D.C.*

After reading this article I seriously looked hard for some evidence that it was a joke of some sort. What is an article on promotion strategy doing in a journal on "military doctrine, strategy, tactics," and so forth? To make matters worse, the article blatantly advocates obsequiousness over performance, in direct contradiction to the policies General Welch has worked so long for. An absolutely disgraceful article.

**Col Ronald N. Jackson, USAF**  
*Lackland AFB, Texas*

It was with great dismay that I read General Smith's article in the Spring 1990 issue of *Airpower Journal*. The article is a prime example of the attitude that is rampant in the Air Force and harmful to the Air Force. According to General Smith, it doesn't matter so much what you know, but whom you know. More important, it matters who knows you. If this is a natural by-product of an excellent professional performance, it is healthy and should be encouraged. If it is a result of hanging out in the officers club and strategic name-dropping, it is dishonest and unprofessional—something we as an institution should discourage.

At a time when the Air Force may have to fight for its very existence, we, and it, deserve better than to give it officership based on popularity. Young officers deserve better guidance than "fill the right squares and be seen in the right places." We are desperate for substance in the Air Force. If the attitude evidenced by General Smith's article is the wave of the future, perhaps our motto should change from "fly, fight and win" to "look good, but don't look too deep."

**Capt Kelley C. Westenhoff, USAF**  
*Ramstein AB, West Germany*

I read with a great deal of interest General Smith's article on "How to Get Promoted." I was impressed that a retired general officer would take the time to address a vital career concern so directly. My suspicion is that hundreds of officers will eagerly digest the words the general offered.

My interest held throughout General Smith's presentation; however, it was joined by a rising level of disappointment with the apparent focus on the mechanics of personal enhancement. General Smith starts with what seems to be a token doffing of the cap to performance as "only one of many prerequisites" to promotion. The quick dismissal of performance as a first among equals in the promotion business is a frustrating contradiction to all we've heard from senior Air Force leadership during the Officer Performance Report discussion over the last couple of years. If performance is the key—the fundamental measure of potential—then I believe General Smith has done the officer corps a disservice by relegating it to coequal status with the other factors he mentions.

General Smith's discussion of the importance of liking your job is fine. I agree. If Air Force folks don't like what they're doing they should go do something else. But I think that assessment should be reserved for the broad category of the job (pilot, missile maintenance officer, administrator, etc.), not just the task at hand. In my short 12 years of service I have from time to time encountered tasks that were frustrating. Expressing that frustration in the proper context and with a forward-looking attitude is an essential aspect of stress relief and is fundamental to the health of a combat-ready force. The boss who cannot recognize those expressions of frustration for their true meaning will make seriously flawed assessments of promotion potential. I think it was General of the Army Omar Bradley who spoke of the fundamental right of the American soldier to complain. I believe he was on target.

When the general moves to his explanation of the tragedy of the "unfortunate events" that stand in the path of promotion, I must agree that there are times when one seemingly minor decision or circumstance, one well beyond the control of the officer, has resulted in an instantaneous halt to that officer's career. I suppose that's the price we pay for being professionals in an environment that demands that we make decisions. I know a first-class officer (now retired) who probably was denied his first star because somebody threw paint on an airplane that was parked on his flight line—even though the airfield perimeter, the flight line, and the plane were all guarded by host-country troops. There are probably as many stories like that as there are officers who haven't made four stars.

But when General Smith moves from his anecdotal discussion to drawing the conclusion that it's risky "if you stick out your neck too far," he leads the reader to conclude that getting promoted is more important than doing the right thing. Military history is littered with the careers of officers who have decided they must risk those careers by sticking their necks out (Gen Billy Mitchell's name springs to mind). One of the tragedies of a peacetime force is that it tends to breed "safeness." While I do not advocate reckless risk taking as the path to success in combat, I do think General Smith's article may generate an atmosphere among new officers who will become concerned over taking a risk—on anything.

The general's positive recommendations ("What can you do to get promoted?") are sim-

plistic, misleading, and form the essence of my personal disappointment. Common courtesy and respect for achievements and seniority are qualities that ought to form integral parts of any military professional's character. Positive strokes are valuable both up and down the chain—but though the general cautions us to be "sincere," he cites examples that are anything but. I've been in more than one setting where someone has tried the general's approach to conversation—the knowing looks on the part of others present have clearly communicated the distinct distaste most people have for contrived compliments, no matter how sincere the tone of voice.

It's probably apparent that I hope not to subscribe to the general's theories on promotion enhancement. I probably won't ever make it to two stars. I may not make it to silver oak leaves. I do hope that I'll be able to be rewarded for doing the absolute best job I can do. I also hope that senior Air Force leadership will continue down the path of emphasizing performance that has been so carefully charted over the last two years.

**Maj Howard W. Moffatt, Jr., USAF**  
Lackland AFB, Texas

I am sure that by now you have received a number of letters concerning Maj Gen Dale O. Smith's article in the Spring issue of the *APJ*. Undoubtedly some writers questioned the relevance of using one-third of the article as an apology for not being promoted to three stars. Others probably take exception to the number of specific superficial "tricks" he suggests to endear one to his or her bosses.

What concerns me most, however, is not what he says but rather what he does not say. Significantly, not once are the qualities of honesty and integrity mentioned. In almost every book, article, and speech touching on the professional military officer, these are the core character traits deemed essential to effective leadership and to reaching positions of great responsibility. Yet General Smith does not even hint at them. Another key quality invariably cited is care and concern for your subordinates. It is almost a tenet that the higher you go and the broader your responsibilities become, the more "you gotta take care of the folks that get the mission done." Again, not a peep from General Smith. There are a number of other

qualities that are frequently deemed desirable for leadership such as a sense of humor, self-discipline, communicative skills, physical health, etc., but none of these are mentioned.

By now the crux of my problem with General Smith's article must be clear. If the time-tested qualities for leadership don't deserve even off-hand mention in an article on how to get promoted, what does? Certainly not how to address the boss's wife; or advice on why golf is important.

The disconcerting thing about General Smith's article is he obviously believes what he wrote. The frightening thing is he may be right.

Col Michael E. Heenan, USAF  
Maxwell AFB, Alabama

### GENERAL SMITH RESPONDS

I was surprised that some officers took offense at my essay on "How to Get Promoted," but I think their reaction makes my point that too little consideration is given today to good manners and courtesy. What has this got to do with military doctrine and readiness? Everything.

Probably no institution on earth is so steeped in protocol and stylized good manners as the military. Certainly no institution is more concerned with rank. It must be accepted and deferred to. Only thus can a military unit continue to operate with a chain of command in the face of combat losses and the confusion of battle. When this cohesive force of military discipline degrades, the unit becomes a worthless mob.

Courtesy and good manners build loyalty and morale. They provide the lubrication that keeps a military machine running smoothly and enthusiastically. With this kind of spirit the military mission is enhanced. Without it we encourage defeat. And who can deny that good rapport with one's boss does not help one to do a good job?

My article was a short essay touching on only one route on the road to promotion. Indeed, there are many more, and most have been written about a thousand times. What I tried to do was show that a life-style of basic courtesy and good manners is a valuable personal asset frequently overlooked. This is not "careerism," the pejorative buzzword that describes an officer who is more concerned with his promotion than with the Air Force mission. In fact, courtesy is a sincere concern for someone else's

feelings and sensibilities. But like mercy, it blesses him that gives and him that takes.

I took this tack because of the alarming tendency in modern America to laud offensive social sloppiness—of attitudes toward seniors that merge on downright rudeness. Too much of this virus has infected the Air Force, and it is dangerous to good order, morale, and discipline.

I wince when a gas station attendant or a doctor's clerk calls me by my first name. Those subject to such rude informalities don't forget the slight no matter how well the gas is pumped or the doctor's records are kept. Indeed, impolite people who deliberately fail to recognize rank are out of step with the times. Egalitarianism, at the heart of communism, has proved a dismal failure worldwide.

People are not cogs in a machine but social animals conscious of their stations in life. They invent many subtle ways to protect their rank, from private dining rooms to parking places. Those who fail to recognize and appreciate their rank do so at their own peril. Toadyism or insincere flattery will certainly backfire, but heartfelt expressions of regard and respect will go far.

Many characteristics of a good officer are givens, such as honesty, integrity, and responsibility. If an officer should fall down in any of these fundamental criteria, he should be dumped, not graded. But job performance is harder to define. It's a subjective judgment made by a human being. A favorable regard for the one being graded will never be harmful.

*EDITOR'S NOTE: The response to "How to Get Promoted" is both gratifying and encouraging, though perhaps not for the reasons many might expect. Comment on the substantive content of an article can clearly (and properly) be entrusted to authors and readers, as evidenced by the letters above. However, many readers also express concern about the appropriateness of the issue, and it does seem proper for the editor to address the propriety of publishing any piece on promotion. A service's underlying doctrine and institutional attitudes are directly reflected in whom that service promotes and how those promotees are selected. Personnel issues directly affect combat effectiveness as much as do operational doctrine or logistics matters and should be thrashed out in a profes-*

sional journal such as ours. Therein lies the encouraging aspect of the current exchange of views on promotion.

### CAS/BAI AIRCRAFT SELECTION

I read Dr Richard Hallion's "Battlefield Air Support: A Retrospective Assessment" (Spring 1990) with some interest. I spent a year in Vietnam as a forward air controller (FAC) during the spring offensive of 1972 and have some interest in air support for the close-air-support (CAS) role.

As a result of my year in combat, I must disagree with his point number 8: "The fighter-bomber has always performed more satisfactorily in the CAS/BAI [battlefield air interdiction] role than the special-purpose attack airplane." My experience in Vietnam suggests just the reverse. The ubiquitous F-4 was the last airplane I really wanted to see for a CAS mission. Any aircraft in the attack category was better, especially when the "black boxes" were working. The attack aircraft were designed for the type of work needed to support the Army when they were in shooting range of the other side. The F-4 was designed for fleet defense for the Navy with the CAS role added later on. Yes, the F-4 does well in the BAI role because it carries a heap of iron, but where the iron hits the ground isn't as critical as in a CAS mission.

I worked many situations in which the F-4 could have been as much trouble for the "good guys" as for the "bad guys" on the ground because of its inability to match an attack aircraft's accuracy. Attack aircraft were sent most of those times.

Occasionally I did see an F-4 perform bombing with excellent accuracy, but it proved to have a highly proficient pilot at the controls. Given the minimum safe distances for most ordnance carried in Vietnam, the F-4 could not match an attack aircraft for a troops-in-contact situation.

For a tactical emergency, anything will do. But that doesn't mean that the fighter-bomber is almost always better than the attack aircraft.

I wonder about the basis for his remarks about the preference of both the Axis and the Allies for fighter-bombers over attack aircraft. Could that preference have been one of necessity rather than utility? The Axis had insufficient aircraft to do the job of close air support while the Allies, at least in the last stages of the war, had no other jobs for the fighters to do be-

cause of a lack of Axis fighters to attack. The fighter aircraft turned to dropping bombs to have anything to do at all.

Lt Col Raymond F. Hain III, USAFR  
Federal Way, Washington

### BEKAA VALLEY KUDOS

I write to you concerning the Winter 1989 *Airpower Journal* article "The Bekaa Valley Air Battle, June 1982: Lessons Mislabeled?" and its author.

I started to read this article thinking that I would find there a simple story of a historic air battle in the Middle East. Instead I found that the writer was a young falcon, perhaps rehearsing intellectually to become a ripe staff officer in his future career. Indeed, I imagine he'll become a mature officer long before he imagined he would. I was happily surprised to read a deep analysis that could have been produced by an air command and staff officer.

Please congratulate Cadet Hurley on my behalf. I enjoyed each paragraph and heartily agree with his core content.

Comodoro Jose C. D'Odorico, Retired  
Fuerza Aerea Argentina  
Buenos Aires, Argentina

### HOLES IN THE AIR CAMPAIGN

Last summer during in-processing at ACSC, when I picked up my copy of *The Air Campaign: Planning for Combat* by Col John A. Warden III, I was intrigued. It seemed like it might be a good little guide. Then I read it. I was sorely disappointed. I assumed ACSC had made it required reading during our Conventional Warfare Phase to ask the students, "What is missing from this picture?" Before I did my required analysis of the book, I read a few reviews including yours in the Fall 1989 *APJ*. I was stunned! Your reviewer called it "a blockbuster of a book, clearly written and intensely interesting." I wondered if we had read the same book. But then I found that other reviewers were equally laudatory. Nevertheless, I vehemently disagreed. The straw that broke the camel's back was two weeks ago when I got my copy of the 1990 Air University (AU) Suggested Professional Reading Guide. *The Air Campaign: Planning for Combat* is a new entry. In this case 50,000 Elvis fans can be wrong.

This book is dangerous. It is dangerous because it is so full of holes yet has been so well received by the military professional community. The book is dangerous because future leaders may read it and think they have somehow expanded their knowledge of how to plan an air campaign. It is dangerous because it may potentially lead planners into a false sense of security. They may feel that since they have checked off all the requirements of this poor analysis their jobs are done.

What's wrong with *The Air Campaign*? My primary complaint is that it is written from the overtly biased viewpoint of a fighter pilot who sees the planning for an air campaign through a "soda straw." Specifically:

1. Colonel Warden omits several Air Force missions that are absolutely essential to any air campaign. There is no mention of strategic bombing (unless we believe that's covered by his tactical mission of "distant interdiction"), a necessary tool at the operational level. There is not a word on airlift at either the strategic or tactical level. In fact, Colonel Warden's only mention of the logistics tail, in general, is the necessity to disrupt that of the enemy. As the review of *The Air Campaign* in the September 1989 issue of *Parameters* correctly points out, "Command and Control [C<sup>2</sup>] needs more attention." The brains, the hub of a theater air campaign, are covered in only a few paragraphs that read like an afterthought. The list goes on: no words on combat support or air base operability and survivability. Where is electronic combat? People who spend their lives in SEAD [suppression of enemy air defenses] and EW [electronic warfare] would be surprised to read that "the only really effective counter to an aircraft is another aircraft."

2. *The Air Campaign: Planning for Combat* flies in the face of current Air Force doctrine. Colonel Warden's thesis for quickly getting air supremacy rests on numerical superiority. But mass/economy of force does not necessarily equate to numbers advantage. We have spent 20 years building an Air Force that is technologically superior but numerically inferior. How does one plan an air campaign in which "numbers are so important that a primary goal of the operational commands ought to be to make sure his forces outnumber the enemy everytime they meet"? This may work in a small war but not conventionally. Colonel Warden never mentions low-intensity conflict, AirLand

Battle, follow-on forces attack, in which tactical air is the prime player), preferring to "avoid using terms that recently have come into vogue but are still too esoteric to be widely understood or useable ... such as forward line of own troops." Unbelievable! In 1978 I would have accepted that statement. In 1988? No way.

3. Colonel Warden's lessons from history are out of date and are often contradictory. Most analysts would agree that the air campaign of the future will not remotely resemble World War II, yet the majority of examples are taken from it. There is some treatment of the air war in Korea but almost nothing from Vietnam, which he calls "an anomalous war." I contend that that type of air war is likely in the future. Lessons from the Battle of Britain make up a large percentage of the book. But here Colonel Warden points out at least five contradicting examples as to what led to the British victory. I could have accepted his arguments except that not one of the five examples hits the mark. There are two generally accepted factors that allowed the RAF to prevail in 1940: Hitler, through Göring, poorly employed his Luftwaffe (failure of leadership); and the technological advantage the British had with radar allowed them to employ the principles of mass and maneuver. Colonel Warden didn't mention either of those two.

There is a dire need for someone in the Air Force to take the time to write a good book on how to plan the air campaign. Colonel Warden saw that need and made an excellent start. I commend him for that. But "start" is the key word. What is unconscionable, in my mind, is that *The Air Campaign: Planning for Combat*, so full of gaps, is being embraced as a masterpiece by people who should know better.

It's easy to criticize. And, since I'm no expert, I really don't like doing it. Could I do better? No, I could not. However, I think Colonel Warden can. *The Air Campaign* needs to be revised to be made more complete. To assess its major deficiencies across the spectrum of Air Force missions, I suggest that he ask ACSC for copies of better analyses of the book by the class of '91. His revised manuscript should go for critical review to CADRE and to the faculties of the various AU courses that teach air campaign planning. The Air Force needs a succinct guide for employing air power. *The Air Campaign: Planning for Combat* is a beginning.

Maj Richard W. Taylor, USAF  
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## net assessment

**The Limits of Air Power: The American Bombing of North Vietnam** by Mark Clodfelter, New York 10022: Free Press, 1989, 297 pages, \$22.95.

Having read a number of reviews of this well-researched book, I looked forward to reading it. I was not disappointed with the depth of the good, solid historical examination of the political and military events that led to the decisions on the use of air power in the Vietnam War. Having flown in the Rolling Thunder campaign (1966–67), I found it most interesting to read of the political interaction, indecision, and controversy on the missions my comrades and I flew. The book brings to light the reasons for our frustrations in not being able to attack enemy airfields and air defense sites. Had we known the reasons, I fear our frustrations would have been much more severe and our morale would have suffered greatly.

Once beyond my renewed disappointment with our elected and appointed leaders of that era, I looked to the central thesis of this book. In Mark Clodfelter's own words, "I am endeavoring to portray how the indelible stamp of Air Force strategic bombing doctrine affected the air war against the North, and how doctrinal convictions established long before Vietnam colored air commanders' perceptions of bombing effectiveness."

One would have to admit that restricting his thesis to that one conclusion presents a strong case that our air leaders' strong doctrinal convictions were faulty. But we can perhaps better understand their convictions if we go back in air power history just a few years, to a time when all of our forces were severely reduced after World War II and Korea and our national policy was one of massive nuclear retaliation by air power. The decade of the 1950s saw a national resolve to stay out of conventional conflicts overseas and to deter our enemies by threats of nuclear devastation. The next decade showed us the error of our ways when small, local conflicts demanded our attention and showed that our military forces were not prepared, trained, or equipped to fight in this different environment.

At this point, we see the modifications to our

air doctrine start to appear. Under the umbrella of strategic deterrence we began a restructuring of our forces to be able to fight in these smaller conflicts. New training concepts appeared and forces were equipped for a new mission. We saw the genesis of such specialized units as the Green Berets, the Riverine force, and the Jungle Jim Air Commandos. We developed a new acronym—COIN (counterinsurgency). Our military schools started teaching the subject but few professors were prepared to teach it. Our limited military experience in small conflict in the 1920s had been forgotten, overshadowed by the mighty endeavor of World War II.

Just as we entered World War II unprepared for the task ahead, so did we enter the Vietnam War. Air power had proven itself to be a critical element in the success of battles. Naturally air power was the only element that could be used against North Vietnam since the political decision was made that we would not try to conquer the North, just convince the North Vietnamese that they should stop supporting the Vietcong insurgency in the South.

Mark Clodfelter uses military and civilian consumption statistics to justify his thesis that the strategic view of air power espoused by Mitchell, Douhet, and later Arnold, Spaatz, and Eaker could not have had an impact on the North's will to continue to fight. The North just did not need as much in military supplies as larger forces need in a major conflict. Lacking in this thesis and assessment, however, is the effect the total destruction of all the infrastructure targets and the mining of harbors would have had early in the air campaign. Like the political leadership of the time, Clodfelter has expectations that such a strategic bombing campaign must have immediate, almost overnight, results when in fact that degree of expectation is unrealistic.

The original 96 targets recommended by the Joint Chiefs of Staff (JCS) for Rolling Thunder were admittedly infrastructure targets. However, all of the targets were never approved for attack. Had they been, one can only speculate whether the North would have come to the negotiating table earlier. They certainly did when a new administration's political objectives changed the course of the war and the



Linebacker campaign rained destruction on many of the very "infrastructure" targets recommended earlier by the JCS.

This reviewer can only hope that Mark Clodfelter will write another book, taking into consideration all of the restraints on land, sea, and air forces with a view to the future of armed conflict for our military forces. He has done us all a great favor with this book because he has stimulated thinking about our past and our opportunities for the future. He has graphically told the story of political indecision in the use of military force for limited objectives. I thank him for all of this and look forward to future books in his name.

Gen Charles L. Donnelly, Jr., USAF, Retired  
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**The Limits of Air Power: The American Bombing of North Vietnam** by Mark Clodfelter, New York 10022: Free Press, 1989, 297 pages, \$22.95.

I know you don't have much time for reading and you may be tired of hearing about Vietnam, but you just "gotta" read this book. It's about us today as much as it is about the guys who flew "downtown Hanoi."

Maj Mark Clodfelter has a PhD in history and teaches at the US Air Force Academy, but don't let that scare you off. He has an important message about how air power was misapplied in Vietnam. He also shows that things haven't changed much. You need to know that and why.

After Linebacker II, which "dropped 20,000 tons of bombs on Vietnam's heartland in eleven days," the previously uncooperative North Vietnamese went back to the bargaining table with such eagerness that less than a month later a peace agreement was signed. Lots of us "blue suiters" thump our chests and say, "See, we ended the war in a week and a half with strategic bombing and we could have done it back in 1969 or even 1965 just as easily."

Not so fast, Clodfelter says. Things were drastically different in 1972 than they had been earlier. President Lyndon Johnson felt he had to consciously limit air power to avoid direct Chinese or Soviet involvement with the potential for direct superpower confrontation and nuclear war. But by 1972, President Richard Nixon had received indications that neither the Chinese nor the Soviets would interfere if tar-

gets with real significance were struck in the North. The People's Republic of China and the Soviet Union had gone their separate ways and were now each independently looking for improved relations with the United States.

Just as important, the war had been in its early years an insurgency that required such a small amount of support from the North that even extreme levels of conventional bombing couldn't reduce the flow enough to hamper guerrilla operations. Actually, as Clodfelter indicates, the Vietcong received most of their support from indigenous sources in South Vietnam. But by 1972, especially with that year's Easter offensive, Hanoi was waging a conventional war requiring vast logistical resupply from "stockpiled goods and overland transportation" that was vulnerable to air attack.

Perhaps more important, Nixon's war goals in 1972 were quite different from Johnson's earlier objectives. Johnson's goal as specified in National Security Action Memorandum (NSAM) 288 in March 1964 had been "an independent non-Communist South Vietnam." By 1972 a war-weary United States only wanted "peace with honor," meaning that it would disengage but would "not abandon the South to an imminent Communist takeover."

The author contends that these changed circumstances set the stage for Linebacker II's effectiveness. Clodfelter says that "bombing 'worked' in 1972 because it was the proper instrument to apply, given Nixon's specific goals and the political and military situation that then existed."

The implication is that "strategic bombing" was not the right tool prior to 1972. How can that be? From the days of the Air Corps Tactical School through World War II, and even to this day, we have institutionally accepted the doctrine that air power could always win a war (any war, limited or unlimited) by striking the vital industrial centers of an enemy's heartland. After all, wasn't that the theory that led to the establishment of the US Air Force as an independent service in 1947? Perhaps the most important lesson to be learned from this book is that air power is a powerful tool but only when used properly. Just as you use a hammer to pound in nails rather than to saw boards, you must use air power to achieve objectives under circumstances appropriate to its capabilities and limitations. Clodfelter says it this way: "What I hope emerges from this book is a realization that conventional air power's effectiveness as a political instrument varies according to many diverse factors."

Yes, tactically we were very good in Vietnam. But as the author states, "In the final analysis, the supreme test of bombing's efficacy is its contribution to a nation's war aims." We've got to understand that air power has limits—limits in what it can do and limits in the conditions under which it can do it. Even the most cocksure fighter pilot knows the importance of staying within the limits of the jet's flight envelope. Stay within those parameters and amazing things can be done; stepping outside brings disaster. We need to know the strategic and political parameters for effective use of air power at least as well.

Because we are likely to fight future wars against enemies more like the Vietcong guerrillas than the Third Reich's panzers (or the Soviet Union's frontal armies for that matter), we must understand the limits of air power in limited wars so we can avoid what the author refers to as "the prospect of an aerial Verdun." You really "gotta" read this book!

Lt Col Richard B. Clark, USAF  
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**The Berlin Airlift** by Ann and John Tusa.  
New York 10022: Atheneum Press, 1988, 445 pages, \$24.95.

**Airbridge to Berlin: The Berlin Crisis of 1948, Its Origins and Aftermath** by D. M. Giangreco and Robert E. Griffin. Novato, California 94949: Presidio Press, 1988, 247 pages, \$14.95.

Anniversaries typically spark the reconsideration of historic events in all manner of popular ways, from reenactments to ceremonies to historical publications. The fortieth anniversary of the Berlin airlift in 1988 was no exception. Ann and John Tusa's *The Berlin Airlift* and D. M. Giangreco's and Robert E. Griffin's *Airbridge to Berlin* are only two of the many publications about the episode appearing as a result of the anniversary. These studies note that the Berlin blockade represented a titanic struggle between two blocs of nations with divergent ideologies that nearly plunged the world into another major war. More important, however, each work concentrates on the intensely human experience of the crisis, describing the problems and successes of the personalities involved. Both books create vivid images in words and pictures of the crisis for a largely popular audience.

The blockade of Berlin marked the first direct confrontation between the West and the Soviet Union in the post-World War II era. The United States, France, and the United Kingdom responded to the Soviet siege with an ingenious means of maintaining the allied presence in a city cut off from the rest of Western Europe without provoking combat. American and British fliers operated a complex shuttle service between West Germany and Berlin for some fifteen months between June 1948 and September 1949, hauling more than 2.3 million tons of supplies to the better than 2 million inhabitants of Berlin. This sustenance allowed the Western allies to maintain their presence and influence in the city, if only by their fingernails, while diplomats worked on a settlement.

Ann and John Tusa's book especially presents the events of the Berlin blockade and airlift as an epic struggle between nations. Written from a decidedly British viewpoint—John Tusa is a journalist with the British Broadcasting Corporation—*The Berlin Airlift* contains a rousing story of individual heroism and high drama. It reads like a classic western, with good guys (the Western allies) and bad guys (the Soviets and East Germans) and anecdotes about how these two forces clashed. Like any good western, the ending was predictable as the Americans and their allies ultimately defeated the Soviets.

*The Berlin Airlift* will be of more interest to nonspecialist readers than to students of Berlin airlift historiography, although those knowledgeable about many aspects of the crisis will still benefit from the Tusas' descriptions of the British contributions to the airlift. The authors thoroughly researched British records and analyzed that aspect of the story, a particular area that has been slighted in previous studies of the crisis, and they present their findings better and with more verve than any earlier work. The position of the British government in the crisis; the development, organization, and operation of the British task force flying airlift missions; and the British role in negotiating the lifting of the blockade are well documented in *The Berlin Airlift*.

There are, however, several fatal flaws that make *The Berlin Airlift* as reported by Ann and John Tusa less useful than I would have liked. First, the authors devote more than 150 out of a total of 379 pages of text to the actual blockade of Berlin. While this prefatory material deals with the Berlin question and general relations between the two power blocs that confronted each other at Berlin in 1948–49, it seems exces-

sive when measured against the size of the whole book. I would have anticipated a more expeditious handling of earlier foreign relations and a greater emphasis on the airlift itself.

Second, no clear picture of the American side of the airlift can be gained from reading the Tusas' book. The organization of the 1st Berlin Airlift Task Force, which managed the American effort, receives short shrift, as does the unique operational approach developed to order airlift flow. There is almost nothing about Maj Gen William H. Tunner, the American commander who more than anyone understood the possibilities and especially the limitations of airlift and who organized the operation for the success it achieved during the winter of 1948-49. Brig Gen Joseph Smith, who initially commanded the Airlift Task Force and oversaw the early success of the operation, is not even mentioned. The Tusas offer no sophisticated discussion of the pattern of operations, the nature of logistics and maintenance, command and control, force structure, and C-54 acquisition from outside of Europe to augment the airlift fleet. From an operational perspective, this book's discussion of the American airlift effort is at best superficial. Indeed, the book should have been retitled to indicate that it dealt largely with the British aspects of the airlift.

Finally, the book has a scholarly apparatus that proves next to useless. A mere five pages of bibliography, omitting some of the most interesting and useful works on the subject, were used as the basic references for the book. Even worse, the chapter notes are especially confusing because they have no page numbers for any published sources. Since the majority of the references are for published works, this shortcoming is particularly troublesome. No one will be able to reconstruct the thought processes of the authors as they review the text, and I must ask, Was that the intent in omitting them? To the credit of the Tusas, however, they have mined the Public Records Office in the United Kingdom and have, as their chapter notes demonstrate, offered several new insights relative to British participation in the airlift based on these records.

I found *Airbridge to Berlin* an entirely different type of book and ultimately one that is more satisfactory. Designed exclusively as popular history, it still provides a valuable reinterpretation of the event. Authors Giangreco and Griffin have succeeded admirably in presenting a graphic depiction of the airlift, this time from a decidedly American perspective. They relate the diplomatic history necessary to

understand the origins of the Berlin crisis of 1948-49 but do not dwell on it, as did the Tusas. Instead, their narrative concentrates on a description of the events of the airlift itself, the diplomatic story of its resolution, and a brief history of the city since 1949. They assert that no other city has been the center of East/West controversy as has Berlin in the post-World War II period. The blockade and airlift, Giangreco and Griffin suggest, was only one of several crises involving the city, and these confrontations will not abate until the unique situation of a divided Berlin is resolved.

The most important contribution of *Airbridge to Berlin*, however, is the more than 300 black-and-white photographs that illustrate the volume. Many have never been published before, and they depict well the trials and hopes of the people of Berlin during the blockade. The photographs put an entirely new face on the events of the Berlin airlift and are alone worth the price of the volume.

Both *The Berlin Airlift* and *Airbridge to Berlin* have their strengths and weaknesses, as do all publications. Neither, of course, will replace W. Phillips Davison's *The Berlin Blockade: A Study in Cold War Politics* (1958) and especially Avi Shlaim's *The United States and the Berlin Blockade, 1948-1949: A Study in Crisis Decision-Making* (1983), both outstanding analyses of this foreign policy crisis. But these new books package the basic story in a readable format that will be useful to a general readership. As such, in spite of weaknesses most notable in the work of the Tusas, these two new books should find an audience among individuals interested in the history of airlift. Most important, the events discussed in both *The Berlin Airlift* and *Airbridge to Berlin* demonstrate how military airlift can assist foreign policy execution. The experience revealed the unique capabilities of air transport in a non-combat environment. Since then military airlift, which was proven to be a viable option in the Berlin crisis, has been used with increasing frequency.

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**Assignment Pentagon: The Insider's Guide to the Potomac Puzzle Palace** by Maj Gen Perry M. Smith, USAF, Retired. McLean, Virginia 22102: Pergamon-Brassey's International De-

fense Publishers, Inc., 1989, 288 pages, \$25.00.

General Smith's *Assignment Pentagon* provides an informative, nostalgic primer on duty in the most powerful building in America. Having served five years there, I found myself reliving some of the unforgettable experiences associated with the tour. For those who aspire to duty in the "Gon," the book should be read, highlighted, paper clipped, and earmarked like your favorite novel. But it is not fiction; it is simply the best truth you'll ever read about the Pentagon. It doesn't dig up the dirt, so don't expect a lot of juicy stories. What it does do is open the door to every level of service—from the GS-1 clerk typist to the secretary of defense. Like General Smith's tremendous guide to effective leadership, *Taking Charge*, this book is loaded with anecdotes, management and leadership principles, and get-ahead techniques that can be applied effectively to private as well as public service. Just substitute "IBM" or "General Dynamics" or even "First National Bank" for the word Pentagon, and you can bet that the guidance will be right on target.

The mystique of the Pentagon touches virtually everyone who has not served there. From a glimpse of the River Entrance on nightly news to headline stories about defense spending abuses, the media tantalizes the public with visions (and myths) of what goes on around the E Ring and in the bowels of the (rat-infested?) basement. *Assignment Pentagon* pulls the curtains and shows what life in the "city" is really like. And it is a city! Banks, restaurants, subways, megabuck businesses—it's all there. General Smith covers the present-day realities of both the physical plant and of doing business in the Pentagon, and he concludes with his view of what the Pentagon of the 1990s will be like. In between, he has left us with two dozen chapters that will amaze, educate, and greatly entertain those who want to know more about the military "head shed." I would like to single out a few chapters that I found especially enjoyable—and informative.

Chapter 3, "Rules of Thumb: Helpful Hints on How to Get Ready to Work, Survive, and Thrive," is a checklist for adjusting to the building and for working with its people. General Smith comments on commonsense areas that are important everywhere but critical in the Pentagon: "Be sure of your facts. Don't waste time reinventing the wheel. When you promise, deliver. Know when to say no." He also addresses some frequently "untouched" is-

sues: "Avoid being a sycophant. Curb your personal desire for self-aggrandizement and power. Be prepared to be fired."

Chapter 6, "Where Were You When the Page Was Blank?: the Agony and Ecstasy of the Action Officer," is the "gospel" according to Smith—but it was never said better. Every future "iron major" and action officer (AO) should take heed because the guidance here comes from a former "big boss" who has seen the best and worst. When he says, "Don't fall in love with your program or don't assume you are wiser than the big bosses," listen up!

The O-6s and GS-15s who run the branches and divisions are sometimes forgotten because of the "legwork" of the AOs, but in chapter 7, "The Branch and Division Chief: A Forgotten Breed," General Smith singles them out as key leaders with a critical role in the policy-making process and in the future careers of their subordinates. His comments would benefit those in and destined for these important jobs.

Forget what you've heard in the past about duty in JCS. In chapter 11, *The Joint Staff*, General Smith gives us the latest, and it's good news. He covers the uniqueness of joint duty from promotion potential to survival skills. Good stuff for any "purple suiter"!

Chapter 25, "Military Ethics in the Pentagon," is a short chapter that sums up the secret to maintaining one's integrity while muddling through the political and bureaucratic quagmire that envelops legislative and budgetary dealings between the Pentagon and the Congress: don't lie!

*Assignment Pentagon* also deals with family life in the Washington area. General Smith covers house hunting, sightseeing, job opportunities for spouses, educational opportunities, and much, much more. It is the complete guide to a Pentagon tour. Those of us who have served there would have benefited greatly from its wisdom. Those of you expecting to serve there must read it. It is a scholarly, easy-to-read book written by a great leader who was totally "in touch" with his profession—and its people.

Lt Col Ben C. Pittman, USAF  
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**Hoyt S. Vandenberg: *The Life of a General*** by Phillip S. Meilinger. Bloomington, Indiana 47405: Indiana University Press, 1989, 279 pages, \$27.50.

There are few people as enshrouded in mystery as Hoyt Vandenberg, the Air Force chief of staff from 1948 until shortly before his death in 1953. Few men played as pivotal a role in the formation of the USAF, running of the Berlin blockade, delineation of nuclear defense policy, establishment of the CIA, prosecution of the air war over Korea, and other historical developments. Colonel Meilinger of the history department at the US Air Force Academy has attempted to shine a light on the general's life and in doing so to illumine his times. His work covers a period and subject matter badly in need of detailed study, while at the same time it curiously leaves one even more aware of the fact that we still do not know the man.

The book chronicles the general's life, from his youth in Lowell, Massachusetts, through his undistinguished years at West Point to his tenure between the world wars as a pursuit pilot, climaxing with his notably diverse career as a general officer. We are given testimony by old friends, family, acquaintances, and colleagues in order to understand this shadowy man remembered for little other than his handsome visage. The period of his life as fighter pilot is particularly instructive in showing a basic variance from the strategic bomber club that generated most of the early Air Force's seminal thinkers. While he eventually became a member of the club, his earlier experiences tended to give him a more balanced perspective concerning the capabilities of air power.

The majority of the work is spent describing his tenure as Air Force chief of staff. The book effectively focuses needed attention on the period between the end of the Second World War and the advent of the Korean War. Vandenberg's critical role in the origin of the USAF and its ascent as a preferred tool of national policy in the wake of Hiroshima and Nagasaki becomes apparent to the reader as Meilinger mines the general's correspondence, official records, congressional transcripts, and other primary sources. The book also achieves its greatest success in this regard. The author's work is laudable in all but one respect.

Despite having written a successful and valuable book, the author still fails to get closer to the man, his motivations, flaws, and complexities. This discrepancy is exacerbated by Meilinger's unwillingness to criticize Vandenberg. Criticisms that are addressed are briefly discussed and usually summarily dismissed. This literary quarantine serves to present Vandenberg in two-dimensional rather than three-dimensional light. It must be added, however,

that none of this eliminates the value of an important work that resurrects a critical but oft-forgotten age and displays it to us in all of its fearsome vibrancy. The fact is, however, that *Hoyt S. Vandenberg: The Life of a General* is less about the man's life than his times.

The book is well written and incorporates an impressive number of primary and secondary sources. It makes interesting and highly informative reading. I commend the book to all Air Force officers who should know where they came from and why.

Maj Bill Nikides, USAF  
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**A Country Made by War: From the Revolution to Vietnam—The Story of America's Rise to Power** by Geoffrey Perret. New York 10022: Random House, 1989. 629 pages, \$22.50.

Every military officer needs to have a basic and dependable military history of the United States in his or her professional library. The problem is to separate the many facile popular histories from the more serious general studies and then to make a reasonable choice among the various titles that have been offered over the last few years.

A good general history must show respect for its subject, be reasonably complete, and articulate enough to be actually read. Not being a seminal academic treatise, it should at least be intellectually respectable, the author showing as much familiarity with the military classics as with the numerous popular secondary sources on the topic. Most important, the author must have something to contribute, some thought-out viewpoints that are beyond the common interpretations. A book like this is useful, not for the abstruse or practical military questions that it resolves but for the ones that it raises.

By these standards, Geoffrey Perret's book is a good choice. Perret is not a military historian, but a professional writer with leanings toward history; his earlier *Days of Sadness, Years of Triumph: The American People, 1939-1945* was a well-received account of life on the American home front during World War II. In his newest book, he has done his research homework, and his writing skills stand him in good stead. *A Country Made by War* features a fast-moving narrative that is detailed enough to furnish a thoughtful overview of the nation's military experiences from the first days of com-

bat in the Revolution until the American evacuation of Vietnam. Perret's text is fluent without being glib, and his battle scenes are vigorous. At the same time he is no mere storyteller but writes best in the strategic sense, relating one battle and campaign to another and showing both within the sociomilitary context of the times.

Throughout the book, Perret finds numerous opportunities to present his pet themes. Most of these are orthodox themes, but he maintains them with fresh-faced vigor: the American tradition of relying on a small professional cadre to be fleshed out by a large citizen militia in wartime is valid and effective; firepower and scientific weaponry can solve most ills; an educated military is a successful military. He is unusual in his insistence that the United States has not been as ill-prepared for most of its wars as tradition holds, and he maintains a healthy skepticism of the current trend of management versus leadership. Lively interpretations of people and events are scattered throughout the text, and the capsule sketches of numerous personalities are vivid and accurate. If there is no room in this book for leisured and meticulous examination of new ideas, at least there are frequent provocative insights that the professional reader must deal with.

Perret's book is more serious than Robert Leckie's popular *The Wars of America* (Harper & Row, 1968) or Allan R. Millett and Peter Maslowski's *For the Common Defense: A Military History of the United States 1607-1983* (Macmillan, 1984), both of which stress battlefield action and are found in most libraries.

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**Claws of the Bear: The History of the Red Army from the Revolution to the Present** by Brian Moynahan. Boston 02108: Houghton Mifflin Company, 1989, 468 pages, \$24.95.

Despite the ambitious claim of its title as a history of the Red Army, *Claws of the Bear* is nothing more than a journalistic account of events in Soviet history. The book suffers from a series of major flaws that seriously detract from any inherent value that this book may have.

First, either through careless editing, which is amply evident throughout the book, or through hurried writing, many dates given for major historical events are wrong. For example, on page six Moynahan states that on 7 Novem-

ber 1917 Leon Trotsky proclaimed the provisional government as having fallen, which is correct, but he then footnotes the date as 26 October 1917 by the old Russian calendar, which is wrong; the date was 25 October. On page 327, in speaking of the apolitical nature of Russian military tradition, he says that one exception was the "unsuccessful Decembrist revolt in 1820...." The actual date was 1825. A more glaring and obnoxious example occurs on page 118 when the author in discussing the Battle of Moscow in December 1941 notes that "on 8 December Japan attacked the United States"! I found myself unwittingly pouring over my Russian history books to verify that I had not become senile since leaving school. If errors are made on major dates, how can one trust the information on lesser-known historical episodes as told by the author?

A second major flaw in the book is a series of gross misstatements of fact for which the author must bear direct responsibility, either through ignorance or lack of clarity. On page xiv, in speaking of Soviet geography and its implications for Soviet naval strategy, Moynahan states that "the Barents and Murmansk Seas never freeze." Not in any book or map, whether Soviet or Western, was I able to find the Murmansk Sea. I presume that the author was talking about the Belye More (White Sea). Another example is found on page 119. When speaking of the fighting in World War II, he says "the Russian refusal to sign the Geneva Convention had a powerful effect on the Germans." Indeed, it would have been hard for the Russians to have signed the Geneva Convention of 1949 in early 1942! It is this reviewer's opinion that the author is not referring to the 1864 Geneva agreement on the care of the wounded, or prisoners of war, under the auspices of the Red Cross. The author does not specify this, and the 1864 Geneva agreement was just that—an agreement, not a convention. Regardless, the Russian government was one of the signatories of the agreement, and the Soviet government did sign the Geneva Convention. Another example occurs on page 294 when Moynahan discusses the world's response to the Soviet invasion of Czechoslovakia in 1968 and says, "There was blanket condemnation ... from the West and from the Chinese, Rumanian, Yugoslav and Albanian Communist parties. The Chinese voted against the Russians in the UN Security Council." This is true except that it was the Republic of China (Taiwan) that voted against the Soviets and not the People's Republic of China (PRC) as the paragraph

quoted might lead us to believe. The PRC did not take its place in the United Nations until 25 October 1971.

A third major flaw of the book is structural. There are footnotes for items that are not of any consequence, and there are no footnotes when citing various statistics. For example, on page 29 Moynahan informs us that Leon Trotsky, the father of the Red Army, while escaping from Siberian exile in 1902 read Homer's hexameters on his westward journey. Moynahan then footnotes this to tell us not the source but that Trotsky was reading a Russian translation of Homer, whereas former British Prime Minister Harold Macmillan read Petrarch in the trenches in World War I in its Greek original. On the other hand, in a chapter titled "Die in Kiev," Moynahan refers to the German dependency on horse-drawn transport by stating on page 100 that "the Germans used 2.5 million horses on the Russian front, relying on them more and more as their ragtag collection of trucks wore out. One artillery regiment, for example, had 69 different types of lorry, many of them captured in France and the Low Countries." There is no footnote citing the source of this statement. Nor is there a footnote citing sources for the statement that "General Pavlov's Western Army Group fell into the first of two gigantic German encirclements. At Bialystok, the Germans captured 150,000 prisoners, 1,200 tanks and 600 guns. In the Minsk pocket, the Russians lost 287,704 men as POWs, 2,585 tanks and 1,400 guns." The rest of the book follows the same erratic pattern in the use of footnotes. The source material used is also somewhat sparse and in some cases of doubtful value for the topic addressed. An example of this is a chapter on Joseph Stalin's biography and rise to power; its title: "The Steel Monster." The author uses only three sources for his sweeping assessment of "Stalin, the boy from the Georgian seminary" who would for "the coming quarter century ... dominate the Red Army."

Last, a fourth major flaw and perhaps the most serious is that the book is not really a history of the Red Army but rather a series of episodes in modern Soviet history that are in some cases totally irrelevant to the subject. A chapter titled "A Lunch at the Lubianka," referring to the infamous KGB prison in central Moscow, is really an account of the Communist takeovers in Eastern Europe. However, these episodes are not told from the point of view of the Soviet army, or even the Soviet Union itself, but rather from the point of view of the indigenous Communists themselves and their opponents. The

Eastern European uprisings of 1953 in Berlin and of 1956 in Hungary again are told from the point of view of the German and Hungarian participants primarily, and no account or analysis is given of their impact on the Soviet armed forces. For the most part, that is the major problem throughout the book. The book is not a history of the Soviet armed forces but rather accounts told primarily by outside or incidental observers of events in which the Soviet armed forces participated.

The book is not, however, totally devoid of good points. It is easily readable and entertaining (I do not mean that pejoratively) because the author does convey the "feel" of events. His description of the fighting at Stalingrad and Kursk, from an individual soldier's point of view (mostly German), is quite good and one really gets an idea of what it must have been like. Also, the Soviet search for the atomic bomb, Project Borodino, is better detailed and documented vis-à-vis other parts of the book. There follows a well-written and again better-documented chapter titled "Nikita: The Rocket Man," which describes Nikita Khrushchev's efforts in developing the Soviets' missile capabilities.

The good points of the book in no way can compensate for its major material and structural flaws, some of which were addressed in this review. The publisher of the book did not properly edit the book, as evidenced by the map on pages 120-21 depicting Soviet forces presently operating outside Soviet borders while the text is describing the Russian counterattack at Moscow in 1941-42; the title of the chapter is "I Want a Child, Soon." Of course this is cleared up later on pages 330-31 where, in the discussion of "Red Elite," there is a map depicting the major offensive operations of the Soviet armed forces, 1941-45—the vagaries of book publishing, I presume. More grievous, the author attempted to write a book on a subject for which he is ill-prepared to write about, namely the history of the Soviet armed forces. For a better treatment of the subject I recommend *Soviet Military Thought Series* no. 19, "Soviet Armed Forces: A History of Their Organizational Development," translated under the auspices of the Air Force Intelligence Service, or *The Armed Forces of the USSR*, by Harriet Fast Scott and William F. Scott. As for *Claws of the Bear*, at \$24.95, its military contribution to the study of the Soviet armed forces is nil. A resounding nyet on this one.

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**Technology and War** by Martin Van Creveld. New York 10022: Free Press, 1989, 342 pages, \$22.95.

Van Creveld has produced yet another marvelous volume concerning often-misunderstood aspects of warfare. The present volume rests on the simple premise that war "is completely permeated by technology and governed by it." (p. 1) Certainly this is not a startlingly new thought. However, the author expands the traditional horizon for investigation far beyond the well-known military "gadgets" and includes the often-overlooked impact of "civilian" technologies.

Arranging his book in broad developmental "eras" ("the age of tools," "the age of machines," "the rise of technological systems," etc.), Van Creveld has synthesized a challenging interpretation of military history from an impressively broad array of sources. For the most part, his treatment is masterful, providing valuable insights as to how diverse strains of technological development came together to produce important, and sometimes surprising, military results.

Of particular interest is the chapter in the modern era entitled "The Invention of Invention." Van Creveld points out that "a transition took place from a situation in which inventions were ... exceptional ... accidental and unexpected, to one in which technological change ... became the normal state of affairs." As a result, the author continues, "war itself became an exercise in managing the future." (p. 218) In a later chapter entitled "Integrated War," Van Creveld comes to the startling conclusion (supported by historical example and solid logic) that "the effectiveness of a new weapon ... may be due to the fact that ... it has not yet been integrated with all others." Further, he points out that "there exists a point beyond which integration ... will lead to diminishing returns." (p. 281)

Airmen will be disappointed by Van Creveld's cursory and uninspired treatment of air power, particularly when compared with the quality of the rest of the volume. One is left with the strong impression that he has not studied air power to the extent and depth that he has studied land power and sea power. In this shortcoming, he is far from alone among civilian scholars of military affairs.

Such disappointment will be short lived, however, and more than offset by his brilliant concluding chapter, "The Logic of Technology and of War," which should be required reading for every military officer. It is here that Van

Creveld points out with devastating clarity (are you listening, Mr McNamara?) that "nothing is less conducive to victory in war than to wage it on technological principles—an approach which, in the name of operations research, systems analysis, or cost/benefit calculation ... treats war merely as an extension of technology." (p. 319) Van Creveld has earlier made the point that "when the chips are down, there is no rational calculation in the world capable of causing the individual to lay down his life. On both the individual and collective levels, war is therefore primarily an affair of the heart." (p. 314)

In sum, it is a book jam-packed with important insights on military affairs—highly recommended.

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**Unguided Missiles: How America Buys Its Weapons** by Fen Osler Hampson. New York 10110: W. W. Norton and Company, 1989, 370 pages, \$19.95.

The recent scolding Defense Secretary Richard Cheney gave to Gen Larry D. Welch, Air Force chief of staff, for negotiating a strategic missile deal with Congress reminds us that the theme of Hampson's book is as current as today's news. Hampson, a Canadian academic, has spent several years at Harvard's John F. Kennedy School of Government participating in the Avoiding Nuclear War Project. Like many critics, he identifies recurring inefficiencies in weapon system development time (too long), cost growth (too high), and program changes (too numerous). He has added a powerful critique of executive collusion and congressional micromanagement, which he claims causes these problems.

The book is organized into two parts. The first part is made up of three chapters giving a general analysis of the weapon acquisition cycle, how the Pentagon pieces together the defense budget, and the process by which Congress produces the defense authorization and appropriations acts. The second part examines six case studies of specific weapon programs, including the Trident submarine and missile, MX and Midgetman, the B-1 bomber, the air-launched cruise missile, the M1 tank (written by Nicholas Swales), and the Strategic Defense Initiative (SDI). Rather than an original study, this work is best understood as a synthesis of the secondary literature on defense acquisition.



It relies heavily on extensive quotations from Gordon Adams, Ronald Fox, James Fallows, Alexander Kossiakoff, Arnold Kanter, Jacques Gansler, and others.

At the heart of Hampson's study is a discussion of the role of America's political institutions in distorting efficient weapon system acquisition. Hampson sees this effect as deeply rooted in the structure of American political authority. When the founders assigned the central government authority over the formation, direction, and support of military forces, they intended the system of checks and balances between executive and legislative branches to guarantee that military preparedness would be "supremely political and controversial." If I understand him rightly, the legislature was a bulwark against excessive military procurement.

The author argues that this constitutional vision has gone wrong because the system of checks and balances has given way to excessive collusion between the executive and legislative branches. Cooperation and consensus-building among and between the military services in the formation of their budget and between the Pentagon and Congress in the budget process have produced a situation where trade-offs and basic resource allocation questions are ignored and "political and bureaucratic accommodation takes precedence over administrative and economic efficiency." He sees in the situation a dangerous loss of political accountability.

Because compromises tend to water down priorities and spread scarce resources too widely among competing programs, Hampson recommends turning the budget process into a "zero-sum game." He would like to see a greater adversarial relationship within the executive between the Pentagon and the Office of Management and Budget, although he does not explain how this might be implemented. Whether his bite-the-bullet approach would have the effect he intends remains problematic. It might intensify the struggle for resources always below the surface of the politics of weapon acquisition. It may be the collusion he fears was temporal, a product of the Reagan era defense-spending binge. Will collusion persist in the austerity of the Bush years?

The author has ample criticism for Congress. Some of his most interesting evidence points up the secular trend toward congressional oversight of defense issues. He wants reforms to curb the intrusiveness of the legislature through multiyear budgeting, although he recognizes the potential loss of flexibility this might impose on the services. He also calls for a reduc-

tion in the incrementalism creeping into the budget-making process. Much of his thinking here echoes the Packard Commission. If congressional behavior over the last 20 years is any indication, one can expect to see Congress continue to jealously guard its prerogatives.

Hampson is better at seeing the big picture than at telling the story of the individual weapon systems. The Trident story, for example, left me confused about basic funding and milestone decisions. Similarly, the SDI discussion, which is the longest chapter, had an undigested quality, reading like so many chronological entries. While the MX discussion is particularly adroit, the author is not particularly effective in relating his case studies to his more general thesis and recommendations. Neither collusion nor congressional micro-management was an obstacle in every case. Because he focuses on political controversy, he has little to say about problems with the Pentagon's management of particular programs, which may be a fruitful means of reform. These criticisms aside, anyone interested in how the republic goes about the politics of arming itself should read this book.

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**The Masks of War: American Military Styles in Strategy and Analysis** by Carl H. Builder. Baltimore, Maryland 21211: Johns Hopkins University Press, 1989. 240 pages. \$10.95.

*The Masks of War* is a fairly short work that on the surface seems to have a conclusion seeking facts to support that conclusion instead of the reverse. The overuse of the book's title throughout the chapters gives the appearance of a high school paper in which repetition alone is used to make the point.

However, beyond the amateurish way of building the book around its title, this study by Carl H. Builder (sponsored by the Rand Corporation) is a well-organized, well-documented, and very readable effort that can be used by its readers to understand why military leaders function in the manner they do. This book should be mandatory reading for every officer assigned to the Pentagon or other joint-service activity that requires frequent contact with members from other services. When members from different services debate topics, it is extremely useful to know what the other service

members' background, environment, and purpose revolve around.

As an Air Force member, I can only relate the truth of what is in this book to how the author portrays the Air Force. His research into the focus and institutional concerns of the senior and middle leadership of the Air Force is quite often on the mark and almost never off base. Therefore, I must presuppose that he is as accurate in his portrayal of the Army and Navy as he is of the Air Force. The Marines and Coast Guard are not part of his analysis.

The author divides his work into five basic sections—"Personalities," "Strategy," "Analysis," "Implications," and "Prospects"—and he evaluates the services in terms of each of these. The first section is probably the most illuminating. Much of the remainder of the book revolves around his determination of the "altars of worship," or the *raison d'être* of the services.

The Navy's altar is that of tradition, dating back to its British origins. As the only service with its own army, navy, and air force, the Navy has an independence the other services can only envy. At times, the Navy acts as if its interests are superior to the interests of the nation because the Navy will always be there.

The Air Force's altar is that of technology. Builder paints the officer corps (particularly the pilot force) as a loose-knit organization of independent operators held together by a love of flying and expensive toys. Current losses in the pilot force to the airlines can be traced directly to this love of flying over service to the nation. The toys that the Air Force loves most are those that require a person to fly them. Rockets, missiles, drones of all kinds are forever secondary to an air-breathing flying machine.

The Army's altar is that of service to the nation. While that sounds very good, Builder indicates that the Army unfortunately forgoes what may be best for the Army or best for the nation in order to be "the nation's obedient and loyal military servant." Whether it is building the Panama Canal, running the Civilian Conservation Corps, quelling riots, or actually fighting battles against a foreign enemy, the Army does the nation's bidding. The Army is at more of a disadvantage because of its dependence on the other services to accomplish its mission. It needs the Navy for sea lift and the Air Force for both airlift and close air support. Without the other services, the Army cannot hope to function well in a shooting war.

The "Strategy" section attempts to define strategy and then to determine what the ser-

vices' basic strategies are. The limited, original thoughts by Builder require a great deal of quoted material. Air Force strategy revolves around "command of the air" and the assumption that independent air power can be decisive in battle. Navy strategy has had to be revamped in this century. The Navy used to build its strategy based on its being "America's first line of defense." However, with the advent of air power, nuclear weapons, and missiles, the Navy's claim on the defense of the nation has lost credence. Since the 1950s, the limited navy of the Soviet Union has led to the American Navy not having a viable enemy to defend against. Hence, the Navy's strategy now revolves around deterrence and its own nuclear force. The Army does not profess strategy but offers the AirLand Battle doctrine because the soldier supposedly thinks in terms of theaters or battles and not the world.

The "Analysis" section defines and then shows analyses of operations, systems, and requirements. A short discussion of the services' attitudes toward analysis is summed up by a potentially classic fictional analysis of toilet paper requirements.

The most disturbing section is the "Implications" section. The different attitudes of the services as they conceive and plan for conflict is revealing. The Navy desires to defeat the Soviet Union in a conventional war at sea. The Air Force has its bomber pilots and fighter pilots fighting each other to divide up scarce resources to fight both an intercontinental nuclear war with bombers and a European conventional war with fighters. Airlift forces and missileers are scarcely mentioned and are not considered critical to the institutional Air Force. The Army conceives of a ground war in Germany that it cannot win, will probably lose, and will hopefully create a standoff condition. The Army lives under the shroud of "another Vietnam" and is fearful of another wartime defeat. The budgetary side of planning is then discussed with the services' interests being the determining factors and not the best interests of the nation at large. Even the Army, with its potential major benefits from "joint planning," is unwilling to aggressively pursue jointness in monetary matters for fear of rocking a shaky camaraderie boat with the Navy and Air Force.

The final section, "Prospects," deals with the services' attempts to define themselves in the nuclear era. None of the services likes the changes in its system that these weapons have wrought. The Strategic Defense Initiative is the next unpopular big-budget item that must be

borne by one or more of the services at the expense of those things most cherished by the institution of the individual service. Star Wars cannot be flown by a human, cannot defeat the Soviet navy at sea, and is not part of the historic Army's main branches of artillery, armor, and infantry, which balance the Army's outlook to the nation's defense.

In summation, *The Masks of War* is an excellent how-government-operates-in-the-long-term book. It is rather easy reading, although certainly not juvenile in its approach. It is not about a particular administration or even a period of time, but about how the long-term leaders of the institutional services have their dreams, ideas, and visions created and molded.

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**A Flying Tiger's Diary** by Maj Gen Charles R. Bond, Jr., USAF, Retired, and Terry H. Anderson. College Station, Texas 77843: Texas A&M University Press, 1989. 248 pages, \$12.95.

General Bond's story of the American Volunteer Group (AVG), more commonly known as the Flying Tigers, is an eyewitness, first-hand, comprehensive account of the men who attempted to stem the advance of the Japanese in the early part of World War II.

Unlike other books about the same subject, Bond utilizes his private diary as the basis for his story. The readers are introduced to the AVG as the author departs San Francisco on his way to China. From this beginning, they are treated to the excitement of crossing the Pacific and arriving in a strange country halfway around the world to fight a war.

Intermixed with the excitement of air-to-air combat are private thoughts about the organization, the difficulty of living in less than ideal surroundings, waiting for an enemy who may or may not come, the problems of obtaining and maintaining enough aircraft to effectively accomplish all assigned missions, and dealing with life and death.

In a gut-level manner, Bond tells his story to the reader in the I-was-there manner. The reader is told in a candid, frank way how the life of an AVG member was far from being as glamorous as it has been previously depicted.

Rather, much of the daily life of an AVG member was filled with paperwork, disease, and just plain boredom.

Through the use of personal and candid diary entries, the readers soon begin to feel as if they are engaged in a direct conversation with the author. They find themselves being drawn into the cockpit, the hospitals, clubs, and hostels as each day brings something different.

Bond shares his innermost feelings with his readers. He suffers doubt ("Have I done the right thing by joining the AVG?"); fear ("Suddenly I became terrified. Those dirty bastards will strafe me like they did Henry Gilbert at Rangoon"); and loneliness ("Going to bed early tonight and thinking a lot of Doris").

*A Flying Tiger's Diary* is an excellent first-hand factual account of what it was really like to be a fighter pilot in the organization known as the "Scourge of the Japanese." General Bond has succeeded in telling his story in a most personal and accurate way. While not filled with page after page of highly thrilling descriptions of aerial combat, the book is a complete, concise overview of the good and bad times of a Flying Tiger. I would highly recommend this book as a companion to others written about the AVG. It's an accurate account of one of the more prominent groups of warriors in modern times. Through General Bond's diary, one can gain a true insight into the individuals who made up the AVG. Overall, it was truly refreshing to find an author who was willing to tell his story, good or bad, as it actually happened.

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**The Fight for the "Malvinas": The Argentine Forces in the Falklands War** by Martin Middlebrook. New York 10010: Viking Press, 1989. 321 pages, \$24.95.

Numerous books and a plethora of articles have been written on the Malvinas/Falklands War. The present work is of special interest in that Martin Middlebrook, a British writer, gained his information on the Argentine scene from participants in the conflict. The author has the enviable distinction of being the first British military historian to receive an Argentine visa since the war. Middlebrook conducted interviews with army and navy personnel but the air force refused to cooperate. Coverage of air operations was obtained, however, from written accounts by combat pilots that were

made available to the author by an Argentine air force officer. Interviews were also held with naval pilots.

Martin Middlebrook has impressive credentials that lend sound credibility to this work. He is a fellow of the Royal Historical Society. His previous book on the Malvinas/Falklands War, *Operation Corporate: The Falklands War* (later published in paperback as *Task Force*), was based on visits to island battlefields and on interviews with the British military as well as with the local inhabitants (Kelpers). Middlebrook also has a series of nine books to his credit that cover decisive aspects of World Wars I and II, including *The Bomber Command War Diaries*. He also shares his expertise in military history with sightseers at European battlefields, where he acts as tour guide.

In the present book under review, the author provides the reader a most interesting, readable, and informative account of a war that should not have occurred. He cites Argentine noncompliance and frustration with British regulations coupled with suspicions and overreactions on the part of the British in the South Georgia crisis as sparks that set off the conflagration. A national plan had been in the making by the Argentine junta to recover the Malvinas before January 1983—the sesquicentennial of the British takeover of the Falklands. The South Georgia crisis upset the national plan timetable but, at the same time, gave the junta a face-saving mandate to launch Operation Azul (Blue) on 28 March 1982 for the recovery of the Malvinas.

From the initial landing of Argentine forces in the Falklands (2300 on 1 April) to the capture of Port Stanley/Puerto Argentino (0800 on 2 April) to the occupation and establishment of administrative control over all of the Malvinas and South Georgia (on 4 April), the author provides the reader a vivid account of the Argentine four-day "blitzkrieg." The "phony peace" ended on 1 May with an attack on the Stanley airfield runway by a British Vulcan bomber from Ascension Island that had been refueled en route by Victor tankers on its nearly 4,000-mile run. A fleet of Sea Harriers from aircraft carriers soon thereafter continued the attack. D day for the British landing forces was 21 May, and five days later they moved out of the beachhead in the direction of Puerto Argentino. The defeat of the Argentine garrison at Goose Green on 29 May opened the way for the British assault against Port Stanley. The slow but steady movement of the British main force brought them to the outskirts of Puerto Argen-

tino on 11 June. By the afternoon of 14 June, the Argentine forces in Port Stanley capitulated, and Brig Gen Mario Benjamin Menendez surrendered his 12,700-man force to Maj Gen Jeremy Moore the following day. The fatal Argentine battle casualties amounted to 655, compared to 255 on the part of the British (including three Kelpers).

Martin Middlebrook has an appealing style of writing that enables the reader to enjoy and appreciate details of battles, logistics, and air-sea-land warfare—subjects that might otherwise be dry and boring to the uninitiated. He never loses sight of the human element and effectively employs it in a judicious manner. The clarity of his work is enhanced by the employment of a dozen maps, almost 50 photographs, and an order of battle of Argentine units in the appendix.

Having recently returned from a visit to Buenos Aires, the reviewer saw the prominent roadside signs on both the departing and arrival sides of the route from Ezeiza International Airport that proclaim "Las Malvinas Son Argentinas." Although negotiations between Britain and Argentina continue, the Malvinas/Falklands issue remains unresolved. Works such as the present one are positive contributions to an understanding of the necessity of preventing a recurrence of this tragic conflict.

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**The Ace Factor: Air Combat and the Role of Situational Awareness** by Mike Spick. Annapolis, Maryland 21402: Naval Institute Press, 1988, 208 pages, \$19.95.

The thesis of *The Ace Factor* is that situational awareness is the key factor that separates the high-scoring aces from the mass of lesser combat fighter pilots. Mike Spick writes, "Some mysterious ingredient appears to exist in the few, and if this could only be identified, the whole business of selecting fighter pilots would be revolutionized." (p. xiv) He later writes, "The ace factor is part inborn and part learned." (p. 31)

In the chapter on the First World War, Spick begins to make a good case for his belief that the key factor is situational awareness. However, he loses his focus in recounting events from the Second World War. By the end of the book, the author has failed to show that situational awareness is the distinguishing factor any more than is discipline, aggressiveness,

leadership, or a dozen other important attributes.

Even had he shown "situational awareness" to be the "ace factor," his book would be of little practical value. Introducing his thesis, Spick describes situational awareness as "the ability of the pilot to keep track of events and foresee occurrences in the fast-moving, dynamic scenario of air warfare" (p. xiv) but concludes in the epilogue that the factor is "that indefinable something." (p. 169) He has not told the reader how to recognize the fighter pilot who possesses the "inborn" portion nor how to help that young man obtain the "learned" portion of the ace factor.

Other books by or about fighter aces give the reader a better sense of the attributes that make great aces of a few fighter pilots. Dedication to the task of learning about fighter tactics, weapons, aircraft, forces, and pilots is necessary for the would-be ace. South African group captain "Sailor" Malan, a 35-victory ace in the Second World War, in the ninth of his 10 rules, and Col Raymond F. Toliver and Trevor J. Constable, in the first chapter of *Fighter Aces*, mention characteristics that provide better guidance for individual fighter pilots and for air forces in trying to create aces than does an indefinable single ace factor.

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**The Wages of War When America's Soldiers Came Home—From Valley Forge to Vietnam**  
by Richard Severo and Lewis Milford. New York 10020: Simon and Schuster, 1989, 495 pages. \$21.95.

Three lusty cheers and a kyrie eleison ("Lord, have mercy") to Severo and Milford. This unlikely team of a *New York Times* journalist and a conservation attorney has written one of the most emotionally compelling and convincing defenses of the common soldier ever written. It is a politically charged, angry, indignant, and to my mind left-leaning book that contrasts the soldier's self-sacrifice in war with his all-too-often disgraceful treatment when he came home. I don't care about their politics. Severo and Milford present the case for veterans' rights with a fury and conviction born of overwhelming evidence.

The emotionalism and militancy of the work probably emanates from the authors' original purpose of writing it. The writers had not originally intended to write a comprehensive history of veterans reentering society after war. As Severo and Milford explain, "It was not our original intent to assume the burden of researching ten postwar periods and more than two hundred years of American history in order to achieve our goal." Their goal was to research and highlight what they considered the government's shabby treatment of Vietnam veterans complaining of the aftereffects of contact with Agent Orange. It was in placing these contemporary events in their historic context that the writers discovered a pattern of unexpected consistency.

As the writers' research pointed out, young American men and women have, on many occasions, heeded their nation's call to arms and marched off to very uncertain futures amidst the sound of pious rhetoric and promises of justice and reward for their sacrifice. They soon found out that the nation's gratitude rarely extended to them after the war was over or after they left service. Severo and Milford mustered an impressive body of evidence spanning two centuries of conflicts from Shay's rebellion after the American Revolution, the draft riots during the Civil War, abominable treatment of diseased soldiers returning from Cuba at the turn of the century, to government stonewalling after the Vietnam War. They encountered example after example of neglect, broken promises, lies, and hostility. Nor is the guilt that of the government alone. The authors argue convincingly that the military services themselves and even common citizens have reacted to the fighting men with almost incomprehensible insensitivity and ingratitude. Needless to say, the book should be of sobering interest to those in, or formerly in, uniform.

*The Wages of War* should be read by all military personnel. If you wish to serve, do it for love of country and devotion to duty. Protect your loved ones and your way of life. As Severo and Milford have so ably pointed out, do not expect great thanks and greater glory for the effort. More than anything else, the book should serve as a healthy antidote to recruiting that focuses so heavily on the material compensation for what should be nearly sacred duty. Hopefully the book can contribute in some way to the end of the military "me generation."

Maj Bill Nikides, USAF  
Langley AFB, Virginia

**Red Army** by Ralph Peters. New York 10020: Simon and Schuster, 1989, 337 pages, \$18.95.

This superb book is by far the best of the Soviet-invasion-of-Western-Europe-type novels started by Sir John Hackett's *The Third World War*. It is refreshingly well written, free of the pages of acronyms and technological rapture that plague many of the more recent military novels. Like Stephen Crane and James Webb, whose *Red Badge of Courage* and *Fields of Fire*, respectively, are among the finest military novels ever written, Ralph Peters knows that the men who fight the wars, not their gadgets, are the proper focus of literature.

What makes this book so fascinating is that it is written entirely from the Soviet perspective. We get an intimate glimpse of life in the Soviet army, from the front commander to two hapless conscript privates who spend the war hiding. The author's exhaustive knowledge of the Soviet military is evident in every page. There is indeed much to learn from this entertaining novel. The front commander's preattack briefing to the front commanders, as well as the plan's execution throughout the book do more to bring an understanding of the Soviet concept of the operational maneuver group to life than any textbook could. Listening to the Soviet commander and his chief of staff discuss the logistical problems they are encountering due to NATO's bombing of the resupply systems—as an air raid is taking place—is just one of the reasons this novel is so interesting.

*Red Army* is also a profoundly challenging book as well. Peters does such a good job of building empathy that the reader can find himself immersed in the Soviet viewpoint. The characters in the novel are real people, not one-dimensional figures. The reader can relate to them easily; they are portrayed as men much like us. We grow to know the characters as people—the airborne commander whose experiences in Afghanistan as a young officer shaped him forever, the artillery commander whose pride in his craft goes back to the Imperial Russian Army. Some the reader will like and respect.

That is what makes this superb novel so challenging and useful to the military reader. It has been said that the final step in maturity is understanding an opposing viewpoint—and why it is held. *Red Army* does just that. The Soviets' motivations are a mixture of professional pride and a recurring idea that they were fighting for Russia, regardless of the current occupants of

the Kremlin. Interestingly, the only avowed Communist in the book, the political officer in the doomed airborne unit, overcomes his fears and becomes a real soldier and leader when he has to take the place of fallen officers in his unit. His suicide is the result of his being a part of the Communist party structure. As it becomes apparent that NATO forces will retake the town, he realizes that he will, as the political officer, be held responsible for the slaughter of a group of British prisoners.

*Red Army* is an emotionally difficult book to read. The good guys do not win in the end. The final scene in the book is of the Soviet marshal watching American helicopters cover the withdrawal of American armor units to their cease-fire positions. Peters is not afraid to raise difficult questions. In the other books of this genre, NATO always wins. It is always a close thing, but we manage to pull it off in the end. Here the close thing is an American counterattack that almost succeeds. The Soviets are going to be tough opponents. Peters knows this. The reader is not allowed the usual comfort of the oft-repeated "weaknesses" of the Soviet army. Spetsnaz and the operational maneuver group concept give lie to the stereotype of the plodding, unimaginative Soviet soldier. We get no comfort there. Their equipment may be inferior to ours, but they have lots of it and, more important, the will to use it. Technology does not come to the rescue either. In Peters's novel as in life, there is no *deus ex machina* to ensure a happy ending. We should neither underestimate the Soviets, nor project our way of thinking on them. The stakes are far too high to indulge in wistful thinking. Ralph Peters's thought-provoking book should be read by every officer.

Capt Kevin Shannahan, USAF  
Castle AFB, California

**Passchendaele: The Tragic Victory of 1917** by Philip Warner. New York 10022: Atheneum Press, 1988, 269 pages, \$24.95.

Even the most hardened combat veteran reading this, Philip Warner's vivid 17th war volume, will agree that Passchendaele was probably the most extraordinary and macabre battle of World War I. It began on a low-lying Belgian plain that had been reclaimed from swampland by an intricate system of dikes and canals. Ceaseless bombardments and rain turned most of the battlefield into a deep, slimy muck. The

Allies alone lost 90,000 men who were never accounted for, having been swallowed up by the morass. The polluted, liquid mud was so difficult to traverse that duckboard "roads" (zeroed in by German guns) were necessary to bring up replacements. Finally seeing the battlefield, Field Marshal Sir Douglas Haig, the British chief of staff, wept as he exclaimed, "Did we really send men to fight in this?"

Warner uses eyewitness accounts to portray the incredible lack of understanding by headquarters staff members of the conditions and their continuing efforts in the face of failure. The book's comprehensiveness and careful accuracy make it an important source for subsequent analyses of military leadership. The reader is impressed that few of the objectives assigned by the generals could ever have been achieved without the bravery of individual soldiers, particularly recipients of the Victoria Cross.

The battle was further distinguished by the story of the mining of Messines Ridge, which culminated in the detonation of a million pounds of explosive. The blast, which tore apart virtually impregnable German defenses, was heard in London.

The text is preceded by three chapters of historical background that set the stage for the reader who is unfamiliar with "the war" and its context. It is supplemented by useful footnotes and by several chapters that describe the battlefield today and the plight of support personnel, trench soldiers, and the German adversaries.

Warner's definitive work makes fascinating reading and should be included in any short World War I bibliography.

Maj Thomas C. Blow II, USAF  
Beale AFB, California

**Green Light! Men of the 81st Troop Carrier Squadron Tell Their Story** by Martin Wolfe. Philadelphia 19104: University of Pennsylvania Press, 1989, 498 pages, \$36.95.

An emeritus historian from the University of Pennsylvania's history department who was also a former radio operator in the 81st Troop Carrier Squadron (TCS) has written a unit history with a difference. Being a historian, the author evaluates some of the controversies that surrounded airborne operations, the reactions to various aspects of the war from the TCS viewpoint, and the technical/organizational as-

pects prevalent in World War II. Wolfe has done an admirable and thorough job.

Wolfe provides the reader with the history of the 81st TCS through both the unit diaries and the veterans' own statements about various aspects of the unit's operations and life. From the unit's formation and training in the United States to its movement across the Atlantic to Britain and later to France, one gets a feel for the excitement of the young men as they venture into new lands, training, combat, and transport missions. The reader not only "experiences" the C-47s but also gains useful insights into the aerial dimension of the ground war because of the gliders they towed.

On the human side, the reader is made a party to the distinction and status problems encountered by the TCS personnel. Were the glider pilots infantry or air force? What was it like to be treated differently than powered-aircraft pilots? What were the feelings about the rank issues? Were TCS pilots second rate to fighter and bomber pilots? Status played a role among enlisted, too. Rank came quickly for some, but the stripes came slower for the technical NCOs who arrived later in the unit. All this is discussed years later with less rancor but still with some feeling. The risks and responsibilities taken seem to demand something other than a third-class status.

Wolfe describes the supply, maintenance, and administrative side of running the organization, especially since there were so few career personnel to do these tasks. The citizen airmen did not do too badly. Some luck rode with them, to be sure. They did seem to fit into the "Great Crusade" and did their tasks well. The author devotes considerable space to showing the TCS side of airborne operations since other historians have found it easy to blame all airborne catastrophes on these brash and young kids. Pages are devoted to the missions and the contribution, in a results-oriented sense, of the troop carriers. The airdrops and glider operations of Normandy, Operation Market Garden, Southern France, the dash across France, the Battle of the Bulge, and the operation to cross the Rhine are all carefully examined and evaluated from the TCS perspective.

The book is interesting. The reader will get the feel of changing engines, cursing the lack of self-sealing fuel tanks when tracers are rising from the ground toward the aircraft, the terror of trying to get the glider into a small field when several others have the same thought, going into town on pass, undergoing venereal disease inspections at 0500, and living in a tent

and making it comfortable by a hot winter. It's all because the current of Green Light. It's a natural solution to the air and the road way to

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### **Air University Review Index**

The Air University Press is in the process of publishing a complete index of the *Air University Review* (1947-1987). This reference work will contain an author index, a title index, and a cross-referenced subject index. Any Air Force or other government organization, college or university library, or similar organization with a need for this index can be placed on distribution. Requests for distribution and other inquiries should be addressed to Maj M. A. Kirtland, AUCADRE/RI, Walker Hall, Bldg 1400, Maxwell AFB AL 36112-5532. Major Kirtland can also be contacted at DSN 875-6629 or (205) 293-6629.

### **Historical Research Center Grants**

The United States Air Force Historical Research Center (USAFHRC) has announced the availability of research grants to encourage scholars to study the history of air power through the use of the center's US Air Force historical document collection, located at Maxwell AFB, Ala-

bama. Grants up to \$2,500 are available for qualified applicants who will visit the center for research during fiscal year 1991. Applicants must have a graduate degree in history or related fields, or equivalent scholarly accomplishments. Their specialty should be in aeronautics, astronautics, or other military-related areas. A wide variety of military-related topics may be covered in the proposed research. Preference will be given to those proposals that involve the use of primary sources held at the center. Applicants may request an application from the commander, USAF Historical Research Center, Maxwell AFB AL 36112-6678. The deadline for submission of applications is 31 October 1990.

### **Army Aviation Convention**

The Army Aviation Association of America will hold its annual convention from 10-14 April 1991 in Saint Louis, Missouri. For more information contact AAAA, 49 Richmondville Avenue, Westport CT 06880-2000 or call (203) 226-8184.

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