

AIRPOWER

Fall 1987

JOURNAL



AIRPOWER
AIRPOWER
JOURNAL

MAXWELL AFB, AL 36112

SPECIAL FOURTH CLASS MAIL
CALCULATED POSTAGE
PERMIT G-1
USAF-ECI
GUNTER AFB, AL 36118

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300
RETURN POSTAGE GUARANTEED



Secretary of the Air Force

Edward C. Aldridge, Jr.

Air Force Chief of Staff

Gen Larry D. Welch

Commander, Air University

Lt Gen Truman Spangrud

**Commander, Center for Aerospace
Doctrine, Research, and Education**

Col Sidney J. Wise

Professional Staff

Editor

Col Keith W. Geiger

Associate Editor

Maj Michael A. Kirtland

Contributing Personnel

Hugh Richardson, Associate Editor

John A. Westcott, Art Director and
Production Manager

Steven C. Garst, Illustrator

Address manuscripts to Editor, *Airpower Journal*, Walker Hall, Maxwell AFB, Alabama 36112-5532. *Journal* telephone listings are AUTOVON 875-5322 and commercial 205-293-5322. Manuscripts should be typed, double-spaced, and submitted in duplicate. Authors should enclose a short biographical sketch indicating current and previous assignments, academic and professional military education, and other particulars.

Printed by Government Printing Office. Subscription requests and change of address notifications should be sent to: Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402, Air Force Recurring Publication 50-2. ISSN: 0002-2594.



AIRPOWER

JOURNAL

FALL 1987, Vol. I, No. 2 AFRP 50-2



From the Editor	2
<hr/>	
The Decade of Opportunity: Air Power in the 1990s AVM R. A. Mason, RAF	4
<hr/>	
Doctrine, Technology, and Air Warfare: A Late Twentieth-Century Perspective Dr Richard P. Hallion	16
<hr/>	
Coalition Air Defense in the Persian Gulf Lt Col Ronald C. Smith, USAF	28
<hr/>	
Editorial—End of an Era Maj Michael A. Kirtland, USAF	40
<hr/>	
Tactical Airlift Brig Gen Billy M. Knowles, USAF, Retired	41
<hr/>	
Shortchanging Our Young Officers: Military Traditions Denied Lt Col Stephen C. Hall, USAF	48
<hr/>	
US Air Force Special Operations: Charting a Course for the Future Maj Kenneth M. Page, USAF	58
<hr/>	
Ira Eaker and the Ear of Dionysius Col Timothy E. Kline, USAF	70
<hr/>	
Ricochets Letters	3
<hr/>	
Net Assessment Reviews of Current Literature	74
<hr/>	
Notams Notices of Interest	83
<hr/>	
Contributors	87

EDITORIAL

Building a Broad Professional Base

However much you may wish for peace, never forget military skill if you do not wish to suffer the same fate as the Byzantine Monarchy.

Peter the Great

AS THE second issue of the *Airpower Journal* was being prepared for publication, the Air Force celebrated a milestone event, the 40th anniversary of its creation as a separate service. As we consider those 40 years, the immense changes that have taken place dominate our thoughts. In that time we have gone from the B-29 to the B-1 and from the P-51 to the F-16. We see change everywhere we look.

Change is a necessary part of a vital military force. At the same time, some basic concepts have remained constant over the 40 years and longer. Among them is the notion that to be a truly prepared Air Force we must develop a wide base of professional knowledge. Professional knowledge is something that is cultivated through years of experience and study. Its development is, in fact, one of the constant responsibilities in a military career. Far too often, we assume that all the professional knowledge necessary will be given to us through the various professional military education courses we take in our career, either in residence, by seminar, or by correspondence.

While these courses are an important contribution to that professional base, they cannot provide it all. The Air Force has other structured programs such as Project Warrior that are important, and well-chosen civilian education plays a part as well. But there is still more. The professionals should undertake programs of self-education and development and should strive to develop a

military orientation in every professional endeavor. We must regard our jobs as part of an overall combat mission. Regardless of Air Force Speciality Code, we must understand the overall purposes of military air power and then see how our individual duties support those purposes.

To fully develop this professional knowledge base and orientation, supervisors and commanders must be involved. We need to recognize and support the value of professional courses and participation in Project Warrior discussion groups. Above all, we need to set an example in getting our people to study, think about, and discuss air power and those elements in all our jobs that contribute to the effective application of combat power. The days when the majority of our people had combat experience have passed. Very few of our company grade officers or junior enlisted members have any combat or related experience. Our combat-seasoned leaders at every level need to make a positive effort to transfer their wartime experience and combat-related peacetime experience to our middle ranking and junior people.

The consequence of not developing a broad professional base can be disastrous in warfare. But a lack of professional knowledge has extremely adverse results in peacetime as well, for it is in peacetime that we develop the orientations we will use in fighting the next war. We must be prepared to give the best possible professional advice to our leaders and our subordinates. This is true whether we are talking about large-scale operations in a dangerous area of the world or the day-to-day operation of a security police squadron here in the United States.

As leaders we need to encourage the development of professional knowledge in our people. As subordinates we need to glean as much as we can from our leaders' experiences. As Douglas MacArthur reminded us, "In no other profession are the penalties for employing untrained personnel so appalling or so irrevocable as in the military." KWG

TAKING AIM AT THE AIR WAR

Kudos to Captain Morra and Major Lange for their letters and comments. We want to print more, but we can only do that if more of our readers pick up the gauntlet and write to us. The "Ricochets" department is your chance to express yourselves, both pro and con, on the articles we publish. The editors believe an exchange of ideas filling these pages is a healthy sign that Air Force people are thinking about their profession.

I have a few thoughts on Col Clifford R. Krieger's fine article in the inaugural issue of the *Airpower Journal*. Overall, the piece provides a rare insight into the concerns of a perceptive, contemporary fighter wing commander.

My specific focus, however, is on Colonel Krieger's discussion of the "War in the Air." His explication of the planning cycle is particularly valuable for its clarity, and at the same time rather embarrassing for what it says about our inability to plan in a dynamic, timely fashion. With our current (and one would hope future) emphasis on the operational level of war and the US Army's orientation toward maneuver warfare, our inability to plan air operations at a tempo consistent with the pace of modern battle is glaring indeed. That shortcoming raises the old question of centralized versus decentralized planning.

Whether communications from the wing to the ATOC (and by extension, through the ATOC to the ATAF) remain intact during conflict, or the wing commander is forced to rely on runners, staff cars, and aero club aircraft to communicate in the event more timely links are lost, the frag cycle is too slow. As Colonel Krieger states, "Timeliness is the key to successfully executing the air plan." Unfortunately, our present ATO/ATM process is not timely. It is well and good that ATMs now contain DMPI and TOT information for fixed targets that were identified for strike at the ATAF level 12-48 hours previously, but what if those fixed targets become irrelevant or

relatively less critical during that time? The planning process is not likely to be able to respond to the changed circumstances. And the problem is even more acute with regard to mobile targets.

This unhappy situation again poses the question, should planning be more decentralized? And should wing commanders be given greater responsibility for operational planning? Should wing commanders be elevated from what Colonel Krieger terms the "bottom fringe of the operational level of war"?

Integral to the overall operational planning process at the fighter wing are mission planning and mission integration, as well as wing-level intelligence inputs. Colonel Krieger emphasizes the human element in his discussion of mission planning and wing intelligence. Clearly, outstanding individuals are necessary to the success of the frag shop and wing intelligence operations (more on personnel follows below). Nevertheless, automating the process of integrating timely, locally received intelligence inputs directly into an automated mission planning system will speed up the planning cycle and enable the wing to operate much more effectively if communications are lost with higher command and intelligence echelons.

With respect to wing-level intelligence personnel, one must agree that with notable exceptions their level of performance does not match improvements in intelligence products. In addition, the centralization of intelligence capability at the major force level exacerbates the problem of poor quality intelligence at the wing level. For example, while it is true that we have much to learn about enemy capabilities and tactics, it is also true that Air Force intelligence already does know a good deal about those areas. Efforts such as USAFE's Warrior Preparation Center notwithstanding, the problem is that such information is not integrated into comprehensive aircrew preparation at the wings. Colonel Krieger's description of intelligence as a "weak link at wing level, particularly at fighter wings" is true, although as an intelligence officer I find it difficult to admit.

Continued on page 69

The Decade of Opportunity

Air Power in the 1990s

Air Vice-Marshal R. A. Mason, Royal Air Force

Promises, Promises . . .

IT HAS frequently been the fate of airmen to be criticised for failing to meet their promises rather than to be congratulated on the reality of their actual achievements. The vision, determination, and dedication of the early air power pioneers were essential for the military exploitation of the skies, but it has taken longer for the dream of these visionaries to be realised because of the realities of the world, especially technological limitations. As the microcomputer revolution impinges more and more on air power, it is tempting to look forward to a golden age of instant communications, perfect navigation, unambiguous target identification, infallible weapon accuracy, and inevitable target destruction, all flowing from a multirole, infinitely manoeuvrable, and probably invisible aircraft platform.

There is little doubt that many recent technological advances have brought the dreams of the visionaries closer to reality in the last decade than in the previous six. Their impact on airframe, engine, avionics, weapons, communications, and associated systems has been well documented. In ag-

gregate they offer to airmen a decade of opportunity in which the most apparent dilemma is that of choosing where best to invest resources and manpower to ensure that air power sustains its pervasive influence on warfare well into the twenty-first century. If that dilemma should be resolved only by reference to technological promise, then the visions of the early pioneers may not be so much vindicated as betrayed.

With a shameless and selective application of hindsight, one may argue that air power could have made a greater, and earlier, impact on twentieth-century warfare had airmen placed more emphasis on continuity in warfare and less on the unique characteristics of air power, had they recognized that the traditional pendulum of offence and defence could swing in the third dimension as much as it had always done on land and sea; and had they not elevated a specific role or roles into a dogmatic *raison d'être* for air power itself. But that is not only shameless and selective hindsight, it is also unfair. If one is faced by army generals who cannot lift their eyes above the next trench, or over the latest



tank, to appreciate that while occupying ground is frequently essential in combat, it may not be essential to achieving victory in warfare; and if one is vying for resources with admirals who fully understand the implications of command of the sea, asserting that 75 percent of the earth's surface is covered by it but overlooking the fact that since 1941 command of the sea has depended on command of the air above it, which, incidentally, covers 100 percent of the earth's surface; and if an infant service has to fight for its existence against jealousy, bigotry, narrow-mindedness, and a simple failure to appreciate that airmen not only work in a different dimension but must think in one also—then, under all these circumstances, it is very natural that airmen the world over have tended to emphasise the unique characteristics of air power and to minimise both its shortcomings and the principles it has inherited from warfare on land and sea.

To move from the easy confidence engendered by generalities bred of selective hindsight to the identification of opportunities, challenges, and difficulties in the last decade of this century is to offer several hostages to fortune. But on the principle that men who do not court fortune are unlikely to receive many favours from her, the likely major developments in air warfare and their implications for airmen must be assayed.

Probable Developments

Ten quite separate developments in air warfare in the next decade can be confidently forecast. What is not so clear is their likely impact and their relationship one with another. This list is therefore in order of association rather than necessarily in order of significance.

- **Airborne early warning and control.** The example of E-3A and E-2C aircraft is being followed worldwide. The Soviet Il-76 Mainstay is the most notable competitor at present, but many of the world's air forces will likely seek an airborne warning and control system (AWACS) capability.

- **Real-time command, control, communication, and intelligence (C³I) systems.** Secure, real-time, data-linked communications between airborne command posts, reconnaissance platforms—manned and unmanned—and units requiring the data to pursue their operational objectives will become increasingly prevalent.

- **Computerised exploitation of the electromagnetic spectrum.** "Electronic warfare," a term loosely used originally to describe the avionic activities of special units in World War II seeking to enhance friendly air activity and to degrade that of an enemy, has expanded to encompass most air operations. In the next decade, manipulation of all frequencies in the electromagnetic spectrum will make the lessons drawn from the Bekaa campaign of 1982 seem relevant only to elementary operations.

- **Stealth technology.** The application of all aspects of stealth technology to aircraft and weapons (physical dimensions and shape, absorbent materials, self-screening transmissions) is likely to become an integral consideration in design.

- **Static target location.** The location of static targets will become possible well beyond previous visual or electronic ranges as a result of satellite and other airborne reconnaissance systems.

- **Weapons capability.** Air-launched weapons will possess longer target-detection ranges, more refined target discrimination, greater terminal accuracy, and higher kill probabilities.

- **Twenty-four-hour operations.** With the widespread application of all-weather, day-and-night navigational, target-acquisition, and blind-landing systems, continuous air operations will be technologically sustainable.

- **Equalisation of technological application.** The superpowers, and hopefully the United States in particular, will retain a decisive edge over third world countries in the broad application and employment of advanced aerospace weapon systems. But although the gap may remain, these systems

will move inexorably up the scale of technological sophistication. The briefest survey of specialist journals demonstrates the eagerness of Western aerospace systems manufacturers to peddle their advanced wares worldwide, quite apart from the inclination of an increasing number of "second-rank" powers to acquire their own indigenous expertise.

● **Constraints on manpower availability.** Much has been written on the increased unit costs of many modern aircraft and associated systems. However, there are clear signs that manufacturers, chastened by rigorous contract application, inspired by tight government budgeting, and stimulated by international competition, are beginning to recognize that escalating costs cannot indefinitely be passed on to naively appreciative customers. But as the third industrial revolution spreads worldwide, there is increasing competition with civilian industry and commerce for the highly trained manpower needed to operate and maintain the hardware. The problem can be solved by direction, as in totalitarian states, or by market forces, or by ensuring that status and political influence remain the prerogative of the armed services, as in many third world countries. The problem will subside in due course, but in the next decade most air forces will need to look hard at their manpower requirements and how to meet them.

● **Increasing capability of surface-to-surface weapons.** Surface-to-surface weapons will become very much more accurate, and their ability to deliver submunitions designed to attack a wide range of targets will markedly increase.

The absence of one particular development from the list will probably prompt instant controversy. Contemporary advances in aircraft technology—aeroelastic airframes, aerodynamic instability, quantum enhancement of propulsion efficiency and avionics—are dramatic and will undoubtedly improve the operational effectiveness of the air superiority fighter, the strategic bomber, and the tactical transport alike in

the next decade. However, the impact of any aircraft on warfare is not measured solely by its agility, endurance, or flexibility but by what it actually does with those attributes in the circumstances of its operational environment. If aircraft development and operation take these 10 developments into account, then the decade will indeed be one of opportunity grasped. If not, then the manned aircraft will pass into military history books to become a source of affectionate study alongside the knight in shining armour, the castles of Marshal Sebastien de Vauban, the Thin Red Line, and the traditional battleship.

The Implications

It is very reassuring to be aware of the incessant discussions in professional air staffs and to read the equally vociferous opinions expressed in informed and not-so-well-informed aviation journals about all the likely developments and their implications. It is also very easy to be critical of decisionmakers. One yearns for the halcyon interwar years when in Britain the "10-Year Rule" postulated that armed forces were likely to have 10 years warning of any major conflict at a time when industry could produce a new front-line combat aircraft in little more than a year. Today, should deterrence fail, a major conflict could erupt in seven days, while the gestation period of a new aircraft or weapon system can take seven years.

Today, however, it is unlikely that an air force could equip for an offensive role without taking into account defensive research being carried out elsewhere in the system, which, if employed by an enemy, could have severely adverse consequences for its own offensive operations. It is readily apparent that the 10 developments noted above will have very contradictory implications for future air operations. For example, airborne early warning, even at a relatively primitive stage, already enhances air defence considerably. It extends warning time and provides the defender an op-

portunity to concentrate defences in time and space. Because such warning reduces opportunities for surprise attack, a prospective attacker must in theory reassess the ratios required to achieve his own concentration of force at the decisive point of the engagement. However, that advantageous defensive position is unlikely to be any more permanent than Vauban's mutually covering parapets guaranteed perpetual invulnerability to his fortresses. When the attacker is similarly equipped, he will become aware of the position of intercepting aircraft and, assuming that his attackers have the necessary range redundancy and that he has secure communication with them, he can minimise the impact of the defensive concentration of force by unitary or mass rerouting. Or he may decide that the importance of the opposing AWACS platform is so great that he will be prepared to allocate an apparently disproportionate amount of effort to its destruction or electromagnetic neutralisation.

That consideration can be extended a stage further. The possession of an AWACS by an opponent poses complicated questions for the projection of friendly offensive air power. It is, for example, still possible to exploit the earth's curvature and terrain features to minimise aircraft vulnerability by high-speed, low-level penetration of hostile air space. However, an AWACS not only provides early warning, it will increasingly enhance look-down detection also. While range redundancy will permit variable routing and multidirectional approaches to targets, it will become increasingly difficult to do so without an opponent having an opportunity to prepare and direct his defensive assets for interception. Improvements in fighter look-down target acquisition are complementary, but the problems of destroying low-flying targets from above may prove less tractable.

Radar-guided and heat-seeking missiles continue to be susceptible to the natural "noise" of ground clutter, and few fighter pilots relish the additional stimulus of going down "among the weeds" for low-

level, air-to-air combat. If, on the other hand, short-range, surface-to-air defences are prepared for an enemy's approach at a specific height, speed, and direction, the critical advantages hitherto possessed by the low-flying intruder are minimised. Moreover, while the defenders may be in some doubt until the later stages of an attack about which target is under threat, there will be little uncertainty about the destination of the intruders as they turn for home. It is sometimes forgotten that Royal Air Force and US Army Air Forces aircraft in the bomber offensives of World War II usually incurred heavier losses returning from their targets than while fighting their way towards them. In any future European scenario, relative combat attrition will be a significant factor in the air war, and the employment of an unimpaired AWACS could have a significant impact on the sustainability of deeper-penetrating operations.

AWACS: A Pivotal System

It is therefore highly probable that an AWACS will assume pivotal importance for both defensive and offensive air operations. As a result, its preservation or destruction, depending on whose system it is, will become a prime consideration on all sides. It follows, therefore, that investment in resources to protect one's system and to destroy or neutralise that of the opponent should be given very high priority.

In assessing the significance of AWACS, an important assumption has been made that the data it acquires can be securely and speedily made available to the units that need to use it. The problem is not new to war in the third dimension. Timely warning of an enemy's disposition, direction, and strength has been of value throughout history, but only if the commander had the opportunity and the resources to take advantage of it. Ambush is ambush, whether achieved by the US Cavalry, by F-14 Tom-

cats, or by SA-12s. The difference lies in the speed and three-dimensional mobility of the air forces. In this context, the capabilities of AWACS resemble those of systems such as the TR-1 or SR-71, which can relay data on surface movements as well as those of aircraft. The better the C³I system, the more accurately can the location of even a highly mobile opponent be identified, monitored, and reported. The efficacy of mobility, especially on land or at sea, as a traditional defensive option is proportionately reduced. Thus, a strategy that relies on reinforcement to sustain offensive impetus could become more vulnerable to increasingly effective interdiction. On the other hand, so could an alliance strategy that relies on reinforcement to strengthen thinly stretched, forward-deployed, defensive forces. Therefore, there are strong incentives to develop weapon systems that can take advantage of the commander's real-time awareness of what is going on much farther "over the hill" than ever before. The inherent characteristics of air power—speed, reach, and flexibility—are well suited to the task as long as they are applied in a manner appropriate to the likely operational environment.

The Electronic Fog of War

Even in the least-developed areas of the third world, that operational environment will be increasingly influenced by electronic warfare (EW). If it should involve confrontation between the superpowers or their immediate surrogates, then EW will be pervasive. Advanced technology for military exploitation of the electromagnetic spectrum is well documented and is increasingly enhanced by the impact of the computer. The acceleration of detection and target acquisition time has already prompted countervailing investment in the various components of stealth technology. Again, it is the technology that is novel, not the underlying principles. Camouflage and decoy targets are traditional responses to

optical reconnaissance and visual attack. Electronic countermeasures and counter-countermeasures are their modern expressions, while "stealthy" technology speaks for itself. Stealth is a military attribute not only designed to take an enemy by surprise but, by minimising risks of detection, to also increase one's own survivability.

Weapon Lethality

The lethality of many current air-to-air, air-to-ground, and ground-to-air weapons is such that to afford an opponent an opportunity to attack is to risk destruction or severe degradation. The radius of lethality is continuing to increase as detection and acquisition ranges are extended and warhead efficiency is enhanced. All-aspect, highly agile air-to-air missiles are, when launched within the parameters of the overall weapon system, likely to be far more manoeuvrably reactive than their manned aircraft targets. Weapon lethality depends increasingly less on the judgment of the pilot and more on the artificial intelligence of the missile's guidance system. The need to neutralise or impede such a system has led to demands on electromagnetic exploitation far in excess of that required for traditional distortion of navigational aids or communications. Therefore, a future combat aircraft will still need to be highly agile and to have an extremely responsive aircrew, but unless it carries systems that can detect and engage threats beyond visual range, its contribution to the essential struggle for air supremacy is likely to be severely constrained. That leads to the further reflection that in the not-too-distant future, air force strength comparisons may need to concentrate more on the relative performance of missiles than on the derivatives of Eagle and Flanker.

Offensive Objectives

The implications of improved air-to-ground missile performance are no less sig-

nificant. The possible impact of well-coordinated AWACS, SAMs, and interceptors has been explained. Therefore, the farther away from the target the manned aircraft can release its weapons, the greater the reduction in its vulnerability. At this point, however, there is a danger of allowing priorities to be obscured.

In societies that place high premiums on human life, attrition rates rightly have an important subjective value. But in combat their importance lies primarily in relation to the overall means required to achieve an overall objective. Modern combat aircraft are indeed expensive, but apprehension about attrition rates and exchange values should follow, not precede, the basic question: what exactly is the contribution of the attacking aircraft to the overall combat objectives?

Certain characteristics of air power, not shared to the same degree by land or naval forces, have always been emphasised by its proponents, and with good reason. These characteristics include not just long reach and high speed, already mentioned, but the ability to deliver very heavy firepower concentrated in space and time against a wide variety of target arrays. But the application of force has traditionally been concerned with more than massive destruction. If war remains a rational instrument of national policy—and it at least continues to be when waged with conventional weapons—then destruction of the enemy's assets is still only one way of imposing one's will on an opponent.

A modern military theorist can quote Clausewitz with the same selective abandon displayed by a religious bigot dipping into Ezekiel, and with equally inappropriate conclusions. But the central tenet of Clausewitz's philosophy does remain valid: every armed force has a centre of gravity, an element upon which all else depends. It may be in an engagement, or in a theatre of operations, or in the larger conflict itself, but it will be there. Success will ultimately depend on its identification and neutralisation. Although the early air power theorists

did not use the same expression, they pursued the same idea in the belief that the enemy's morale, or his industrial capacity to wage war, should be the legitimate target of offensive air power. Indeed, such beliefs are still inherent in the concept of deterrence by mutually assured nuclear destruction.

Clausewitz suggested that the enemy's centre of gravity would tend to be his armies, or as we would translate it, his armed forces. However, that concept in the context of offensive air operations in the 1990s should be refined, with pertinent implications for the consideration of attrition. For example, if a potential opponent has manifestly adopted an offensive military strategy based on surprise and on the impetus of sustained and closely coordinated combined arms, at least three critical hinges are readily apparent: first is his ability to achieve surprise, second is his ability to sustain the necessary momentum of his offensive, and third is his ability to coordinate his activities. These hinges become more sharply defined if one focuses on a European scenario in which the longer the conflict the greater the opportunity for Western superior military and economic strength to be brought to bear, the greater the risks to the aggressor of nuclear escalation, and the greater the possibility of dwindling enthusiasm among his acolytes for his venture.

The advent of AWACS and other technology for "over-the-hill" reconnaissance has reduced the opportunities for even the limited covert transition to war preparations needed to launch a surprise attack by in-position forces. The other two hinges, impetus and coordination, depend on the opponent's ability to control the timing of events, and both are vulnerable to accurately directed offensive air power. Complete destruction of an opponent's military strength remains an ideal solution to a defensive problem, and on many occasions it may be feasible. But if not, neutralisation will achieve the same objective, which is to deny an opponent the use of his military instrument to achieve his political goal. Military victory is not an end in itself.

One or two examples will illustrate the practical implications of the principle. First, in offensive air-to-ground operations the relative merits of close air support, battlefield air interdiction, and deeper interdiction continue to be hotly debated. An obvious factor in the discussion is the ability of the air forces to have an effective choice between the three. But assuming that such a choice does exist, perhaps the decision should depend not on the absolute destruction that each mode could achieve but on their relative impact. In the European scenario already described, for example, the impetus of an offensive may be more deleteriously affected by the delayed appearance of a complete armoured regiment than by the timely arrival of one-half of it. Or put another way, delay, disruption, and dislocation of a greater number may have more impact on the "hinge" than destruction of only a proportion. Again, of course, destruction of the whole is the ideal, and if practically attainable, all well and good. But whereas destruction of the current generation of heavily armoured vehicles calls for the large-scale use of accurate and penetrative firepower, tank formations disrupted by minefields lose impetus and cohesion, and tanks unsupported by infantry become themselves vulnerable to infantry-borne antitank weapons. Even in an age of increased self-containment, armoured divisions require extensive logistic support for sustaining their momentum. Such support, which does not have the same heavy armour protection, is already vulnerable to contemporary air-launched missiles with submunition warheads and is likely to remain so.

Several air-launched antiarmour weapons are under development in the West for employment in the next decade. All are faced with the same problems. Assuming the current location of the enemy armour is known, how can submunitions be launched by missiles from the stand-off range with sufficient dissemination to hit different targets and with sufficient lethality to destroy them? That ideal solution, however expensive, obviously needs to be pursued, but the

question must be posed, is it the only solution? Will not delay, disruption, and dislocation in foreseeable scenarios be equally effective? And will not the reach, capacity, and flexibility of air power be eminently suited to attack and disrupt highly mobile targets well beyond artillery and helicopter range? All Western assessments of Warsaw Pact forces acknowledge their numerical superiority and their ability to increase them by reinforcement. A battle of attrition, either in the air or on the ground, does not seem an ideal Western option. Time, on the other hand, favours the defence and with it the implications for the offensive of dislocated impetus.

Offensive Counterair Operations

Direct contribution to the air-land battle is one significant offensive role of tactical air power; the other is offensive counterair (OCA). It should not be necessary to stress the continued critical importance of securing a favourable air situation, but sister services still occasionally seem to regard OCA as a uniquely air force interest. In fact, as every airman knows, OCA makes two critical contributions to the air-land battle. First, by denying the opponent sanctuary to rearm and return aircraft to the air superiority contest, it reduces the task of friendly air superiority fighters. One has only to reflect on the impact on recent air wars in the Middle East if Israeli aircraft turnaround times had been extended, or worse, if Israeli aircraft had been unable to intervene in the 1973 and 1982 conflicts.

In possible European scenarios, the traditional objective will remain, but the Warsaw Pact's emphasis on combined arms operations introduces another objective, one relating to the third hinge—coordination. The concentration of tactical air power, either to coincide with a ground force surge or to produce a saturating air attack on a particular target array well behind

the ground battle area, requires well-coordinated timing. An armoured regiment can hold for several hours if necessary to await reinforcing units, but tactical aircraft cannot. Even third-generation Warsaw Pact aircraft have finite limits to their unrefueled endurance. If OCA can delay takeoffs by as little as 30 minutes, massive disruption can ensue, leaving either piecemeal forces to be dealt with by air defences or numbers of aircraft in holding patterns that are visible to AWACS and that have had their subsequent flexibility of routing seriously degraded.

A principle similar to that in offensive air support or interdiction therefore applies to OCA. While ideally OCA will destroy enemy aircraft on their bases, the mere delay of operations could in many circumstances have equally important results. That assumption affects considerations of resource allocation to OCA in the next decade.

To close airfields for several hours or even days is at present very costly. Even with the imminent generation of airfield-attack weapons such as the JP233 and the Durandal, it requires comparatively large numbers of aircraft per target. The advent of standoff OCA weapons will reduce the vulnerability of attacking aircraft but not the amount of effort required to achieve a given closure capability. Here again, "over-the-hill" reconnaissance must be synchronized with OCA, which hits specific airfields at critical times to achieve the objective of neutralising the contribution of enemy air power to both the air superiority and combined arms battles.

An aside to the main themes of this article, but not to the effectiveness of OCA, is the need for comprehensive and readily available signals intelligence (SIGINT) to track the employment, recovery, and possible dispersal of enemy formations. Occasionally in the past, airmen have concentrated on the need to procure the best possible combat aircraft to the extent that resource allocation to, and support of, the more esoteric intelligence systems has been grudging and shortsighted. Unbelievers should be dispatched to study F. E. Hin-

sley's studies of intelligence in World War II.

Surface-to-Surface OCA?

If, however, the need for selective OCA throughout the next decade is beyond dispute, the methods to be employed will become debatable. Critical installations—aircraft shelters, fuel and weapon storage, and operations and air traffic control centres—can all be hardened against all but the heaviest direct conventional weapon attack. Short and vertical takeoff and landing capability, rocket-assisted takeoff, aircraft carrier-type arrester gear, dispersal, and runway and taxiway redundancy can make dislocation of operations by OCA a complex operation. But in the last resort, airfield locations are known, as hopefully are the aircraft types being flown from them. They may be heavily defended and protected but they cannot evade an air attack. The question must therefore be asked, are they in the longer term appropriate targets for attack by highly flexible manned aircraft or by surface-to-surface missiles (SSMs)? At present, surface-to-surface missile accuracy is adequate to hit an airfield—and indeed, the threat from Warsaw Pact chemically armed SSMs is already being studied by NATO commanders. But conventional warhead payload is considered inadequate, and terminal accuracy insufficient, to allocate the OCA role comprehensively to SSMs. If, however, one pursues the previous logic that neutralisation of enemy air effort does not necessarily imply its destruction, then a combination of SSMs with conventional submunition warheads becomes a more attractive proposition. Indeed, assuming accurate and timely intelligence on enemy operations, swift ballistic missile attack could be very effective.

Clearly, many other factors impinge upon the resource-commitment equation. Aircraft can be allocated either to OCA or to many other roles; OCA missiles, on the other hand, would be far less flexible. Attri-

tion rates permitting, aircraft could make repeated attacks at the cost of replacement weapons; missiles could be used once only. What should be avoided, however, is the belief that to replace the aircraft in the OCA role is somehow to erode the importance of air power. As was stated at the outset, air power is far too comprehensive to be tied indefinitely to one specific role. Indeed, it could be argued that its reach, flexibility, and concentration of firepower would in any event be more appropriately directed against more flexible, unpredictable, and mobile target arrays.

The Reduction of Airfield Dependence

Whatever its role, the manned aircraft has got to be able to leave the ground and sooner or later return to it. This is not the most original of observations but it is one whose implications are giving rise to numerous studies by Western air staffs and, presumably, by those farther east also. A great deal has already been done to make the targeting of main bases more problematical, including hardened shelters, duplicated operating surfaces, and soft-field, short-field, and off-main-base operations. For the foreseeable future, however, aircraft will be at highest risk in two out of three locations—in hostile airspace and on the ground. The third location is friendly airspace. The theory is therefore simple: minimise the time spent in two and maximise the third.

In practice, in-flight refueling, integral range redundancy, and combat air patrols can all facilitate airborne loitering as well as enhance reaction speed in time-sensitive missions. However, if specific aircraft always have to return to specific airfields for refueling, rearming, servicing, and crew handover, they will remain vulnerable to the hostile OCA described in the previous paragraphs. If the opposition does come to possess real-time surveillance of the airfield and surface-to-surface missiles with sub-

munition warheads sufficiently accurate to “buckshoot” the area, then all the many qualities of air power will count for nothing.

There is one approach to reducing dependence on main base facilities that has very respectable roots in military history but that for several good reasons has tended to be neglected by air forces until very recently. The traditional concept is simply dispersal, or as Napoleon would have said, division. Concentration of force at the decisive point does not require concentration of force either at the point of origin or at points en route unless there is a need for mass saturation of intermediate defences. But permanent dispersal of aircraft is expensive. It demands duplicated support, maintenance facilities, weapon and fuel stocks, transport, and, above all, manpower.

Not surprisingly, it takes more than just the perception of an uncertain threat to overcome Western habits engendered by decades of operations mounted from relatively secure bases either in peacetime or in third world conflicts. But one may reflect on the Falklands campaign and consider the implications for the British task force if the Argentinian air force had had three airfields, instead of just Port Stanley, from which to operate both heavy transports and fast jet aircraft. The inestimable advantage of air power, because of its ability to concentrate heavy firepower or indirect support over long ranges from many different directions, is that there is no military need for the individual components of any missions to launch from, or return to, a small number of locations. Therefore, the imperatives would seem to be the maximum standardisation of support facilities, reliable multistrand communications, and widespread use of both civilian and military airfields. In periods of tension and transition to war, lateral as well as forward dispersal to as many locations as possible is desirable. There should be an adequate prestocking of special-to-type weapons, but dispersed forces should draw upon common fuels and locally recruited reserve manpower, vehicles, and basic logistic support.

If it is accepted that air power is and will increasingly become the dominant factor in most conflict scenarios, the opponent must be given the credit for also recognising that fact and placing its neutralisation at the top of his priorities. There is ample evidence to suggest that along with the destruction of Western nuclear capability, Soviet military doctrine has for some time reached that conclusion. If, ideally, every mission had alternate launch and recovery bases, then the task of their neutralisation by airfield attack would demand an almost prohibitive allocation of resources.

Manpower

There are two inherent characteristics of air forces that can lead to an almost subconscious underestimation of the importance of people in warfare. First is the preoccupation with technology—with aircraft and supporting systems. Second is the fact that the actual fighting or other air operations are carried out by only a very small proportion of all the people in uniform. From that small proportion is drawn the executive and higher command of the entire force. In the Royal Air Force, for example, only some 7,000 out of 93,000 are aircrew. In dispersed operations, the same number of aircrew may be required as for missions launched from main bases, but the overall manpower bill will be considerably larger. Moreover, the increasing introduction of aircraft and weapons with 24-hour, all-weather capability demands not only more aircrew, but proportionate increases in ground personnel also. This comes at a time when manpower costs for training and quality retention are, in the Western world at least, rapidly increasing and when high-technology skills are in even greater demand in the commercial and industrial marketplace. Finally, the unwelcome impact of early casualties on groundcrew and aircrew personnel alike is easy to underestimate.

Groundcrew do not enjoy the exhilaration and satisfaction of flying in peacetime,

and they will seldom see the successful conclusion of their efforts in wartime. Indeed, in Europe at least some may suffer the fate of those British, French, and Russian groundcrew in the early years of World War II whose airfields were devastated by the Luftwaffe with little opportunity on the ground to fight back. Quite clearly, an air force that does not procure adequate aircraft and weapons will stumble to a rapid defeat against a better-equipped opponent. However, if resource allocation has also failed to provide for adequate numbers and quality of groundcrew, even the most sophisticated aircraft are unlikely to get airborne at all. "Quality of life" is a cliché that slips easily into a sentence. It means many things to many servicemen and women but because it cannot be neatly quantified in a cost-effectiveness equation, it is sometimes difficult to include in arguments about resource allocation. And yet, the one asset possessed by an air force that actually appreciates rather than depreciates over a period of time and operations is its people.

Forward with the Past

It is natural that air force planners, resource allocators, forward thinkers, and all who are concerned with the continued effective application of air power into the twenty-first century will focus sharply on the 10 developments—or a similar collection—listed earlier in these reflections. But the application of air power is not just about the military exploitation of the third dimension above the surface of the earth. It must also take into that dimension the traditional characteristics of warfare itself. Perhaps one could add to the 10 possible developments in air warfare 10 thoughts of a more traditional nature:

- Every offensive weapon or tactic will in time stimulate an effective defensive response.
- Identification of the enemy's centre of gravity is a prerequisite for offensive action.

- Neutralisation of an opponent's military strength does not necessarily call for its destruction.

- A secure base is a prerequisite for any military operation.

- Active defence is not the only route to security.

- Preliminary division of strength is not incompatible with concentration of force at the decisive point.

- "War is the province of uncertainty." The fog of war may change its scientific na-

ture, but command, control, and communication remain susceptible to fog.

- Accurate and timely intelligence of an enemy's intentions, direction, and deployment is the greatest "force multiplier."

- A good defence will avoid defeat, but only offensive action will wrest the initiative from an opponent.

- Any armed service is only as good as the people who are in it.

And then we must make sure we get the best available next-generation fighter. . . . □

DOCTRINE, TECHNOLOGY, AND AIR WARFARE

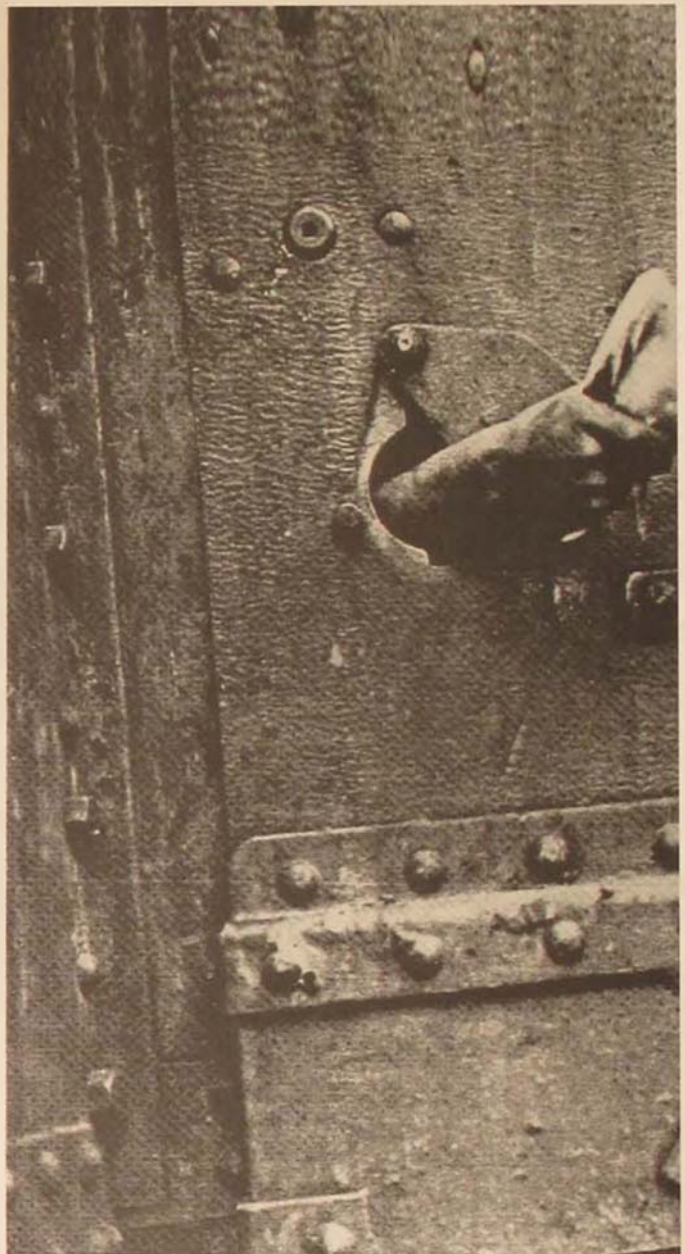
A Late Twentieth-Century Perspective

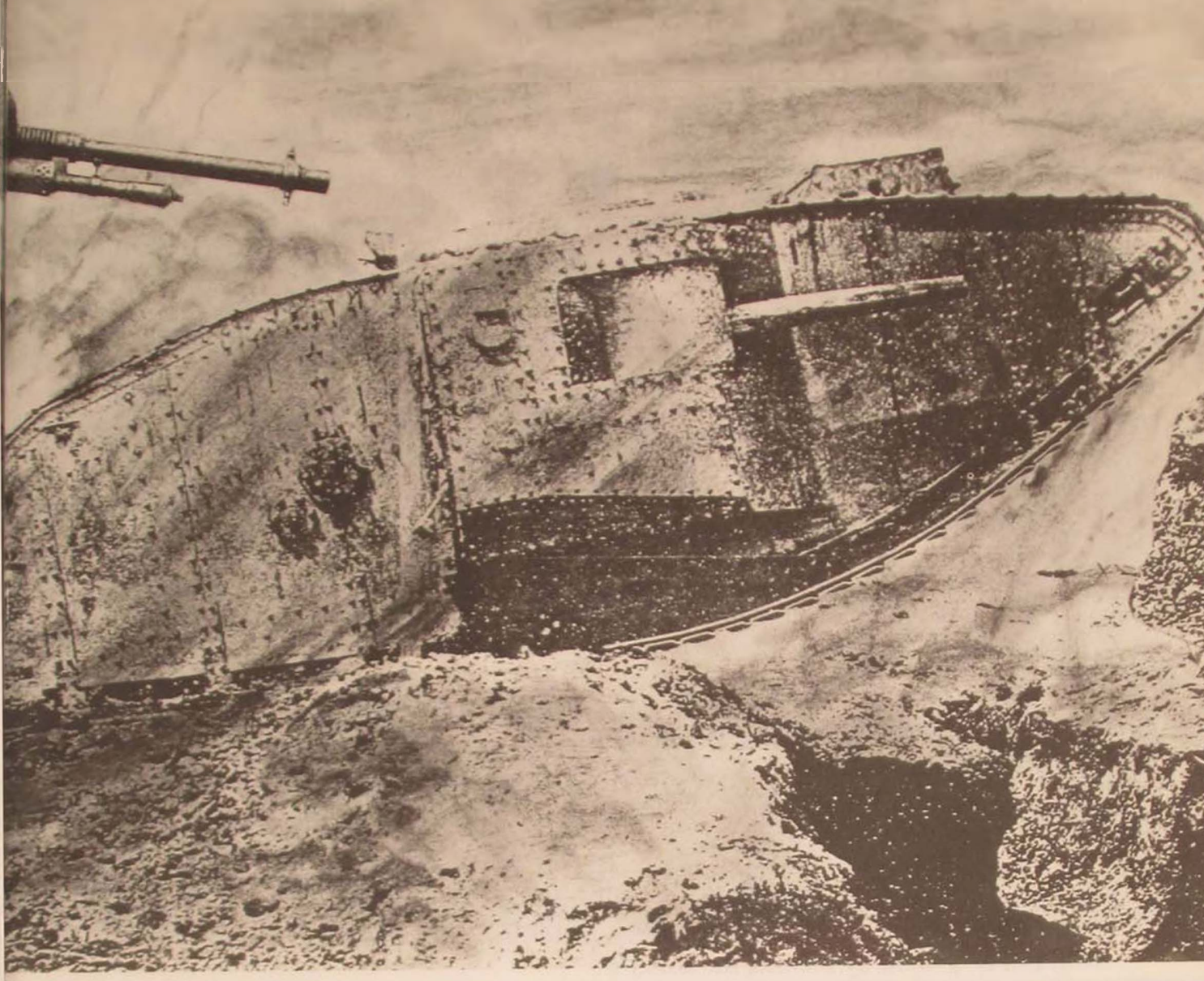
Dr Richard P. Hallion

THE AIR FORCE is virtually unique in its dependence upon high technology, specifically the technology of flight, both air and space. We have gone through many revolutions in aeronautics such as revolutions in structures, propulsion, controls, and aerodynamics, and over the years the Air Force has had to prove its mastery over these disciplines. Generally speaking, the service has relied on laboratory demonstration to validate concepts before applying them to operational systems. We can carry this a step further and consider the various technology demonstrators and so-called X-series aircraft as laboratory experiments or tools that have used

the sky as a laboratory. To give a pedestrian example, in the 1920s the advantages of turbosupercharging were demonstrated successfully at McCook and Wright fields, and the results of this work were applied to turbocharged engines of the late 1930s incorporated in such World War II-era combat aircraft as the B-17, B-24, P-38, and P-47.

Now, this schema of development is not unique to the Air Force; to a degree, the other military services operate in the same way. But because the Air Force as a service is wedded (and rightly so) to technology, there is always the danger that technology will make one's doctrine obsolete, will replace doctrine as the determinant of the fu-





ture course of the Air Force, and will become merely a convenient shibboleth endowed by advocates with greater significance than it in reality possesses.

We must recognize that both technology and doctrine are *dynamic* processes, always advancing or receding, and are necessarily adaptive to change lest they stagnate and lose relevance. Neither is independent of the other; rather, each generates a synergistic impulse that encourages and strengthens the other. The lagging of one is necessarily injurious to the other. For example, if doctrine lags behind technology, projects that are wildly fanciful may result, projects that are unrelated to the realistic needs and re-

quirements of the service. If technology lags behind doctrine, planners and decision-makers will likewise discover that their actual capabilities cannot meet their needs and expectations. An area of particular concern is the combination of an advancing but immature technology coupled with doctrine that is also changing.

Finally, we must recognize that both doctrine and technology are complex systems embedded within other complex systems, and thus responsive—one might even say vulnerable—to external influences and pressures. An example is the contemporary decisionmaking environment afflicting defense systems acquisition, an environment

that is influenced as much by social, economic, and political pressures as it is by purely technological ones, or ones dealing with national defense doctrine.

The operational use of aircraft and aerospace systems, the development of technology, and the derivation and application of doctrine take place through the actions of individuals; it is the overall interactions of these often disparate communities—operators, engineers, scientists, and planners—that spell the difference between the successful or unsuccessful application of doctrine and technology. Each community has its own viewpoint. Operators, typified by aircrew, tend to believe that they alone are the best determinants of needs and requirements for combat aircraft and that they are best suited to evaluate the application of technology to meet those needs and requirements. Engineers and scientists, familiar with and accustomed to operating on the “cutting edge” of science and technology, feel that only they have the insight to determine what combinations of new and old technology will work in particular system programs. Planners and students of air warfare oftentimes voice skepticism at the abilities of these other two camps to determine future courses of action, feeling instead that more can be gained by placing the study of air war and the development of appropriate doctrine within a larger framework than that of the cockpit and the laboratory. In fact, as warfare itself is an integrated and “combined arms” exercise—as is aircraft design itself—so too should be the development of doctrine and the integration of that development into the ongoing national expansion of the existing technology and science base.

Historical examples abound where technology and doctrine have worked together poorly at best or unsatisfactorily at worst. It took several decades for navies to rid themselves of the notion of fighting parallel-course, broadside engagements, even after

the introduction of the all-metal ship mounting centerline gun turrets. The First World War offers numerous examples where military technology outstripped existing doctrine. Unimaginative brute-force frontal assaults crumbled under artillery and machine-gun fire.

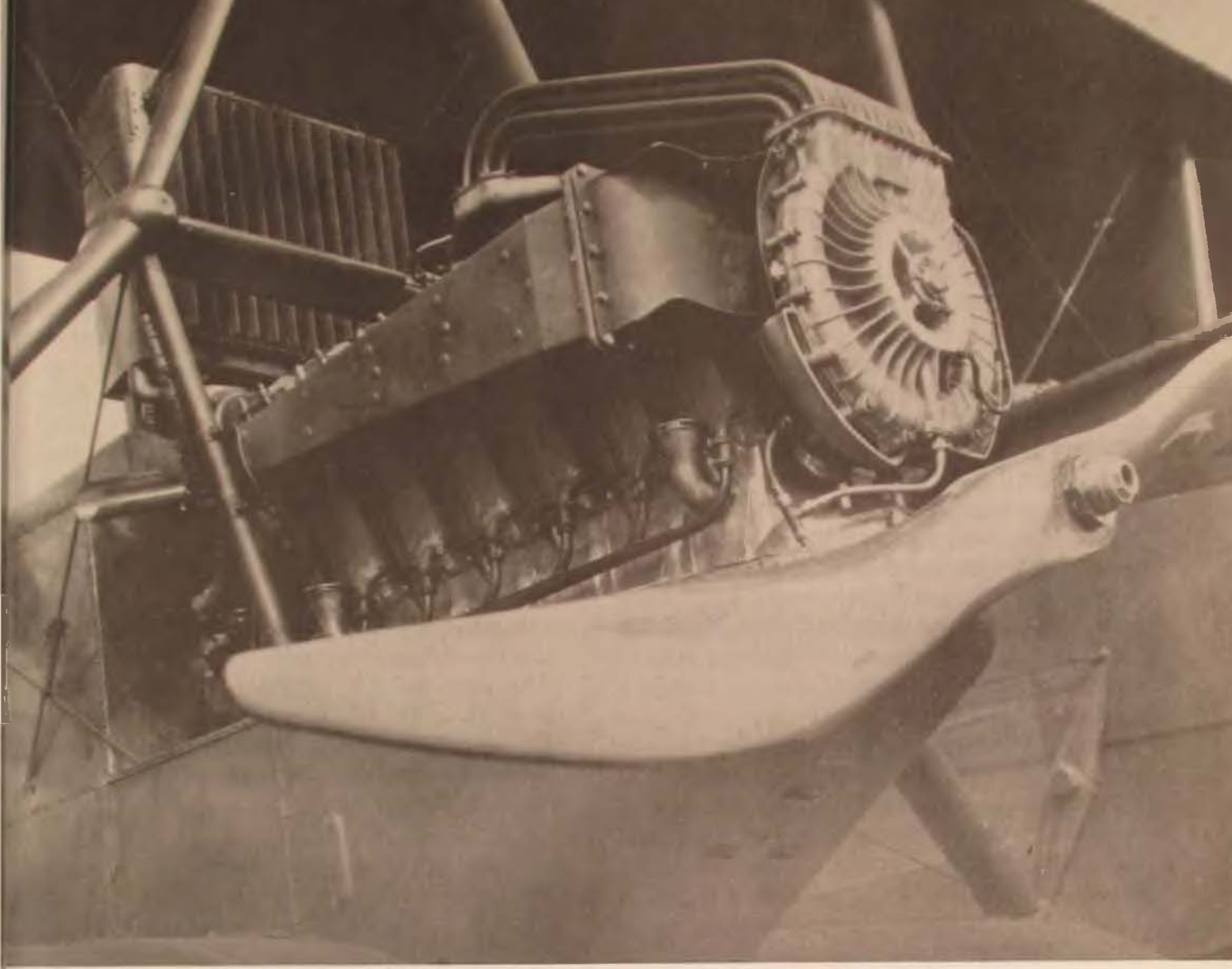
But mere technological superiority could not, on its own, drastically reshape military events. Rather, such superiority had to be coupled with appropriate doctrine in order to generate a kind of catalyst to change. For example, the initial use of tanks by the British at Cambrai in late 1917 offered the promise of converting the existing war of stalemate into a war of movement, perhaps resulting in a decisive breakthrough of Allied forces. Instead, the tank offensive halted when coordinated infantry and artil-

The Form B Supercharger (right) was a technological development in the 1920s that enabled the development of World War II combat aircraft such as the B-17 and P-38. It is a good example of technology supporting doctrine.

The two-seat Bristol Fighter (below) was considered a “sitting duck” until its aircrews changed their employment doctrine to enable them to effectively employ the advantages of the aircraft’s forward-firing guns combined with a defensive gunner.



The German fixation on advanced technology weapons, such as this V-2 ballistic missile (bottom right), contributed to Germany’s defeat in World War II.



lery support was not provided to the tankers. The introduction of a technologically superior weapon—the tank—had been frustrated by total lack of appreciation of how to use and support such a weapon. (France, incidentally, repeated this experience in 1940, even though its own tanks were, one for one, arguably superior to their German counterparts.)

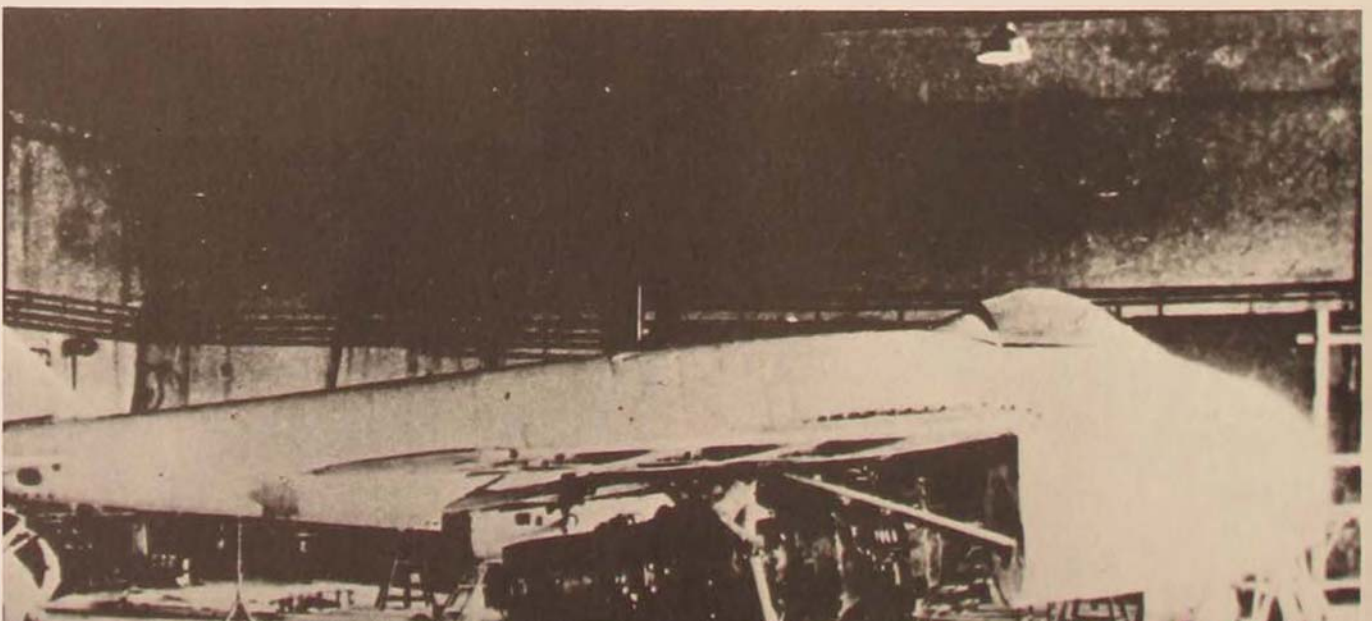
When the first two-seat Bristol Fighters appeared in 1917, air commanders considered them no different in principle from the existing two-seat reconnaissance aircraft of the day and directed that pilots should fly straight courses when engaging other aircraft, allowing their gunners to shoot down attacking German fighters. This essentially defensive notion of fighter employment immediately doomed them to defeat. Not until frustrated pilots began using these robust and maneuverable aircraft as they would a single-seat fighter—maneuvering them into firing position for their forward-firing guns and letting the rear gunner protect their “six”—did the two-seat fighter come into its own as perhaps being the finest general class of fighter to appear during the Great War.

In the war at sea, the prewar conviction of Great Britain’s Admiralty that the submarine was suitable only for coastal defense ig-

nored completely the offensive potential of underwater craft—an illusion shattered early on when a single U-boat sank the cruisers *Aboukir*, *Hogue*, and *Cressy*. By the middle of the war, of course, U-boats were already conducting operations off the North American coastline.

It is interesting to consider the interplay of technology and doctrine between the two world wars, highlighted by the development of fighter and bomber aircraft and the rationale for the use of both. World War I had already given dramatic evidence that long-range bombers could strike military and civilian targets over significant distances, as witnessed by the experiences of German, British, and Russian air services in the war, particularly the German bombing campaign against Great Britain. But it had at the same time also demonstrated—even at this early stage in air warfare—the extreme vulnerability of unescorted bombers to fighter attack. After the war, the impact of those bomber operations remained while

Advanced German aircraft designs, including the world’s first variable-wing aircraft, the Me P-1101 (below), and the Me 262 jet aircraft (right) were either ill-conceived or operationally wasted. Planners need to remember the German technology/doctrine split in future weapons and doctrine planning.



the specific lessons became muddled. Schools of thought arose—encouraged by the more extreme interpretations of Trenchard, Douhet, and Mitchell—that the bomber would always be able to get through to its target, which it would totally pulverize. This idea assumed axiomatic proportions.

At the same time, with the bomber assuming centerpiece importance in air power thought, the role of the fighter was shifted from maneuvering air combat to interception, with a resulting emphasis upon rigid tactics and mass formation attacks. The Spanish Civil War, while demonstrating the value of new high-performance monoplane technology, did not significantly change this thought, in part because the war's experiences were so limited that it was more of a campaign than a genuine European-style war. (As an aside, it should be noted that military analysts should always be careful drawing lessons from small wars and campaigns such as the Spanish war or the Falklands and Bekaa Valley experiences.) In Spain high-performance monoplane bombers, introduced when most of the fighters in service in Spain were still biplanes, generally were able to outrun their opposition, thus contributing a "factual" case to the myth.



Though Spain did demonstrate that fighter-versus-fighter combat was still viable in the era of the monoplane fighter (introduced before the end of the war), it did nothing to change the existing notion that bombers could get through to their targets. This pernicious doctrine remained in effect and had to be revised at bitter cost by the British, German, and American air forces during the Second World War. Britain learned it in 1939 over the German coast; Germany learned it in the Battle of Britain in 1940; and we learned it at Ploesti, Schweinfurt, and Regensburg in 1943.

The experience of Nazi Germany during the Second World War demonstrates the failure of a nation to match its technology with appropriate doctrine. That Germany found itself involved in a general multifront war is an indictment of the strategic planning process within the Nazi regime, particularly as that war enlarged to involve American and Soviet interests. German pre-war planning had so emphasized a short, tactically oriented war that almost from the outset Germany proved incapable of maintaining the research and development and acquisition flexibility required to meet the ever-changing needs of the long war that it actually found itself fighting. Germany, with a strong aeronautical technology base, proved incapable of developing the kind of long-range, high-payload bombers and transports that might have made a difference. It never developed a bomber in the class of the B-17 or B-24, much less the B-29, or a transport equivalent to the C-47 and C-54. Further, due to the politicalization of its scientific process and the pollution of that process with ideology, Germany robbed itself of the very scientific base that might have helped it produce an atomic weapon. Because technology tended to outstrip doctrine, the German research and development process was critically fragmented and isolated from the operational and planning world, and thus researchers tended to show an alarming trait of doing their own thing. This led to technologically fanciful projects more related to World War

III than World War II—projects such as ballistic missiles (a wasteful drain on the German research and development and war economy effort), supersonic research, and even a scheme for an orbital hypersonic bomber. What good technology did exist—such as the first operational jet fighter, the Me 262—was often badly managed and operationally wasted. The experience of Nazi Germany should be ever uppermost in the minds of defense planners, as there are lessons aplenty here in operations, doctrine, strategy, research and development, and acquisition.

Col Dennis Drew of the Air University Center for Aerospace Doctrine, Research, and Education (AUCADRE) refers to an "air power wilderness" afflicting Air Force doctrine over the last two decades (*Air University Review*, September-October 1986). He perceptively points out that our doctrine since the days of the Air Corps Tactical School at Maxwell (a school that, ironically, seems to have spent most of its time dealing with strategic questions) has emphasized two assumptions: wars are fought to destroy the enemy's ability and will to win via intensive attacks on the enemy's homeland; and the enemies of the United States will be modern industrial nations. Yet, since 1945 we have found ourselves fighting much different kinds of conflicts—limited wars in the third world. Although we assumed after 1945 that future air power applications would involve nuclear warfare against an enemy's heartland—specifically the Soviet Union and its allies—our wars have been conventional ones with nations that are not vulnerable to the kinds of pressures that can devastate an industrial nation such as Nazi Germany.

Instead of conducting global operations delivering strategic and tactical nuclear weapons, we have found ourselves of necessity fighting limited wars for prolonged periods of time—wars demanding the application of conventional air power. Unrealistic expectations about what could be achieved by conventional air campaigns, aggravated by often-contradictory political



direction that sent unfortunate signals to the enemy, as well as problems in often having to take aircraft optimized for one role and hastily adapting them to meet the needs of vastly different operational requirements, have led to high loss rates for marginal gain.

Thus, interdiction failed in Korea and failed in Vietnam. More precisely, though interdiction sorties took a high toll of enemy logistics and severely disrupted communications and transportation, the nature of the wars—marked by bitter but largely static fighting involving no great short-term expenditure of stockpiles—frustrated interdictors since the small amount of supplies that did get through were often more than sufficient to enable the enemy to maintain combat operations at the same or an even greater level of intensity. As Colonel Drew has pointed out, the tendency after Korea and Vietnam has been to consider these wars as aberrations—never-to-be-repeated experiences. On the other hand, I would



Long-range bombers, such as these B-17s of the 390th Bomb Group (left), showed that development of doctrine without technological capability to support it could prove deadly. The Navy's "flying bomb" (above), developed from 1916 to 1918, was not capable of supporting doctrine. It was not until 35 years later that a practical cruise missile, the V-1 buzz bomb, was developed. After World War II, technological problems buried cruise missile employment for another 35 years.

venture that these are precisely the kinds of conflicts that are the new norm: prolonged, draining, and frustrating wars of greater or lesser scope, constrained by a variety of factors, not the least of which are the political climates and popular attitudes within the United States and its citizenry.

In the face of this situation, we must ask ourselves, what is the necessary interplay between technology and doctrine today? Obviously, we must be concerned with the possibility of strategic nuclear warfare and with the nature of a general Warsaw Pact-NATO war. But, in addition, we must not neglect the kinds of conflicts that are more likely: necessary operations such as Grenada and the strike against Libya, scenarios involving Air Force operations in Central America, the question of limited war and low-intensity conflict, and—an important issue I think—the role of special operations forces in all of the above, including counterterrorist operations. Finally, there is another challenge: the role of the Air Force in

space. Will this require a special space doctrine?

It is well to consider briefly the doctrine and technology relationship within the Air Force since 1945. Generally speaking, the technology tail has wagged the Air Force dog. This is not necessarily a bad thing, but it does require some clarification. Since technology and doctrine are inherently dynamic, the rapid expansion of technology should trigger an anticipatory, proactive impulse within the doctrine community so that doctrine can be established to guide the application of high technology for suitable Air Force missions. Too often this has not taken place. Tying technology too closely to existing doctrine and philosophy immediately after World War II led to the creation of classes of straight-wing aircraft, ironically blending advanced turbojet propulsion with late-1930s aerodynamics. These were awkward vehicles rendered quickly obsolete by the swept-wing transonic designs of the late 1940s. On the other hand, when



technology was freed from such doctrinal constraints but while doctrine itself did not keep pace with technological development, the result tended to be wildly fanciful ideas perhaps best typified by the atomic airplane program of the 1950s or the aerospace plane program of the 1960s.

We have found repeatedly since 1945 that the aircraft we have designed for a certain mission have had to be modified at great cost and with a relative loss of efficiency for other missions. For example, with the exception of the F-102 and F-106 interceptors, none of the original century-series aircraft served—particularly in combat—in the role for which they had been originally intended. In some cases, our fascination with technology over doctrine has led to questionable programs actually placed in production, such as the F-104 and B-58, or to expensive prototype efforts that led nowhere, such as the XB-70A. (The civilian world is not immune to such problems, of course, as evidenced by the attempt to develop atomic-powered merchant ships,

The AC-130 gunship is an example of technology developed in the 1960s with little attempt to consider next-generation doctrinal needs.

commercial nuclear power-generated plants, and the supersonic transport.)

Ironically, it was the failure of the Air Force to ensure that it maintained a fleet of combat aircraft appropriate to the service's needs in the 1960s that led to the adaptation of three types from the Navy: the F-4 Phantom II, the A-7 Corsair, and the A-1 Skyraider, the latter being acquired primarily as a counterinsurgency aircraft. The Korean War had a profound impact upon the Navy, and that service responded very quickly to its Korean experience by modifying the doctrine concerning employment of carriers. Whereas previously the carrier had briefly sallied forth as a destroyer of fleets, it now became a mobile airfield intended to operate, if necessary, for extended periods of time in proximity to hostile shores—as it did off Korea and would do again on Yankee Station off North Vietnam. In Korea, the

Navy had lived in fear of air assault from the mainland. As a result, after the war the Navy emphasized development of air defense aircraft capable of undertaking substantial air-to-ground missions as well. The best example of this "swing-fighter" concept was the F-4, which, when it flew in 1958, was more than a generation ahead of any equivalent aircraft existing at that time. The F-100, F-101, F-104, and even the F-105 simply could not meet the Air Force's requirements in the way that the F-4 and A-7 could; hence, we adapted them in the 1960s.

Today the Air Force faces many challenges to the development of doctrine applicable into the 1990s. I would like to emphasize two: first, the challenge of doctrine appropriate to the limited war and low-intensity war environment that will, I predict, prove commonplace within the next decade; and second, the challenge of spaceflight.

During the 1960s, there was a blossoming of creative activity in applying appropriate technology to defeat the insurgencies and low-intensity threats of the time. However, today special operations forces (SOF) tend to mean little more than AC-130 gunships, MC-130 Combat Talon transports, HH-53 helicopters, and UH-1N Hueys for special missions. This situation should not exist

This XF-88 aircraft served as a technological testbed. The majority of century-series aircraft required significant modification to perform their eventual operational missions.



since there are many, many projected combat environments where such vehicles would not be survivable or effective. The era of the shoulder-mounted and portable surface-to-air missile and the plethora of cheap and relatively effective air-to-air weapon systems today pose threats that call into question our ability to undertake special operations missions. We need a doctrine that integrates *all* the combat elements of the Air Force into the SOF arena, as appropriate. Such a doctrine could in itself help influence the range of technology choices available to the Air Force for SOF vehicles and capabilities of tomorrow.

The field of spaceflight is another doctrinal challenge. I like to think that the state of technology and doctrine appropriate to spaceflight operations today is akin to that of submarines in the years prior to World War I. At that time, the submarine was considered merely a surface ship capable of brief excursions under water and operations close to shore. Over time, the depth, endurance, and range of submarines increased to the point where the American and German navies conducted global operations during World War II, and to the point where today's American and Soviet nuclear-powered "boomers" are vital players in strategic warfare scenarios. Today we envision operating advanced hypersonic vehicles on suborbital and orbital defense-related missions in proximity to the earth.

In traditional research and development fashion, we are proceeding with a planned technology demonstrator, the X-30, to furnish us with the requisite technology base to embark upon the development of mature systems—true aerospace planes. Yet again we see a case where the technology is leading our doctrine, for our doctrine with regard to space is imperfect. It is torn between those who see space as a unique environment requiring its own Mitchells or Douhets (hopefully, as someone has noted, without attendant Schweinfurts) and those who see it merely as an extension of the atmosphere. What needs to be addressed in space doctrine, given the state of flux with

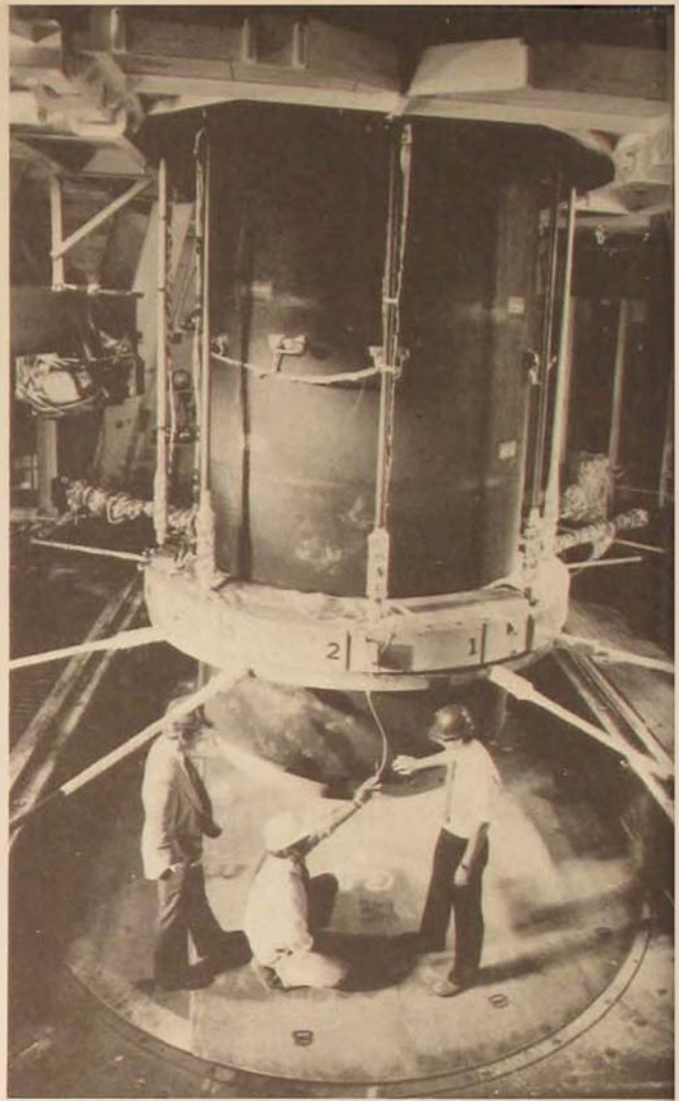
A Peacekeeper missile is engine tested (right). It was designed as a mobile ICBM but is now locked in fixed silos—the penalty for not considering the political and economic climate when developing doctrine. In developing our next generation of aircraft, such as the advanced tactical fighter (far right), we need to consider how to integrate our new technologies into a coherent combat force.

Shown below is a scale model of the B-1B undergoing wind-tunnel testing. Does this aircraft have the technology to match our doctrine?



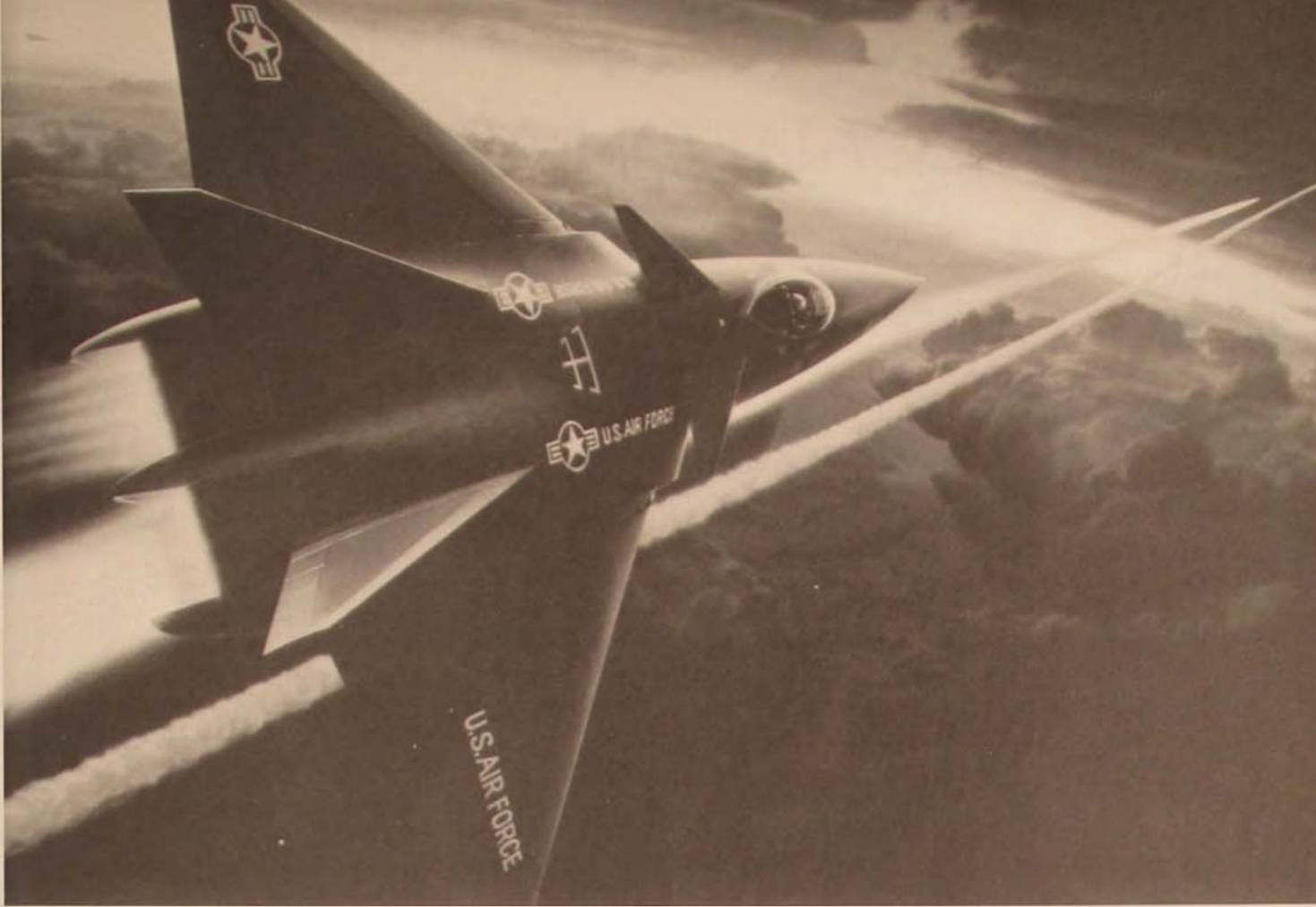
our national space effort, is its tacit recognition that we already rely heavily upon space for weather, communications, navigation, and intelligence assistance. Beyond this, we must develop a realistic appreciation of what near-term space systems may offer for these and other missions.

The key word here, I think, is *realistic*. Doctrine must function in the present, be appropriate for the *near-future*, possess *flexibility* and *adaptability* to meet changing conditions, and be rooted in the past, in *military history* and *experience*. It must re-



flect the complete climate in which it is framed, a climate including existing political and economic realities. And this brings up the state of conditions today, the climate in which we are shaping our doctrine.

Frankly, I think we must recognize that the approximately one decade of strong support for the national defense effort is rapidly drawing to a close, and, as a result, the shape of defense acquisition—and, for that matter, civilian high-tech programs as well—is open to question in the post-1988 time frame. If the Air Force is to support modernization of strategic forces via the advanced technology bomber (ATB), development of the advanced tactical fighter (ATF), development of the C-17, improvements to tactical aircraft such as the F-15 and F-16, possible development of new attack aircraft, modernization of special operations forces, support of the Strategic Defense Initiative Organization (SDIO), development of new heavy launch vehicles,



development of new small ICBMs, and support of the National Aerospace Plane and a wide range of technology demonstrators and flight research programs, we clearly have to have a cohesive doctrine that addresses where these elements—strategic warfare, airlift, tactical aviation, SOF, SDIO, and space—all fit together. Some of these, such as the ATB and improvements to the F-15 and F-16, appear safe from future legislative cuts. The rest—and it is a frightening thought—are still up for grabs.

Again, this is not something that afflicts merely the Air Force. The civilian world has this difficulty as well. I would not want to be a NASA planner in the post-1988 time period going up on the Hill to try to justify expenditures and improvements to the existing space shuttle, for development of a second-generation shuttle, for development of an orbiting space station, for development of a National Aerospace Plane, for support for a broad range of aeronautics re-

search, and for support for a broad range of space science and exploration research. Obviously some—and possibly many—of those simply are not going to fly.

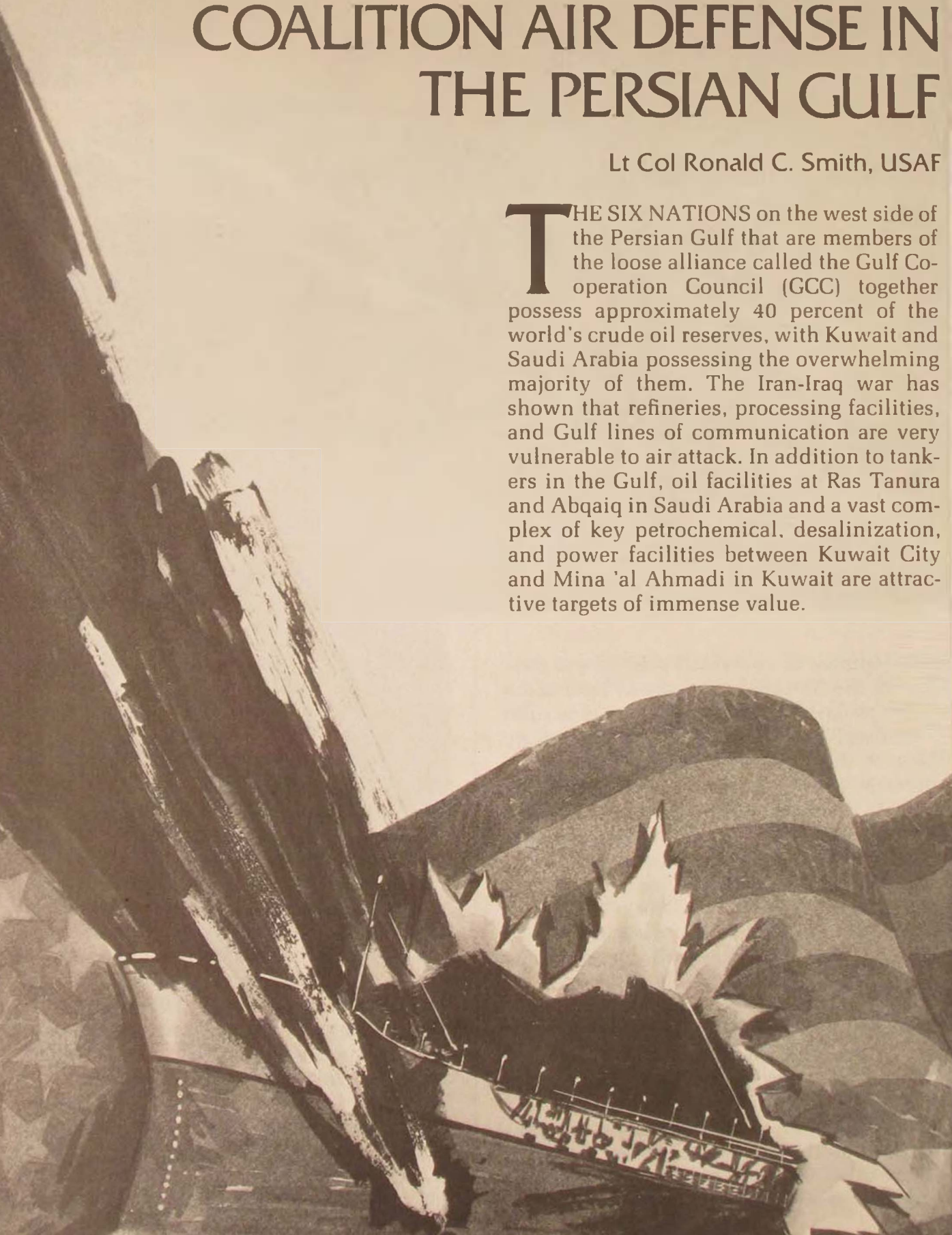
In this environment, doctrine is more than a theoretical luxury of value only in the classroom. It must instead be the binder, the adhesive, *justifying* our future technological research and development, *rationalizing* our planned acquisition strategy, and *governing* our present employment of forces. The challenge faced is a complex one that involves convincing the operational and the research, development, test, and evaluation worlds of the value of doctrine to them as they undertake their mission today and their planning for the future. But it is a challenge that must be faced, for at no time in the previous 40 years of Air Force history has the service faced such a range and complexity of possible futures. □

Editorial Note: The text of this article is taken from the keynote speech delivered by Dr R. P. Hallion to the Air Force Doctrinal Conference, Hurlburt Field, Florida, 5 March 1987.

COALITION AIR DEFENSE IN THE PERSIAN GULF

Lt Col Ronald C. Smith, USAF

THE SIX NATIONS on the west side of the Persian Gulf that are members of the loose alliance called the Gulf Cooperation Council (GCC) together possess approximately 40 percent of the world's crude oil reserves, with Kuwait and Saudi Arabia possessing the overwhelming majority of them. The Iran-Iraq war has shown that refineries, processing facilities, and Gulf lines of communication are very vulnerable to air attack. In addition to tankers in the Gulf, oil facilities at Ras Tanura and Abqaiq in Saudi Arabia and a vast complex of key petrochemical, desalinization, and power facilities between Kuwait City and Mina 'al Ahmadi in Kuwait are attractive targets of immense value.



Although individual members of the GCC have spent billions of dollars on defense and are beginning to work together on some matters, they are not yet able to defend themselves against the major regional powers—Iran and Iraq—nor, understandably, against Soviet might. If recent experience is any indicator, GCC air defenses are likely to be challenged periodically and the United States is likely to be involved in air defense assistance to the GCC. Several air defense scenarios could be considered.

Scenario one: Iran is unable to gain the upper hand in the stalemated Iran-Iraq war. Angry at Kuwait and Saudi Arabia over their continuing support for Iraq, Iran launches several air attacks against them. To anyone who has followed the Iran-Iraq war and its spillovers, this is not an unrealistic scenario. Iran bombed Kuwait in 1981 and had an air skirmish with Saudi Arabia in June 1984. In addition, both Iran and Iraq have made air attacks on Arab-owned tankers carrying oil from ports in Kuwait and Saudi Arabia.

Scenario two (which is being acted out as this is written): The United States, with some involvement of European allies, provides naval escort for tankers in the Gulf. Cooperative air defense by the US Navy, US Air Force, and some GCC countries is especially important in view of the mistaken Iraqi attack on the *USS Stark* and the threat of Iranian air attack in the "tanker war."

Scenario three: The Soviet Union invades Iran. In this scenario, US Central Command (USCENTCOM) forces are given basing rights in Gulf states. The United States conducts conventional air attacks on Soviet forces in Iran and provides logistics support to US troops attempting to slow the Soviet advance. Bases in Saudi Arabia, Bahrain, and other Gulf states would be high-priority targets for Soviet air attacks.

The focus of this paper is GCC air defense capability, with emphasis on the somewhat neglected command, control, and communication (C³) elements. GCC capabilities and limitations will be characterized; US direct military assistance and security assis-

tance goals, capabilities, and shortfalls identified; and the need for cooperative effort emphasized.

The GCC

The concept of a Gulf security arrangement has existed since the early 1970s. Prompted by a number of events including the Iran-Iraq war, internal security problems, and possibly the Soviet invasion of Afghanistan, the six nations of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE) signed the GCC charter on 25 May 1981. The charter generally states that GCC objectives are coordination, integration, and interconnection between member states in all fields.¹

The Need for Mutual Security

The GCC has social, economic, and political aims, as well as internal and external security concerns. Because security was high on the list, a GCC military committee was established later in 1981 to begin work on joint exercises, a joint military command, and cooperation in air defense. GCC wealth has purchased a wide range of weapons, many of them state-of-the-art. However, many of these expenditures appear to be in response to local rather than regional concerns. This is not surprising since each country has its own internal and external defense problems requiring a variety of forces that frequently must counterbalance each other in addition to countering external threats. All of the Gulf states are relatively new nations with political and military power distributed along tribal lines, which can hinder internal and international cooperation. The result is ineffective use of resources and redundant military effort that may not support regional defense goals.

GCC countries do not have a wealth of people. The aggregate GCC population is in the range of 12-15 million, and only about 50 percent of the population is literate.²

This is not a very large base for supporting national development efforts and simultaneously providing qualified personnel to operate increasingly large arsenals of sophisticated military equipment.

Two other factors exacerbate the population problem: the distrust between members of different Moslem sects and the protective attitude of Moslems toward females. Approximately 6 percent of the GCC population is Shi'a Moslem. (In Bahrain, Shi'ites constitute a numerical majority.) In nations ruled by Sunni Moslems, Shi'ites are usually not trusted with military positions or, at best, are given only subordinate roles. The female portion of the GCC population is not utilized in the military or in most of the civilian sector due to the prevailing Moslem protective attitude toward women. With such a small population to draw on and with the GCC's relatively recent entrance into the world of modern technology, the quantity of highly skilled military personnel is low.

Total GCC military forces number approximately 137,000 compared to Iran's 555,000 and Iraq's 642,000.³ It is difficult to give an exact numerical breakdown of air defense forces that could be the first line of defense for the GCC. Some GCC air defense units serve in land forces and some in air forces, and in Saudi Arabia there is also a separate military service for air defense missile forces. A generous estimate (which includes all GCC air force personnel) is 28,000 men. These forces are generally in an uphill struggle to operate and maintain the equipment they have now. The hill becomes steeper as the military buildup continues. The need for air defense cooperation among the relatively weak GCC states seems self-evident.

Cooperation in the GCC cannot be taken for granted, although several heads of individual states are related. Saudi Arabia, under its first king, Abd al-Aziz Ibn Saud, once ruled most of the GCC states. It is no secret that the Saudis aspire to leadership of the GCC; however, the other GCC members tend to be skeptical of Saudi motives and natu-

rally have their own national sovereignty concerns, pride, and goals to consider. Some are leery of linkage with the United States because of its close ties with their avowed enemy, Israel, and because of its record of inconsistent policy and action in the Middle East. Close GCC association with the United States could draw the ire of more radical Arab states and Iran. The GCC as a defense alliance is in a precarious position—its members not entirely trusting each other and yet needing to be drawn together for mutual support. They are unable to defend against the large regional powers and therefore want to have US assistance in a pinch, but they do not want a close relationship in the meantime because that could in itself cause a crisis.

Whether the other GCC nations wish to admit it or not, the Saudis are the mainstay of any GCC air defense effort by virtue of wealth, political ties, population, military equipment, and geography. The GCC, in turn, has little alternative than to look to the United States for air defense assistance if the situation gets beyond the alliance's limited capability.

GCC Capabilities for Air Defense

In October 1981, Iranian aircraft bombed Kuwait. In early 1984, Iran and Iraq began attacking ships in the Persian Gulf, some of which carried oil loaded in Saudi Arabia and Kuwait. Also in 1984, the Saudis successfully defended against an Iranian F-4 attacking Saudi Arabia. In November 1986, Iranian F-4s reportedly attacked a French-operated oil platform 30 miles from the UAE.

In three of these four situations, the GCC countries involved were unable to defend against attack. A number of factors contributed to air defense impotence, including the lack of long-range early warning, limited response time, limited communication, and lack of coordination between member countries. In the fourth situation, a small attack was thwarted by the Royal Saudi Air Force (RSAF), but not without key help from the

Table 1, GCC Air Defense Forces

	Missiles	Fighters	Command and Control
Bahrain	RBS-70	F-5	—limited manual system
Kuwait	Hawk	Mirage F1	—integrated air defense system being built
Oman	Rapier	Jaguar	—manual integrated radar system
Qatar	Rapier	Mirage F1	—very limited
Saudia Arabia	Hawk	F-15	—AWACS
	Shahine	F-5	—Air Defense Force missile command and control system nearly complete
	Stinger		—Peace Shield (RSAF) C ³ being built
	Redeye		
UAE	Hawk	Mirage F5	—Electronic warfare early warning system under construction
	Rapier	Mirage 2000	
	RBS-70		

Sources: *The Military Balance, 1985-1986* (London: International Institute for Strategic Studies, 1985); and *DMS Market Intelligence Reports—Middle East/Africa, 1985* (Greenwich, Conn.: Defense Marketing Services, 1985).

US E-3 airborne warning and control system (AWACS) and US ground C³ equipment deployed to Saudi Arabia in 1980 at Saudi request. Although the Saudis made their own air defense decisions and flew the interceptors that shot down an Iranian F-4, the US-operated C³ equipment probably made the difference between being the shooter and being shot.

The GCC has recognized its need for effective air defense. Since 1984, Saudi Arabia alone has made deals worth approximately \$12 billion to buy AWACS, air defense missiles, and two ground command and control systems.⁴ Major suppliers of air defense equipment to GCC countries include the United States, the United Kingdom, France, and the USSR (to Kuwait). The diversity of sellers and equipment is in itself a barrier to interoperability and efficient joint use. Table 1 shows the variety of air defense equipment in use or planned.

Individual air defense capabilities vary between Gulf states with Saudi Arabia

being best equipped. Surface-to-air missiles provide responsive close-in protection at lower operational cost than fighter-interceptors but do not have the latter's range or flexibility. The longest-range missile in the GCC inventory is the Hawk (an estimated 22 batteries, which is complemented by numerous medium-range Rapier, Shahine, Crotale, and SA-8) and short-range (RBS-70, Stinger, and SA-7) missiles.

Fighter-interceptors provide long-range defense and are normally very responsive if kept at high states of alert or on an airborne patrol. GCC nations have approximately 240 fighters, of which one-third are front-line F-15 and Mirage 2000 interceptors.⁵ But other aircraft—the F-5, Mirage F1, and Jaguar—are significantly less capable in an air defense role. Together, GCC missiles and aircraft are moderately capable of air defense in depth if they can be put to timely use and coordinated by effective C³.

C³ capability in the GCC has generally lagged behind other air defense equipment.

In recent years Saudi Arabia, the UAE, and Kuwait have begun to narrow the gap by making large expenditures on new C³ systems. All six GCC countries have taken actions to improve their radar detection capability with both surface-based systems and, in some cases, are considering airborne systems such as aerostats (balloon-borne radar systems) or fixed-wing platforms. For example, Saudi Arabia, in a joint venture with a US company, has developed and tested an aerostat radar platform called the low-altitude surveillance system. Initiatives to obtain better radar detection and integrated command and control equipment will play a critical role in GCC air defense capabilities. Air defense forces without effective C³ are like a football team without a coach; individual talents notwithstanding, there will be no one to coordinate the team effort.

Two potential star players on the GCC C³ team are the Saudi AWACS (Peace Sentinel) and the Peace Shield programs. The five Saudi AWACS delivered between June 1986 and March 1987 give, in principle, the same air surveillance umbrella that the US AWACS has provided for seven years. In fact, AWACS is so complex to operate and maintain that Saudi Arabia will most likely be dependent on US contractor support for the life of AWACS.⁶

Clearly, AWACS capability is needed by the Saudis and the GCC. With it, a potential hostile attacker can be detected and tracked over 200 miles. The Persian Gulf is not much of a barrier to air attack. Simple calculations show that a bomb-laden F-4 could travel at low level from Bushehr, Iran, to Ras Tanura, Saudi Arabia, in about 17 minutes. With AWACS, this raid can be detected almost immediately, giving defenders time to launch fighters and to activate missile defenses. Without an airborne radar capability, warning time is cut to about five minutes at best.

The Peace Shield program complements the Saudi AWACS program. Peace Shield, an RSAF C³ system, will be a network of command centers, ground radars, and com-

The E-3A Sentry AWACS is a mobile, flexible, and survivable early warning command and control center for the identification, surveillance, and tracking of airborne enemy forces. The Royal Saudi Air Force has five such aircraft.





munication sites strategically placed throughout Saudi Arabia. The system will take inputs from any ground radar site, and AWACS, displaying them in each regional air defense facility as well as the command operations center for Saudi air defense decisionmaking and management.

Conceived in the early 1980s, the Peace Shield program was not begun until 1985 and will not be completed until the early 1990s. The guiding force behind Peace Shield has been Prince Fahad bin Abdullah, former RSAF director of air operations and now deputy minister of defense and president of civil aviation. Prince Fahad is a visionary who saw Peace Shield as a means to three ends: first, to link RSAF forces together in one system; second, to integrate the air defenses of other Saudi armed forces into one national system; and third, to serve as the underlying structure for a regional air defense network. Whether the other Saudi forces will cooperate and whether the GCC nations will agree to link with Peace Shield remains to be seen. Obtaining cooperation is a difficult but not impossible task.

GCC C³ Problems

A list of GCC C³ problems should include at a minimum those associated with manning, segregated command and control, barriers to sharing information, identification, and proliferation of incompatible equipment.

Manning AWACS and Other C³ Facilities

The critical AWACS support issue is probably crewmembers. US contractors can maintain AWACS in peacetime, but US contractor personnel are prohibited by US law from flying on combat missions. In addition, a US congressional prohibition on members from other nations operating Saudi AWACS prevents the Saudis from obtaining outside help from the third-country sources.⁷

The 17-position AWACS crew is difficult for technically developed nations to fill. In

addition to four flight-crew positions, there are 13 mission-crew positions that all require moderate to high-technical sophistication. Limited manpower, aggravated by demands of the private sector, and other competing military systems (such as the Tornado and ground command and control systems) are likely to plague the Saudi AWACS for its lifetime. Other GCC states are no better off than Saudi Arabia and will have similar problems with new systems.

The First Two Cs: Command and Control

Another problem area for GCC air defense is old manual command and control systems that use 1950s technology, that are generally not computerized, and that depend on manpower-intensive devices such as grease-pencil plotting boards to display information. No GCC member has a system that automatically integrates all the air defense information available within a country. Some systems use a mixture of manual and digital information; some are completely manual. Manual methods are not inherently bad, just too slow for modern air defense. As indicated above, at least three GCC countries have embarked on new command and control programs, but in some cases they will not be complete for years.

One other aspect of this problem is that individual command and control systems cannot quickly pass information back and forth between countries. This is an absolute necessity for a truly integrated and responsive defense effort on the part of the GCC. Pooling information will become more important as the amount of data and the capability of sensors increase. This ability to share information is called interoperability. The interoperability concept has been slow to develop in the GCC. There are recent indications that the idea is taking root. For example, the UAE reportedly refused delivery of the first French Mirage 2000 fighters because they did not meet UAE specifications for interoperable communication with other GCC fighters and did not have the capability to fire US missiles.⁸

The Third C: Communication of Information

Saudi AWACS information could be of use to other GCC countries. An AWACS flying to protect the northeastern portion of Saudi Arabia could also provide valuable information to Kuwait, Bahrain, and Qatar. However, the US Congress placed limits on the use and transfer of Saudi AWACS information as one of the conditions of the AWACS sale. The terms state that the information from Saudi AWACS will not be shared with any other country except by mutual US-Saudi agreement.⁹

It seems possible that mutual agreement could be reached on sharing Saudi AWACS information with GCC countries. An air defense information link was reportedly established in 1984 between Kuwait and Saudi Arabia for the transfer of US AWACS data.¹⁰ This sort of arrangement could serve as the prototype for sharing on a limited basis. Since Saudi AWACS cannot cover the entire GCC defense area simultaneously, its information would not be of use or interest to all members.

The sharing of air defense information, whether by data or voice, must be done rapidly and by secure means. Integration of air defenses depends on integration of communication and secure devices. A popular misconception about modern secure devices is that if a device falls into unfriendly hands, the entire system is compromised. In fact, today's secure devices are about as useful as bookends without the material or device that puts the encrypting code in them. Thus, a loan of one country's secure devices, or better yet, a GCC common device, could be used on GCC business with a GCC key. Under this concept, each country could also have its own unique set of keys that would permit national secure communications unmonitored by anyone else.

Identification—Who is the Enemy?

A well-integrated command and control network helps to solve a notoriously difficult problem for any alliance—that of deter-

mining friend from foe. With six different types of GCC interceptor aircraft, numerous missile systems, and often more than one agency with an air defense role in each country, it is difficult to keep from shooting down as many allied aircraft as the enemy does. Ideally, common GCC identification equipment would solve this problem. US experience in other alliances indicates that obtaining agreement and common equipment is easier said than done. Alternatively, if each GCC country can keep track of its own aircraft and has the capability to rapidly exchange this information with other GCC members through interoperable C³ systems, fratricide can be reduced.

Proliferation and Incompatibility

The diversity of air defense suppliers and equipment obtained without an air defense master plan has resulted in an interoperability nightmare. Nine different surface-to-air missiles, six air defense aircraft, and C³ systems from at least three different countries greatly complicate attempts to work together—although such diversity complicates the problem for attackers. The reasonable goals of obtaining lower prices through competition and avoiding dependence on one supplier may not seem as important when the time comes to defend together.

The situation is not hopeless. On the positive side, an overall GCC air defense planning effort has started. GCC defense sectors have been laid out, basic procedures discussed, and modest joint air defense exercises conducted. Principles of commonality, interoperability, and joint operations are at least in the military lexicon of most GCC countries. Advisers associated with the GCC have indicated that the GCC has solicited a contractor study of air defense facilities. This study or others like it could be the basis of a GCC air defense master plan.

With this broad overview of the equipment and some of the limitations of individual (and by extension, GCC) assets, let us turn to the second part of the potential coalition air defense force—the United States.

US National Interests

The 1980 Carter Doctrine states that the Persian Gulf was an area vital to US interests and that the United States would militarily intervene there if necessary. A US Rapid Deployment Force (RDF) was formed as a means to implement the doctrine. Largely a paper force at first and initially without plans or means to get to the region, the RDF was a target of much criticism. The RDF became the basis for the US Central Command, which now has responsibility for the Persian Gulf area and is severely hampered by not having any in-place forces.¹¹

Some Political Realities

Although the United States continues to seek bases on the Arabian Peninsula, it is unlikely to achieve success even in relatively closely aligned nations like Oman.¹² It appears that there is little chance that a sizable US force would ever be based in a GCC state in peacetime. The GCC nations simply do not want large standing US forces in the area. Even after requesting US escorts for tankers, Kuwait and other GCC countries are limiting military cooperation to areas specifically related to that mission.¹³ The United States should accommodate to that fact. This is not to say that the United States would never be asked to send direct-assistance forces to the region, in which case basing rights would then be granted.¹⁴ An over-the-horizon US presence appears to suit the GCC, although this places the United States at a severe disadvantage in coming to the GCC's aid in a timely manner.

The United States has demonstrated its willingness to come to the aid of the Gulf nations should they need and request it. It has sent fighter and radar air defense forces to the Gulf a number of times in the past and quite likely will have to deploy them in the future. For example, US AWACS have been in Saudi Arabia for seven years. It is less

likely that the United States would be called on to deploy the entire USCENTCOM force. Although massive troop deployments are less probable, the consequence of failure to operate effectively is much greater.

Given these political realities, it is appropriate to briefly discuss the air defense forces that might provide direct assistance to the region, then turn to the indirect efforts through the security assistance program.

Direct Assistance

As a subset of the overall USCENTCOM military package, air defense forces share the same problems that plague the entire over-the-horizon effort—distance, time, firepower, and sustainability. For ease of discussion, USCENTCOM air defense forces can be placed in two categories: quick-reaction forces for contingencies and forces for major confrontation with the Soviet Union. (Supporting and sustaining forces, although very important, will not be discussed.)

Quick-reaction forces are generally air forces such as a small number of F-15 fighters and AWACS. Personnel could also be deployed to act as liaison with host-nation forces and might be used to augment some air defense units. Similar forces have been used in past contingencies. The 1980 AWACS deployment to Saudi Arabia is an example of this kind of package without fighters. The advantages of this type of force are that it is easy to send, can respond and deploy within hours, and provides a quick show of US resolve. On the negative side, these forces are relatively light in terms of equipment and are not self-sustaining for long periods. Quick-reaction forces can fill gaps in existing radar coverage, increase air interceptor effectiveness, and thus improve air defense capability.

The air defense portion of the "major confrontation" package includes greater numbers of the quick-reaction forces, a full-blown air defense system complete with tactical command and control equipment,

plus the full range of US air defense missiles and guns (such as Hawk, Chaparral, and Stinger). An obvious US goal should be that of combining its air defense capability with that of the GCC to protect vital Gulf areas and US forces from attack. US equipment and personnel could fill gaps in GCC capability, strengthen defenses, and at some points tie the US and GCC air defense system together.

US "confrontation" forces provide much greater capability for air defense, but they require a great deal of transportation and time to arrive in theater. The distance from the United States to Saudi Arabia is roughly 7,000 miles by air (16 hours) and 9,000-12,000 miles by sea (20-30 days).

The following example will demonstrate the magnitude of USCENTCOM's transportation problem. Hawk is a key part of the US missile defenses. Air deployment of one Hawk battalion requires about 215 C-141 equivalents.¹⁵ The total airlift on any given day is 400 C-141 equivalents.¹⁶ However, it is unlikely that the total US airlift capacity would be available to USCENTCOM due to other high-priority commitments, staging, and geographic factors. A lesser number, in the range of 250-300, may be more realistic.

From USCENTCOM's point of view, air defense should have a high priority for deployment so that operating bases can be protected, but a single Hawk battalion uses a day's worth of airlift. The need to support air forces and to get ground troops into Iran quickly could preempt deployment of air defense weapons. Equipment that does not shoot (like the US Air Force's tactical command and control system) and that is airlift intensive (roughly 49 C-141 equivalents for one control and reporting post) could miss the war because it will arrive by ship weeks later.

In summation, massive US defensive firepower will not arrive in the region quickly. Command and control equipment, other than airborne systems like AWACS, will lag behind direct-combat systems due to movement priority. This transportation bottleneck is what makes US support for organic

GCC air defense capability so important because GCC forces and equipment will already be in place on day one of any conflict. One avenue through which the United States can support the GCC and its own interests indirectly is the security assistance program.

Security Assistance

In his 1985 State of the Union Message, President Reagan said, "Dollar for dollar, our security assistance contributes as much to global security as our own defense budget."¹⁷ It has long been the goal of the US security assistance program to build an indigenous capability for defense that could reduce or obviate the need for direct US involvement. More recent policy pronouncements state that specific US goals in the region include strengthening Saudi and moderate nations' forces with equipment that is interoperable with US equipment.¹⁸

There are many barriers to US security assistance efforts. Among these barriers are arms restrictions, emphasis on management rather than capability, special interest groups, and the country receiving the assistance.

There are numerous restrictions on the type of equipment and technology we can sell to another country, and the process of approval and release is too complex to deal with here. Some restrictions protect the US "technological edge," but sometimes they get in the way of common sense. For example, the point-to-point data links used in Hawk command and control equipment (the TSQ-73) were not deemed releasable. Thus, TSQ-73s in the GCC inventory cannot "talk" with equipment that USCENTCOM may deploy into the area. In addition, TSQ-73 link capability differs between GCC states.

In the interagency review process—usually involving the Department of Defense, the State Department, the Office of Management and Budget, the National Security Council, and others—the emphasis seems to be on getting the sale through Congress, arranging funding, documenting arrange-

ments, and setting up management plans. Those are important, but they detract from efforts that should be devoted to ensuring that the equipment is what the buyer wants and can use and that it is compatible with US equipment. Nowhere in the US security assistance system does there appear to be an advocate for operational effectiveness. It is possible that US management of security assistance programs suffers from many of the same ills that plague the DOD procurement system.

Special interest groups can adversely affect security assistance. This is especially true in Middle Eastern matters. Lobbying against a sale often slows down or blocks the approval process, thus absorbing much of the time and effort of US agencies and complicating our foreign policy. A classic case is the Saudi AWACS sale proposed to Congress in 1981. Between the time of the formal Saudi request for an AWACS/F-15 air defense package on 26 March 1981 and its approval on 28 October 1981, inter-agency groups met 42 times to resolve problems and coordinate efforts and strategy.¹⁹ After a rather bloody fight, the sale was approved in the Senate by a narrow 52-48 margin. The threat of another such battle over the delivery of AWACS in 1986 caused much concern and generated an inordinate amount of work to avoid a repeat of 1981.

The receiving nation itself is at times a barrier to successful security assistance efforts. Frequently nations want the most advanced equipment whether or not they can afford it or can absorb it into their military forces. GCC countries are no exception. Cost is usually not the major consideration, but getting the most sophisticated US weapons is. Weapons sales become barometers of the political climate.

A related barrier is competition within the receiving nation's military structure. For example, there are four command and control centers in Riyadh, Saudi Arabia, one for each military service. Each of these command centers is linked with elements of its particular service. Especially in the area of air defense are some information lines

needlessly duplicated. Given service rivalries, it is unlikely that the command centers exchange much information with each other.

The Record

Given the above and other barriers to security assistance, how well has the United States achieved its stated security assistance goals? The Hawk situation has already been mentioned. Technical workarounds to the Hawk problem are possible, but if not developed, tested, and procured, they will not be available for the next contingency.

US AWACS shares a fair degree of equipment commonality with Saudi AWACS. A more important feature is that US and Saudi AWACS can communicate, with proper coordination, on the same data link.²⁰ This also means that Saudi AWACS can work with appropriately equipped US Navy ships. US forces will also be able to exchange information with the Saudi Peace Shield C³ system in the future.

The Peace Shield system, a foreign military sales acquisition, could provide the backbone of a GCC C³ network. The US Air Force manages the program for the RSAF. The Peace Shield program has the potential to integrate the entire Saudi air defense system and to facilitate exchange of information between GCC nations.

A Note on the Role of Our European Allies

Early air defense assistance to Saudi Arabia was done in cooperation with the British. For around \$400 million, the British provided fighters and radars while the United States provided Hawk missiles and communications equipment. The system was established in 1965.²¹ Since that time there is no evidence of overt security assistance cooperation between the United States and Britain or any other ally. This is very unfortunate and shortsighted because the United States and Europe have convergent interests in preserving the flow of oil from the area. US and European forces separately escorting ships in the Gulf may serve to reem-

phasize to the Europeans the need for interoperability and cooperation.

Conclusion

The GCC has a fairly good inventory of air defense weapons, but C³ has fallen behind other modernization efforts. Also, the proliferation of equipment has had a negative effect on interoperability because procurement actions and upgrades have been made piecemeal. C³ upgrades, along with planned air defense force modernization, will ultimately improve GCC capability for self-defense against small attacks and give these nations some capability to hold out until assistance arrives. Because of distance and

time factors, US assistance may not be quite as rapid as all concerned would wish. It is therefore critically important for the GCC to integrate its air defenses to increase their effectiveness. Concurrently, it is incumbent on the United States and its European allies to help the GCC by overcoming security assistance barriers.

Problems of a political nature, as well as technical barriers, stand in the way of a GCC-wide integrated system. Political problems will require internal solutions. The technical problems may be solved by a master air defense plan, driven by interoperability goals, and with provisions for US military forces to tie in, when necessary, for coalition air defense. □

Notes

1. For an excellent discussion of GCC origins, structure, and related issues, see Nadav Safran, *Saudi Arabia: The Ceaseless Quest for Security* (Cambridge, Mass.: Belknap Press of the Harvard University Press, 1985), chap. 14; J. E. Peterson, *Defending Arabia* (New York: St. Martin's Press, 1986), 185-224; and R. Hrair Dekmajian, "Conflict and Cooperation in the Gulf," *Middle East Annual* (Boston: G. K. Hall and Co., 1984), 83-106.

2. James A. Bill, "Resurgent Islam in the Persian Gulf," *Foreign Affairs* 63, no. 1 (Fall 1984): 120; and *Defense and Foreign Affairs Handbook 1986*, 10th ed. (Washington, D.C.: Perth Corporation, 1986), 51, 418, 561, 608, 636, 766.

3. *The Military Balance, 1984-1985* (London: International Institute for Strategic Studies, 1985), 59-72. The GCC's estimate is higher—160,000 men—as cited in the *Los Angeles Times*, 30 November 1984, A-4.

4. *DMS Market Intelligence Reports—Middle East/Africa* (Greenwich, Conn.: Defense Marketing Services, 1985), 4, 5, 26.

5. *The Military Balance, 1984-1985*, 59, 65, 68, 69, 72.

6. Testimony of the under secretary of defense for policy, in House Committee on Foreign Affairs, *Proposed Sale of Airborne Warning and Control System and F-15 Enhancements to Saudi Arabia*, Report 97-268, 97th Cong., 1st sess., 1981.

7. James K. Gordon, "Debate Expected Over Plan to Sell Missiles to Saudi Arabia," *Aviation Week and Space Technology*, 3 March 1986, 26; and Bernard Gwertzman, "Accords Pave Way for Saudi Control of AWACS Planes," *New York Times*, 15 June 1986, 1.

8. Giovanni de Briganti, "Emirates Refuse Mirage Deliveries," *Defense News* 2, no. 1 (5 January 1987): 21. There may have been other factors that contributed to the refusal such as manpower and training problems.

9. Gordon, 28.

10. *DMS Market Intelligence Reports—Middle East/Africa, Kuwait II*, 7.

11. Although frequently used for effect, this statement is not entirely correct. USCENTCOM has forces in the region: four or five US Navy ships of the Middle East Force operating from Bahrain, and the four AWACS and ground C³ support in Riyadh, Saudi Arabia. There were nine ships in the Middle East

Force in August 1987, according to Loren Jenkins, "Gulf Harbors Doubts about Naval Build-up," *Washington Post*, 16 August 1987, A23.

12. The sultan of Oman has stated that his country will stick by the 1980 agreement allowing US access to military installations and authority to store military equipment in Oman, but he has declared that US bases in Oman would never be agreed upon. Statement in the *Boston Globe*, "Oman holds moderate, independent course in sultan's hands," 10 January 1987, 3.

13. David B. Ottaway, "Arab Cooperation with US Grows," *Washington Post*, 21 July 1987, A1.

14. The GCC views denial of US basing rights as a means of reducing the likelihood of superpower involvement in the region. For the GCC to make open admission of intent to request US intervention in the Gulf could make things difficult for them with the less-moderate Islamic states. More likely are remarks of the type made by the Kuwaiti ambassador that leaders of the GCC "hope to see the region free from military operations and big powers rivalry." Quote in *Foreign Broadcast Information Service (Middle East and Africa)*, 31 October 1986; FBIS-MEA-86-211, vol. 5, C3. Individual GCC nations such as Oman might independently request US intervention, but a GCC consensus, except in extremis, seems highly unlikely.

15. Discussion with Third Army air defense personnel on 12 November 1986.

16. *Developing Cooperative Forces in the Third World*, 14-15 March 1985 conference, Rand Report N-2325-USIDF (Santa Monica, Calif.: Rand Corp.), 250. Note: 400 C-141 equivalents include the C-5 aircraft, also available for airlift.

17. *US Foreign Policy: The Reagan Imprint* (Washington, D.C.: Congressional Quarterly, Inc., 1986), 6.

18. Statement by Assistant Secretary of State for Near East and Southwestern Affairs Richard W. Murphy, in *Department of State Bulletin* 86, no. 2111 (June 1986): 70-73.

19. Peace Sentinel (Saudi AWACS) program working paper, undated.

20. Many people in the DOD fought hard to get the US data link (called TADIL-A) released for use in Saudi AWACS. Their ultimate success was a major step toward interoperability and coalition air defense.

21. Safran, 97, 109.

EDITORIAL

End Of An Era

Maj Michael A. Kirtland

WE NOTE with nostalgia the announcement of the deactivation of the last Titan II ICBM complex at Little Rock AFB, Arkansas. The departure of the last of the liquid-fueled ICBMs closes a chapter in American military history dating back a quarter of a century. Fifty-four Titan IIs were based at Little Rock, McConnell, and Davis-Monthan AFBs beginning in 1962. Since then a great deal of military history has transpired. Through it all, the Titan IIs quietly maintained their nuclear alert.

The tremendous deterrent effect of the Titan's multimegaton warhead, the largest in the inventory, proved too valuable to deactivate, and so its life was repeatedly extended. Congressional pressure after the 1980 accident at Little Rock, the cost of maintaining support equipment for this liquid-fueled missile and finally ICBM force modernization programs caught up with this valuable missile. In addition to the Air Force missiles on alert, Titan IIs provided the launch vehicle for the Gemini astronaut program for NASA. Now they will be held in reserve at Norton AFB, California, as expendable space-launch vehicles for DOD satellites.

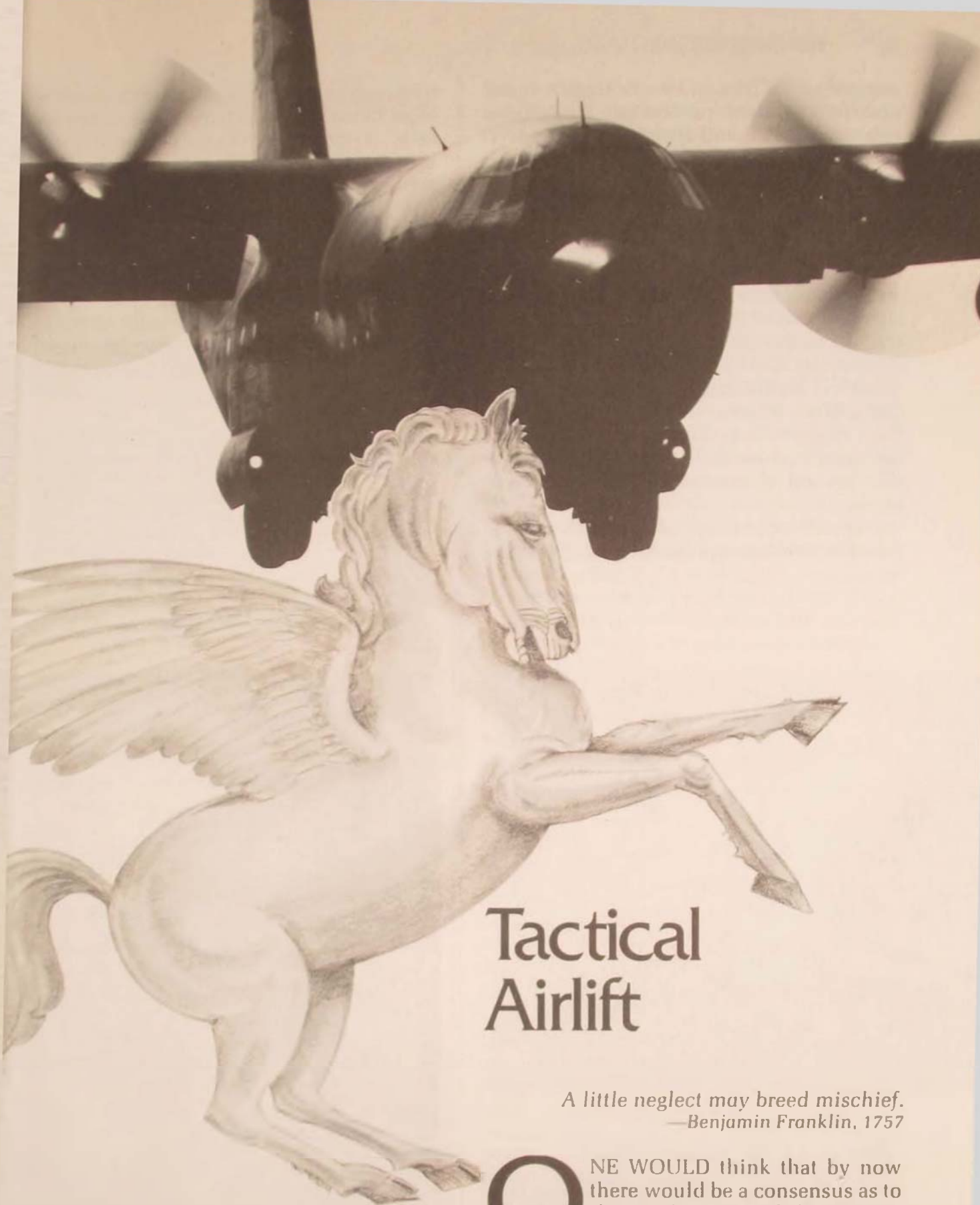
Other systems came and went. At Davis-Monthan, for example, the F-4s came and went. So did the A-7s and the U-2s. The O-2s came and went, as did the drone groups, while the 18 missiles sat silently waiting. Various world crises erupted and ended, but the Titan IIs continued to maintain their quiet watch over the nation. People in other weapon systems often poked fun at the giant missiles, pointing to their own air victories in Vietnam and asking what the Titan IIs had done. Titan II wings gained their share of trophies, unit citations, and successful operational readiness inspection (ORI)

scores; but after all, they did not fly, and this made their value a little suspect. It also made for a difficult morale situation, since the only reward for a successful alert was a chance to do it all over again another day. It is one of the ironies of nuclear strategy that the more successfully you deter your enemy, the less you actually have to do. The Air University Library is full of Air Command and Staff College and Air War College papers on how to solve this dilemma. But since it is a dilemma that is inherent in the work, the missileers had to make their own morale.

Each of the Titan II wings won the Blanchard Trophy, symbolic of the best missile wing in SAC, at least once. They trace their heritage to B-17 units in World War II, units with impressive records like those in the Schweinfurt raid in 1943 and those that set records for downing enemy aircraft. Now, people will ask what the Titan IIs accomplished. They have no air victories, no tattered battle streamers stained with the blood of combat. The Titan II's dead died in the line of duty, underground, surrounded by concrete, and away from the public eye. They died in peacetime accidents, not combat, but they gave their lives keeping the peace just the same. Most of the time the public never even realized they were there. Occasionally a crew would get a call from their own gate phone from someone asking what the place was. When told, the callers usually hung up quickly and departed, not really believing what they had been told.

But the Titan II crews rolled up the best score of all—54 missiles on alert day-in and day-out for 25 years without having to conduct an operational launch. The mission of nuclear deterrence continues because peace is a never-ending quest. Other missiles and other missileers continue the tradition, waiting patiently in their underground homes and hoping they will never have to roll back their giant doors. But as the last of these tired old giants end their alert, we might at least stop long enough to think about the quarter century of nuclear peace that they presided over . . . and say thanks.

□



Tactical Airlift

*A little neglect may breed mischief.
—Benjamin Franklin, 1757*

Brig Gen Billy M. Knowles, USAF, Retired

ONE WOULD think that by now there would be a consensus as to the application of the US Air Force tactical airlift discipline in

support of the AirLand Battle doctrine and maneuver warfare, particularly if one considers what AirLand Battle and maneuver warfare imply or that the tenets of that doctrine are not in serious question. If a consensus exists, it is not readily apparent in budget perturbations, program documents, the Five Year Defense Plan, connectivity between joint and service doctrine, or joint training and exercising. Certainly, there resides a sense of illusoriness, and thus frustration, in the minds of the tactical airlift community. Col Paul L. Wilke's prize essay, "Tactical Airlift Tactics and Doctrine: More Carts, More Horses," in the May-June 1986 issue of *Air University Review*, is an excellent introduction and serves to focus on an obvious and worrisome link in the doctrinal chain.

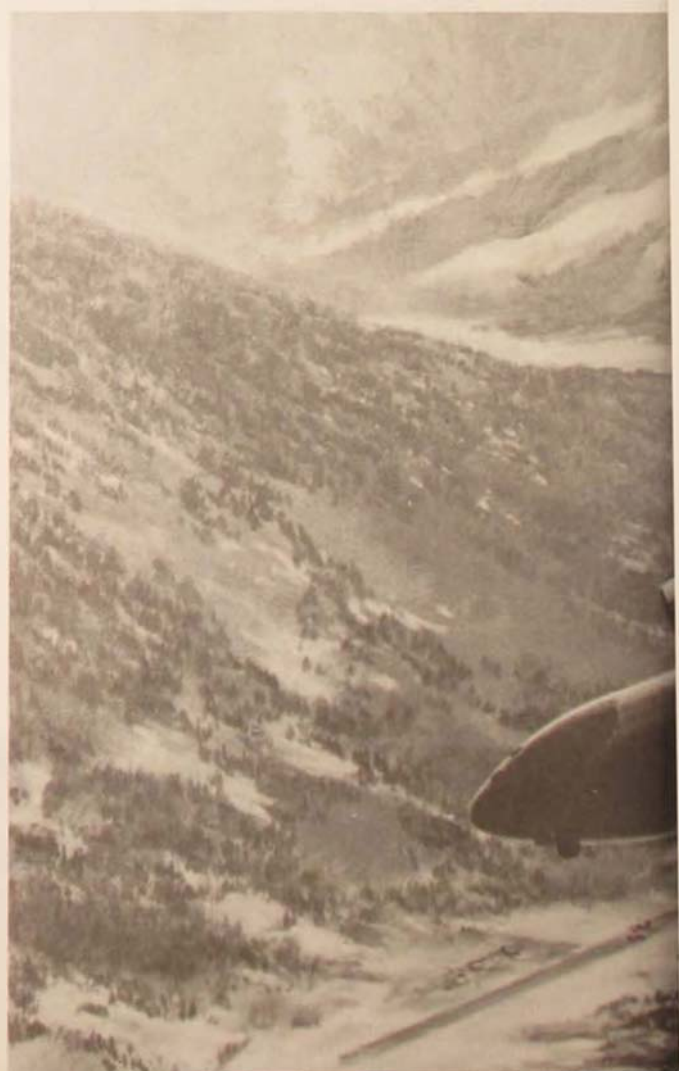
Memoirs of our greatest twentieth century warriors are replete with recollections

of career-long preoccupation with doctrine. Most lament that doctrine all too often has been developed during the course of hostilities, not the best of times to decide such issues. Fortunately, in the early 1980s, the Army formalized its concept for warfighting. Called "AirLand Battle doctrine," it represents the fundamental statement for warfare and is outlined in Field Manual 100-5, *Operations*. This manual, which has since been revised to better describe the integration of sister services into the overall

The YC-15 (right) is now in mothballs at Davis-Monthan AFB. The YC-14 and 15 were the last attempts to consider a follow-on aircraft for the C-130 over a decade ago. Below is an artist's concept of the C-17. Although this aircraft will have intratheater capability, it will still be the tactical airlifters that deliver troops and supplies into battle.



Depicted above is a model of the Boeing CX aircraft from 1981. The follow-on aircraft for strategic airlift has been well considered. Unfortunately, no such thorough consideration has been given to tactical airlift forces.





battle, also incorporates NATO recommendations for improved execution in both joint and combined operations. The Army's success on the battlefield will depend on its ability to fight in accordance with its four basic tenets: initiative, depth, agility, and synchronization.

As Colonel Wilke points out, Air Force Manual (AFM) 1-1, *Basic Aerospace Doctrine of the United States Air Force*, and AFM 2-4, *Tactical Air Force Operations—Tactical Airlift*, clearly define what the Air Force responsibility is to be in support of the Army. Acknowledging a lack of definition as it would relate to a current threat assessment of the envisioned battlefield, I submit that this results from a continuing erosion in tangible advocacy for tactical airlift as an AirLand Battle-contributing discipline. Insufficiency of advocacy is, in my mind, the underlying reason why the tactical airlift community remains in a quandary and seems to be adrift for lack of specificity with regards to current and future weapon system capability and operational tactics.

Long before single management of all airlift, tactical airlift occupied the last rear seat on the bus. It certainly did not compete well with modernization priorities, which at the time were so imperative to the fighter forces. During that period, it also suffered major setbacks when Secretary of Defense Robert S. McNamara, intent on overselling the virtues of the C-5, launched conflicting signals by redefining intertheater and intratheater requirements. It can be readily understood under such circumstances why, as the Air Force moved from acquiring first Curtiss, then Fairchild, and now Lockheed tactical airlift aircraft, that not one weapon system was designed to actually perform the full spectrum of its missions. And before anyone takes issue with that statement, let us just glance at the C-130—a truly great workhorse. As fine a machine as it is, there was never a thought for radar warning receivers or electronic countermeasure (ECM) pods or flare/chaff dispensers. It has a wet wing, and there is no internal system to ensure predictable "time of exit" for airdrop, still



An RAF C-130K undergoes stretch modification. A similar modification to US Air Force C-130s could provide an interim solution until a follow-on tactical airlift aircraft is ready.

the only uncontrolled variable in the computed air-release point (CARP) system. (Opening delay, forward travel ballistics, and drift plot are indeed controllable.)

Furthermore, much is made over future inventories that include a stealth bomber, an advanced tactical fighter, strategic airlift's C-17, and a high-performance rotary-wing special operations weapon system. No advanced intratheater tactical airlift system is keeping pace, even though both the National Military Airlift Subcommittee of the House Armed Services Committee in 1970 and the Heritage Foundation in its January 1986 "Backgrounder" paper urged development efforts for timely C-130 replacement. Of course, there have been a number of similar studies and recommendations from varying sources before and during this period, but these two are referenced to in-

dicating 16 years of relative inattention and clear inaction.

Later, under single management, tactical airlift has not fared much better due to similar competing priorities. For a while it was largely due to the strategic-tactical dichotomy, or the "Big MAC—Little MAC" syndrome. As had previously been its experience in competing with fighter priorities, tactical airlift subsequently found itself unable to compete with strategic airlift's 66-million-ton/mile-per-day mandate, shrinking budgets, or increasing emphasis on special operations—each a compelling issue in its own right.

Notwithstanding tactical airlift's near-orphan status, Army, Air Force, and joint doctrines fully expect the Air Force to provide the tactical airlift response necessary for maintaining the initiative, depth, agility, and synchronization on which AirLand Battle success depends. I can well imagine that if and when a major land war erupts, the joint force commander (JFC) will spread established joint and service doctrine on his desk right alongside his execution plan. I

can further visualize his land component commander (LCC) levying tactical airlift support requirements on the air component commander (ACC) to satisfy the fluidity and dynamics of a developing land war. It would be helpful to remember at this juncture that the ACC is not Headquarters Military Airlift Command (HQ MAC) or the theater commander of airlift forces (COMALF). Nor will there be much argument or time for scholastic dissertations. Even if the ACC demonstrates reluctance, perhaps prompted by COMALF concerns stemming from preconflict survivability questions, the JFC is the adjudicating authority. His game plan calls for Air Force support, and I suspect he will get it. War is still hell. Those who still remember a land war in Europe can recall boring in on hundreds of strategic or tactical objectives, absorbing remarkable losses, but pressing in all the same. The two situations are not as dissimilar as one might wish. In all major conflicts, losses are seriously measured against requirements and objectives. Under current doctrine, the LCC has every right to expect the Air Force to provide sufficient tactical airlift assets at the place and time of need and with the precise integrity and interval across or into an objective area that supports the intended ground tactical circumstances.

In his provocative and imaginative book *Red Storm Rising*, Tom Clancy, knowingly or not, incorporated all four tenets in his exciting dramatization of the AirLand Battle and maneuver warfare. *Initiative* passed between adversaries at times. *Depth* was alternately achieved and denied, as was *agility* (maneuver). *Synchronization* often was blown as much by the winds of war as by deliberate planning. But the author left to the reader's thought processes the logistic struggles in the deep and immediate rear area of the flowing lines of battle. It is fairly certain that sustainment was, and would be, as dependent on responsive air as on ground lines of communication (GLOC).

There are those who argue that since the actual capability of tactical airlift is more than just in question, doctrine should be

changed. Others, as pointed out by Colonel Wilke, are devoting inordinate time to tactics and training designed to increase survivability but without due regard to the doctrinal commitment. Either position should be disquieting to the principal beneficiary, the Army. Yet the Army probably has contributed as much to this dilemma as has the absence of devoted Air Force advocacy.

Within the Army there is a whole generation of line officers who have little regard for or knowledge of proper use of tactical air, whether fighters or tactical airlift. Joint exercises are already fraught with enough artificialities such as vertical and horizontal airspace restrictions, time compressibility, environmental constraints, decreasing reservation space, and exercise scenarios primarily dependent on core-unit (Army) training objectives. To make matters worse, the Army prepositions all that it can, relies on surface movement, and has not shown the inclination to learn the intricacies of coordinating, requesting, competing for, and deconflicting finite tactical air assets. Even accepting that major exercise artificialities are a fact of life and either cannot or will not materially change, the primary user of tactical air is not only denying optimum realism of training for both the Army and Air Force participants but is institutionalizing a growing belief that ground forces can go it alone and is unintentionally withholding its strong advocacy for tactical airlift in this case. Perhaps they remember their last strong support for the Air Force's advanced medium STOL (short take-off and landing) transport (AMST) and "CX" strategic airlift initiatives. Maybe Army confidence in jointness is not as high as it should be. Ironically, its own AirLand Battle doctrine, which says otherwise, will suffer the consequences.

It is not the purpose of this paper to dart down interconnected corridors in search of weight, cube, or volume. But it is appropriate to remind ourselves that jointness is truly nonnegotiable for two reasons. The first is one of law. Under its constitutional

authority, the Congress has made it reasonably clear that a condition for preserving separate services vice a uniservice is the expectation for an intelligent, cost-effective economy of joint effort (and all that that entails). It has been parochial service intransigence that has brought "military reform" once again to national attention. The second reason for the nonnegotiability of jointness is to avoid the wartime tragedy that results from preconflict interservice rivalries and competition for missions, roles, and funds at the expense of and detriment to deliberate planning.

So, we all have contributed to the plight in which tactical airlifters find themselves. However, tactical airlifters will not solve the problem by suggesting the doctrinal statement of responsibility go away nor, through frustration, by developing tactics that ignore doctrine. Instead, the essential first step must be a renewed commitment by both the Air Force and Army as strong advocates of this discipline. Please note that I am careful not to insert the C-17 into the equation. Whether the C-17 becomes a reality or not, the rather "untidy"—the original "cigarette-and-puke-for-breakfast"—intra-theater tactical airlift job in and around the forward line of own troops (FLOT) will remain one for the C-130s and allied equivalents. A very fluid, elongated FLOT of hundreds of miles requires daily short-notice reaction when shoring up combat forces flowing with the tide of battle, answering the dictates of either offensive or defensive maneuver. The aforementioned basic tenets remain initiative, depth, agility, and synchronization. Only infrequently will "brigade airdrop" or insertion by C-141s or C-17s be a player and then will be unlikely if in the rather awesome and lethal electronic combat environment of a high-threat battlefield.

Once serious Air Force and Army advocacy for tactical airlift has been reestablished, the rapid acceleration of follow-on initiatives is fundamental to any meaningful mending of the tactical airlift discipline. All C-130 models must be retrofitted

quickly with off-the-shelf, existing radar warning receivers, ECM pods and chaff, and flare dispensers. Without reasonable prospects for a near-term replacement for the C-130, we must go with what we have and upgrade its capabilities. There is nothing particularly new in such a concept. We do it all the time; so do the Soviets.

Next, we must keep the C-130H production line open and replace the older models as quickly as fiscally prudent. All the while, we must rethink current intentions to draw down tactical airlift. Any further diminution only serves to exacerbate the situation. There is every reason to believe a serious shortfall has existed a long time. Holding the line where we are and upgrading and modernizing the fleet will not satisfy present shortfall, but it is a wise and cost-effective expedient.

All of the above should begin to tip the scales in the right direction, but there are two more matters that must not be overlooked or the issue will stall out and create new frustrations. The same doctrine that commits the Air Force to bore into a hostile objective area, as previously described, makes abundantly clear that such operations will—repeat, will—require a high degree of control of the air and massive tactical air support, both battlefield air interdiction (BAI) and close air support (CAS). Colonel Wilke made this abundantly clear in his essay. Up to now we have outlined things the "big" Air Force and Army must do. Now enter stage left, the tactical air forces (TAF)—that is, committed F-15, F-16, F-4, A-7, A-10, EF-111, and WEASEL resources. It is a fair assumption that TAF does not spend much time thinking, planning, and, more importantly, training those people to provide en route and objective-area protection, specifically in support of intratheater airlift. Joint exercises, as previously stated, do not purposefully incorporate such operations in their scenarios. Air Force Red/Maple Flag and composite force training (CFT) exercises do not formalize such requirements. True, many units gin-up such opportunities in CFTs because they re-

alize the need; but even then, en route escort and objective-area protection lack institutional development and guidance. And, of course, several more layers of artificialities overlay the operations. Ironically, the mechanism already exists that would allow the Army's Training and Doctrine Command (TRADOC) to pull the players together.

As a matter of fact, MAC's Airlift Concepts and Requirement Agency (MAC/ACRA), a joint agency of TRADOC, must be given appropriate credit for publishing a MAC-TRADOC "Qualitative Intratheater Airlift Requirement Study" as recently as 30 November 1985. That study accurately reaffirms joint and service doctrine, provides a basis for the requirement for tactical airlift, and defines both prerequisites and inhibitions for successful response. Obviously, then, neither Colonel Wilke nor this author is reinventing wheels or disturbing graveyards of the ancient past. The MAC-TRADOC study indeed addresses tactical airlift in terms of the AirLand Battle. There is not, however, a discernible roadmap towards fruition. Instead, there is a sense that the corporate community knows what should and would be done if only there were not so many other priorities. We have all learned that studies do not always find their way down the "yellow brick road." Maybe there is no Oz, but we sorely need an institutional wizard.

Both the Tactical Air Command (TAC) and MAC's Airlift Concepts and Requirements Agency are legitimate (institutional) participating partners of TRADOC. If we introduce the TAF's responsibilities and capabilities into the formal training environments, that part of the doctrine will come alive. At the very least, we should

wargame the proposition in a Blue Flag exercise dedicated to determining attrition factors with and without "a high degree of control of the air and massive tactical air support." I should think the Army would be vitally interested in such an evaluation.

Though not near term in value, the last ingredient towards permanency would be definite development efforts by the Air Force for a timely replacement for the C-130—a dedicated follow-on intratheater airlift weapon system. Such an aircraft must not be gold-plated but should be specifically designed for the envisioned battlefield. The weapon system will mean as much to the Army as to the Air Force. Given their vested interest in theater airlift, it is logical to expect strong Army support for such an aircraft.

IN CONCLUSION, all-party advocacy is the cornerstone for recovery. Off-the-shelf electronic countermeasures/ electronic warfare upgrade of the current C-130 fleet, concurrent with continued "H-model" modernization, and discontinuance of tactical airlift drawdown are all essential and doable, even in a Gramm-Rudman era, providing tactical airlift is not conveniently perceived to be an impediment to other programs. The TAF must accept and vigorously pursue their role in support of this doctrinal requirement. And finally, a follow-on intratheater airlifter is an imperative.

In the absence of real solutions, the Army can rightfully remain suspicious of Air Force intent, the Air Force can question the doctrine, and the tactical airlift community, in its frustration, will go on jinking and juking, content with "every man for himself." Then one day it will be SURPRISE! SURPRISE! Bore in, gentlemen. □



Shortchanging Our Young Officers

Military Traditions Denied

Lt Col Stephen C. Hall

LOOKING OUT over the 80-plus shiny, squeaky-clean, company grade officers gathered in front of me at the Johnson Manned Space Flight Center in Houston, Texas, I could not help but think that if this group of young men and women did not make a person feel great, then feeling great was simply not in the cards. We were halfway through a day-long seminar I bill as the "Company Grade Officer Training Program, or Lots of Things

Someone Should Have Taught You Along the Way But Probably Didn't!" and it had been a day to remember. Since beginning this free-lance program over two years earlier, I had traveled all over the country speaking to young officers and had never met a more enthusiastic group. We had talked about everything from military justice and how to put a bad actor in confinement to social etiquette and how not to feel like a fool in a receiving line. Their response

had been exhilarating; the young officers were eager, bright, and hungry for traditional military values. Their response was all the more exciting when I reflected upon how far removed from the mainstream of Air Force lives these engineers and computer experts were; the Space Flight Center did not even have a BX! Nevertheless, these young officers showed the same desire for traditional military values I had witnessed in well over 1,500 of their contemporaries all over the country.

I introduced the first hour of the afternoon session by stating the topic of discussion: military customs and courtesies and the senior/subordinate relationship. For 30 minutes I extolled the accepted formalities and courtesies exchanged between officers of different rank and especially between commanders or supervisors and their subordinates.

"There is a long-established tradition of courtesies and customs," said I, "all designed to show proper respect for persons of higher rank and authority and to clearly define and to make more workable the senior/subordinate relationship." I then spent several minutes discussing why it is wrong to use a senior's first name. From the back of the room a second lieutenant raised his hand.

"Sir, I have a problem with that," he said.

On the one hand, I was not surprised at his comment, since a certain aversion to special treatment for higher rank is not uncommon among officers of this young man's generation. On the other hand, this particular group had been so receptive to my strict military line that I was taken aback just a bit by the lieutenant's objections.

"What's your problem?" I asked.

The lieutenant stood up, looked me straight in the eye and replied, "Sir, I'm an engineer and I work for a major who keeps telling me to call him 'Jim.' Sir, if I'd wanted to call my engineering boss 'Jim,' I'd have gone to work for Hewlett-Packard!"

And in 35 words, that young second lieutenant said it all. We as an institution, as a profession, are denying to a fine, eager

group of company grade officers the very military values for which they raised their right hands. We fail to train them in long-established military customs, courtesies, and traditions; we fail to demand proper and enthusiastic execution of duties along traditional military lines; and then we wring our collective hands and with bowed, shaking heads bemoan an officer corps that "just isn't what it used to be." The problem is big and getting bigger as year after year we fail to give our young officers the basic underpinnings of military virtues that will carry them through their careers.

What Are Our Young Officers Saying to Us?

How does one truly discover the issues posing the biggest problems for our lieutenants and captains? How do we really find out what they need to develop into the best officers they can be? For two years, from 1984 to 1986, I had a rare opportunity to explore these questions with over 1,500 young officers.

As a four-time aircraft maintenance squadron commander, I had discovered that my own officers were very uncomfortable in certain situations and, not surprisingly, did not perform well at certain critical times. My officers were terribly uncomfortable with officer/enlisted relationships, not an uncommon or unexpected malady for a 24-year-old second lieutenant faced with leading 100 enlisted members. Similarly, my young officers viewed military justice and discipline as a hot potato to be tossed either to the first available NCO or to the commander. And last, but far from least, my officers almost totally lacked those basic social skills that are a proud part of our military heritage.

To attack these weaknesses, my young officers and I developed the Company Grade Officer Training Program, a slightly unconventional series of weekly training sessions

using lectures (by both me and my officers), role-playing, and field trips to expose the young officers to topics that were essential to their professional development. The course was so successful that we subsequently presented it to officers throughout the base and eventually took the show on the road. Through nothing more than word-of-mouth advertising, invitations began rolling in from all over the country. Eventually the program was presented to hundreds of lieutenants and captains from coast to coast. At every stop, the company grade officers were literally bursting with questions, problems, and issues that they were understandably uncomfortable broaching with their superiors but that they readily revealed to a relatively safe source of information like me.

Throughout all the seminars, no matter the locale or the professional specialty or source of commission of the audience, an amazing unanimity of concern immediately became apparent: our young officers are far more militarily conservative than one would ever have expected, and they want far more military in their lives, not less. From Los Angeles to Boston, from Florida to Utah, the refrain rang true time and time again.

Today's lieutenants and captains entered the Air Force for many reasons, and high on the list were traditional military values. Today's young officers were not teenagers during the 1960s when nearly all traditional values, both civilian and military, were suspect. Today's young officers were teenagers in the post-Vietnam years. They saw the renewed stature of the armed services in the 1970s, and the general return to basic values throughout our country. These officers came into the Air Force expecting to find well-established (and well-enforced) codes of conduct and deportment; well-defined and proudly executed relationships between members of different ranks in both the officer and enlisted corps; and probably most important, they expected to find a cadre of field graders prepared to turn them not merely into good engineers, pilots, or

administrators but into good officers. In far, far too many instances, these expectations have been frustrated.

The list of examples is almost endless. A first lieutenant graduate of the Reserve Officer Training Corps (ROTC) seriously asked if he was required to salute all ranking officers and chief master sergeants. (Probably not a bad idea, but one not supported by regulations!) A second lieutenant nurse related that she had been reprimanded by her nurse-in-charge for not encouraging her enlisted men and women to use her first name. A captain who graduated from the Air Force Academy asked why he was expected to limit his social contacts with enlisted men and women when his supervisor, a lieutenant colonel, was openly dating a staff sergeant. Literally hundreds of young officers uniformly stated, "My boss always finds time to talk to me after I've messed up. . . . I just wish I'd received some help a little bit sooner." And the list goes on and on and on.

Traditional Military Values— Why So Important?

This question seems so basic, and the answer so obvious, that we need not tarry overly long with it. Military customs, courtesies, and traditions are vitally important to our Air Force because shared traditions are one of the few things remaining that can bind officers of widely differing skills and specialties into one professional corps.

One hardly needs to perform a detailed document search to discover a perceived rise in careerism and the accompanying decline in cohesion and professionalism. A Squadron Officer School (SOS) survey of 613 officers showed that 76 percent of operations officers and 63 percent of support officers associated themselves more readily and strongly with their career colleagues than with the Air Force as a whole.¹ While

one may be displeased with this fact, the fairly parochial allegiance shown by young officers should come as no surprise. By its very nature, the Air Force is a compartmentalized service, the greatest and most obvious distinction being between those who fly and those who do not. But while "rated/nonrated" is the most obvious distinction, it is not the only one that tends to promote compartmentalization within the Air Force. It is hardly surprising that the contracting officer who has never administered the many Air Force personnel programs has little in common with a personnel officer who, in turn, has never supervised 100 enlisted men and women around the clock as has the maintenance officer who, in turn, has never had to make the highly technical decisions of the computer or engineering officer who deals with civilian contractors.

Is compartmentalization bad? The question is moot since career specialties are here to stay, as well they should be. National defense in general and the Air Force in particular are far too complex to be administered by anyone not possessing specialized skills. There is no other choice. But specialization has its price, and lack of cohesiveness is a big part of the bill.

Given the existence of some 217 career specialties based on 60 academic disciplines, the bonding effect of a solid body of traditional military values can hardly be overstated.² The navigator, administrative officer, civil engineer, and doctor may have little in common in terms of job description, but they may nevertheless be bound together by the shared customs, courtesies, and traditions embodied in officer/enlisted relationships, military discipline, and professional social protocol. These topics, and many more, are no less important to one officer than to another, regardless of career specialty. At the risk of waxing excessively eloquent, I submit that there exists over all Air Force careers a patina of military values and officership skills that offers to all members a common bond of professionalism. But the veneer grows thinner by the day.

Traditions Denied Specifically

My experiences with hundreds and hundreds of officers all over the country revealed that the officership skills they need—and which we fail to provide—are very similar to those problem areas articulated by my own squadron officers and alluded to earlier.

Officer/Enlisted Relationships

The special relationship between officers and enlisted members can be one of the most rewarding facets of military service, or one of the most confusing and frustrating. For the officer properly schooled and trained in the complementary roles of the enlisted and officer corps, the relationship is nothing short of wonderful. What a thrill it is when an officer, junior or senior, can help guide a young airman through the early, trying years of service. What a thrill it is when a young airman matures both personally and professionally as a result of a concerned, involved officer in charge. The same thrill is equally intense when roles are reversed, when the master sergeant takes a young officer in tow and helps turn that officer into a fine leader. The memories of hours spent working with and learning from fine NCOs will remain in an officer's heart long after the roar of the engines grows quiet.

For the properly schooled and trained officer, the opportunity to work closely with the fine members of the enlisted corps is reason enough, in and of itself, to join the Air Force. But for the unschooled, untrained officer, relationships with the enlisted corps can be a source of constant uncertainty and consternation. All too many of our young officers find themselves in this latter category, and they suffer terribly. For most of our young officers, the relationship with a corps of enlisted men and women is a totally new phenomenon, one without corollary in the civilian world. Our lieutenants and captains are too young in both age and service to have learned how to properly and effectively work with enlisted

members, yet they are expected to do so from day one. The questions they raise show the immediacy of the problem and their concern.

"Can I date an airman who does not work directly for me but who is in my squadron? And if I *legally* can, *should* I?"

"I don't think the chief likes young officers. What should I do?"

"When we're TDY, some of my NCOs call me by my first name. Is this OK?"

"My NCOIC is 10 years older than me and has a personal problem. How is a young person like me supposed to help?"

These questions and hundreds more like them came forth in seminars all across the country as our young officers highlighted a glaring omission in their professional upbringing. For the most part, schooling in officer/enlisted relationships receives short shrift. Formal training invariably consists of seminars in which a cadre of enlisted members attempts, in two or three hours, to impart some feeling of NCO expectations and responsibilities to our young officers.³ The effort is noble but only marginally productive. And if 1,500 young officers are to be believed, counsel from their own officer superiors is woefully lacking. The young lieutenants and captains apparently are expected to learn by osmosis the intricacies of one of the most important, meaningful, and sensitive relationships in military service. That our young officers experience so many difficulties in this arena should be no source of surprise to those of us whose duty it is to properly train them. It should also be no source of pride.

Discipline and Military Justice

Young officers almost totally lack the skills necessary to do their part in maintaining a fair and effective system of military discipline. Their shortcomings in this critical area of military life result from the lack of experiences that accompany their short time in service and from a near-total failure of their superiors to explain to them both how they fit into the military discipline/justice system and how they can effectively

discharge their duties. At best we glibly toss at them trite phrases and little more.

"Enforce standards!"

"Don't permit shoddy performance!"

"We've gotta have discipline!"

Though noble assertions, these phrases do little to tell three-year lieutenants how to execute their disciplinary responsibilities. From the minor—but significant—offense of avoiding a salute, to theft of government property, to the thousands of events in between, the young officer is ill-prepared to take the proper action. Most ROTC instruction is by officers who have yet to hold command and who have never, in most cases, imposed administrative or judicial discipline on any military member.⁴ Subsequent formal training dedicates very little time to the topic. Of 268 hours at SOS, only 3 1/2 hours deal with military discipline.⁵ Further, most superiors spend little or no time discussing discipline with their officer subordinates. Ask the next five captains you meet the difference between a letter of counseling and a letter of reprimand; ask them to describe an unfavorable information file; ask them to identify the key elements of any offense in the Uniform Code. Unless you are extremely fortunate, you will not receive learned responses.

This is not to say that one should expect a young lieutenant or captain to be the equivalent of a squadron commander or a military trial counsel. Because the disciplinary task is so difficult and because the effects of disciplinary action are so significant, we purposefully reserve this task for field grade commanders or at least for officers with many years in service. But this does not mean that the young lieutenant or captain has no role in the disciplinary system. The young officer must be able to distinguish acceptable conduct from unacceptable, must know when to act, and must know how to act. The vast majority of the young officers with whom I spoke did not possess the requisite skills for this critical duty. And they are not to blame. How can we blame them for what we never taught them? As a result, they either avoid their disciplinary respon-



sibilities altogether or make well-intentioned but fatal errors in administering discipline. In either case, both they and the Air Force suffer.

Social Protocol

Inherent in all of the military services is a proud history of professional social contact, a history of protocol and social etiquette that helps distinguish our profession of military service from its civilian occupational counterparts. From a New Year's Day visit to the commander's home, to the formal military ball, to the daily customs and courtesies exchanged between military members, professional social etiquette has been a continuing thread throughout military history. Yet our young officers know almost nothing about their social obligations and how to gracefully execute their social duties. One hears "an officer and a gentleman" or "an officer and a lady" far more often than one sees proper execution of all that is denoted in those phrases.

What do our young officers not know about the social aspect of their profession? Plenty! With very few exceptions, the officers with whom I spoke do not fully appreciate their responsibility to actively support the officers' club and its attendant associations, do not know how to extend thanks to the hostess for a club or home party, do not know basic rules of engagement for receiving lines, do not know when and for whom to stand (either socially or at work), and many do not even know proper etiquette for the national flag! Again, we should not be surprised at the absence of social skills shown by these fine young officers. In most cases, their civilian rearing offered little opportunity to acquire even rudimentary social skills, and, for the most part, Air Force efforts do not get the job done. ROTC instruction relies heavily on a yearly dining out as the primary teaching tool; current SOS curriculum offers only 90 minutes of instruction on the subject, 30 minutes of which is preparatory reading.⁶

Should it be our objective to turn our officers into simpering dandies who, with lit-

tle fingers properly extended, nibble watercress sandwiches while making cocktail party conversation? Hardly! But the objective *should* be to make our officers comfortable in a broad range of social situations, to be able to effect proper manners and protocol both at home and abroad, to complement their strong technical and leadership skills with equally strong social skills, and to represent the Air Force as polished officers, ladies, and gentlemen. Amazingly enough, our young officers are eager to learn. They have felt uncomfortable on far too many social occasions, and they do not like the feeling. They want to do the proper, courteous, gracious thing but simply do not know what to do. They see the value of the professional social contact but are often deterred from participation by their lack of social proficiency.

The Verdict

In the final analysis, the sincere, honest assertions of hundreds and hundreds of our finest lieutenants and captains can lead to only one conclusion: no matter how well we *think* we are training our young officers in traditional officership skills, we are simply not hitting the mark. Our best intentions and efforts notwithstanding, we are not giving them what they want, what they need, what they deserve.

Military Traditions Revived

What can be done to return military traditions to their rightful place in Air Force life? What can be done to make our time-tested military values part and parcel of the professional development of each of our fine young officers? There is much that can be done, both institutionally and personally; and if we are truly sincere in our efforts, the necessary actions are not all that difficult.

Beginning at the Beginning: Fixing "the System"

The institutional remedy requires only that we codify our important traditions in regulations, pamphlets, or curricula, and then use these as tools to instruct our young officers. We should by no means wait until an officer attends SOS to begin such instruction. From the earliest days at the Air Force Academy, in university and college ROTC programs, and at Officer Training School (OTS), our young officers should be instructed in detail on the three topics discussed here and on many topics of similar value.

The first step in this process is to clearly articulate in a regulation or similar document those military traditions we wish to foster. AFR 30-1, *Air Force Standards*, is generally accepted as the prime document that articulates basic values and is certainly the most widely read and best known. But AFR 30-1, in its current form, falls somewhat short of the mark in both content and specificity. While the regulation speaks to customs and courtesies, professional relationships, military ethics, dress and appearance, and the like, it does so in rather general terms. Our young officers need specifics to guide them through the specific problems of their daily lives. When the regulation says it is "inappropriate" for a subordinate to address a senior by first name, what it really means is that subordinate will not address seniors in so informal a manner. If this is what it means, why not say so? The regulation is a fine document but can be even better.

Amazingly enough, superb material already exists for teaching many of the subjects identified in AFR 30-1, but we do not make the best of what we have. *Law for Commanders* and the *Decorum/Protocol Handbook* used today at the Air Force Academy are exactly what the doctor ordered. The academy training outline on officer/enlisted relationships is an equally fine document. These texts deal with real issues in a thorough, detailed fashion. But one must be an academy cadet to benefit

from them! Are these topics any less important to an officer commissioned via ROTC or OTS? Obviously not. This material should be the basis of instruction in *all* commissioning programs. *The Other Half*, a booklet created by a student at Air Command and Staff College and available at ROTC units today, is an excellent primer on social survival skills. However, the degree to which this booklet is used is left to the discretion of individual ROTC detachments. Finally, the *Air Force Officer Guide*, now in its 27th edition, is a fine book for teaching military customs, courtesies, and traditions but often spends more time on bookstore shelves than in the hands of a young officer. The *Guide* and the other texts mentioned here could form a solid nucleus for expanded professional education in our commissioning programs, at SOS, and in the Lieutenant's Professional Development Program.

The instruction should be *meaningful*. Military discipline should be taught by squadron commanders who have had to make those tough decisions that changed people's lives. I doubt there is a squadron commander (or ex-commander) who would not gladly visit an ROTC detachment, OTS, or SOS and share real-life experiences with a group of prospective or commissioned officers. If one truly wants to teach officer/enlisted relationships, let first sergeants visit our officer schools and offer their perspectives. A fine first sergeant possesses a wealth of experiences beyond compare. Let us use those experiences to better teach our company grade officers. To impart to our young officers the necessary social survival skills, who would be better suited than protocol officers or aide-de-camps, many of whom are company grade officers themselves? Their experiences would be invaluable to all company grade officers; and especially because of age and rank similarities, their experiences would be credible. We would never dream of permitting aviation skills to be taught by a nonflier, or medical skills to be taught by anyone other than a medical professional. Yet we all too often allow im-

portant officership skills to be taught by people who, through no fault of their own, simply do not possess the body of experiences absolutely essential to meaningful instruction.

The instruction must be sufficiently detailed to be of real value. Three hours devoted to military discipline would not achieve the desired goal even if the instructor were Oliver Wendell Holmes; and Amy Vanderbilt herself would be hard-pressed to teach social etiquette in 90 minutes! The expected objection to an expanded curriculum is that there is too little time to permit such a detailed examination of these specialized subjects. A valid rejoinder to this objection would be to restructure the current curricula in our commissioning programs and in company grade officer education. At the risk of speaking words of blasphemy, I submit that to the prospective or novice officer, basic officership skills are at least as important as national grand strategy, system acquisition, or—dare I say it?—the Program Objective Memorandum (POM) process. But should it prove impossible to change existing curricula at ROTC, OTS, or SOS, the officership skills I have discussed and many more can be covered via correspondence school. A well-designed correspondence course, specifically designed to address traditional military subjects and mandatory for all company grade officers, could work wonders.

“Physician, Heal Thyself”

While the institutional remedy is absolutely essential to improve the officership skills of our young officers, the institution cannot solve the problem by itself. It is all too easy to point the accusing finger at a regulation, at a commissioning program, or at military academia. Indeed, the lengthy discussion in this very paper of institutional remedies could lead one to view them as the answer to the problem and to ignore that which actually is both the source of the problem and the key to its resolution. The real key to increased professionalism among company grade officers is the total commitment of

their superiors to making them the best officers they can be. All the formal training in the world will be for naught unless there is complementary personal training and modeling by superiors. We cannot expect formal training to do in a few hours that which we ranking officers should be doing every day.

Every ranking officer should view as a total honor the fact that the Air Force has entrusted into their care the professional upbringing of subordinate company grade officers. With that honor also comes total responsibility for that upbringing. Discharging that responsibility is far from difficult, and little things do mean a lot. Two hours weekly spent with young officers simply discussing pertinent topics can do wonders. Monthly breakfasts, retreat ceremonies, celebration of special national and military holidays, and attendance at leadership school graduations are but a few easy ways to foster professionalism. Failure to teach one's subordinate officers everything needed for a productive Air Force life should be viewed as nothing short of dereliction of duty on the part of the superior. Officers who do not do everything possible to improve the professional qualities of subordinate officers have no right to expect high marks for their own professionalism at evaluation time.

How much contact, training, and interaction are required of the superior officer? The test is simple. One needs only to answer this question: “If the subordinate lieutenants and captains working for me were my sons or daughters, what would I be teaching them in order to make them the most professional officers they can be?” Both the analogy and the question posed by it seem totally appropriate, since in no small sense is an officer of superior rank the military parent of the subordinates placed in his or her charge. Whatever we would do for our own sons and daughters we should do with equal enthusiasm for all our young officers.

Back to Houston

The simple question posed by a fine young lieutenant at the Johnson Manned Space

Flight Center and recounted at the beginning of this article shows in the clearest terms exactly what our young officers want, need, and deserve. They want more military in their lives, not less. They want to learn and lead—today! Yet they are being denied the very officership skills they seek. Where lies the fault for this predicament? Is the problem insoluble? Has the decline in military traditions simply become an irreversible fact of Air Force life? Hardly. As Cassius said to Brutus when discussing their own

shortcomings, "The fault, dear Brutus, lies not in the stars, but in ourselves." The fault lies in ourselves as we institutionally and personally deny to our company grade officers the basic military skills so essential for their professional development. But what we have done, we can undo. We can take steps to once again instill traditional military values into the lives of all our fine young officers. We owe it to ourselves to do just that. We owe it to our company grade officers. We owe it to the Air Force. □

Notes

1. Capt James H. Slagle. "The Junior Officer of the 1980s," *Air University Review*, November-December 1981, 90-95.
2. Lt Col Donald R. Baucom. "The Air Force Officer Corps in the 1980s," *Air University Review*, September-October 1983, 50.
3. *SOS Curriculum Catalog* (Maxwell AFB, Ala.: Squadron Officer School, Air University, August 1986), 40-41.

4. Headquarters Air Training Command, Special Duty Assignment Branch, telephone interview with author, 24 February 1987.
5. *SOS Curriculum Catalog*, 51.
6. Headquarters Air Force Reserve Officer Training Corps, Curriculum Branch, telephone interview with author, 24 February 1987.

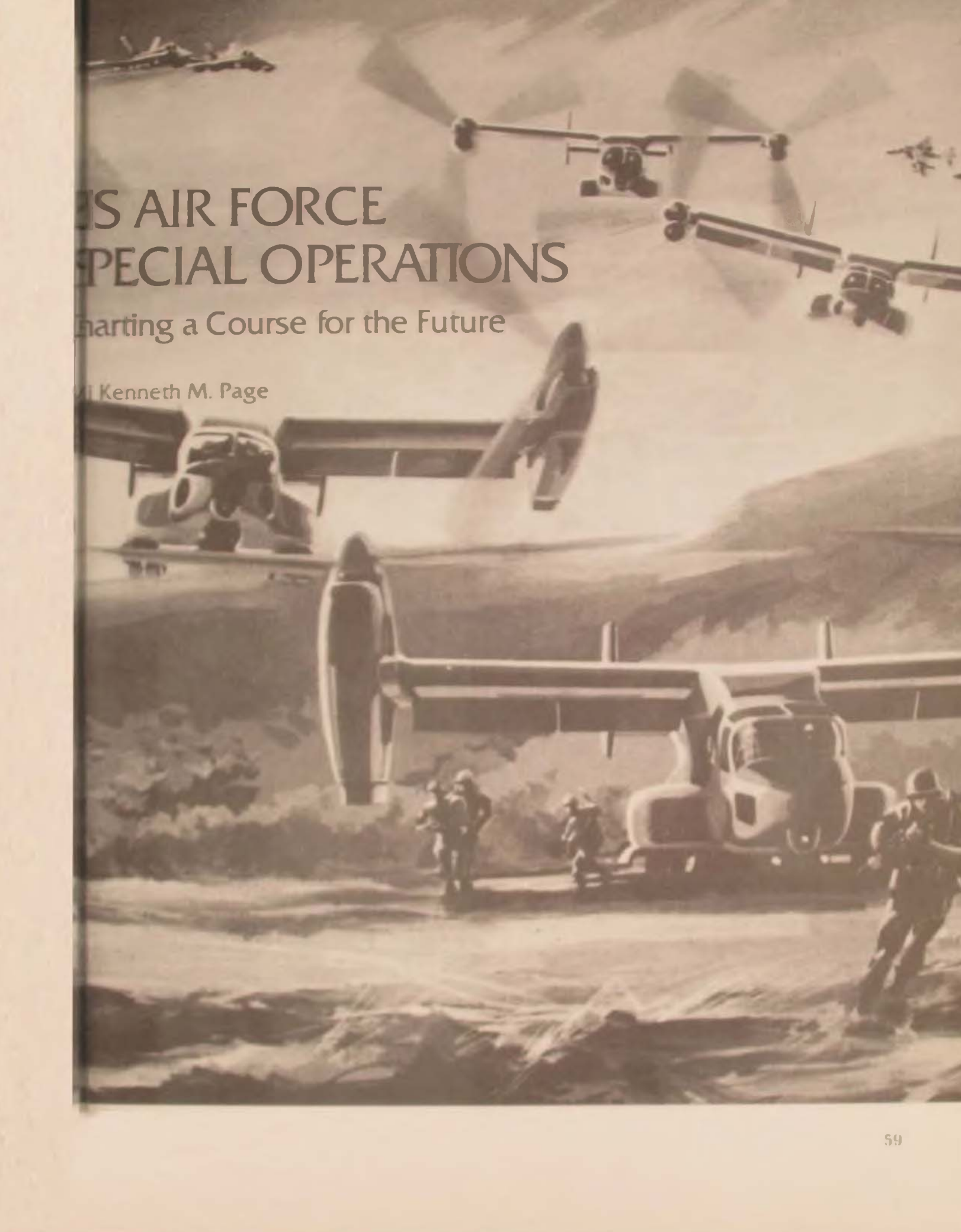
FOR MORE than two decades, conflicts short of conventional war have threatened US interests around the world. This type of warfare, called low-intensity conflict, has spread so rapidly it now represents the most probable arena for the application of US military force in the foreseeable future. Even so, the US Air Force remains poorly postured institutionally, materially, and psychologically to effectively operate in low-intensity conflict.¹

Although there are numerous reasons for this lack of capability, the overriding factor has been the Air Force's inability to fully comprehend the threat or to develop a clear set of priorities so it can respond to the threat with confidence.² Since much has been written recently on the threat associated with low-intensity conflict, this article will propose a clear set of priorities for organizing, training, and equipping Air Force special operations forces (SOF) to effectively operate in low-intensity conflict. Although this article focuses on SOF as the appropriate vehicle to meet the challenges of low-intensity conflict, they are not the only answer, or necessarily the best answer in every scenario. Virtually all conventional weapon systems could be called on to prosecute the mission, depending on the situation. However, SOF do form the critical nucleus for low-intensity operations to which other aerospace forces are added or withdrawn as required by the mission. Likewise, the employment of SOF is not restricted to low-intensity conflict. SOF have a very important mission in mid- to high-intensity theater warfare as well.

Organizing

One of the first priorities should be a restructuring of the current Air Force SOF organization to enhance its contribution to the overall effectiveness of the US Special Operations Command as well as the theater SOF commands. These changes should be focused in two areas: basic organizational structure and peacetime capabilities.





US AIR FORCE SPECIAL OPERATIONS

Charting a Course for the Future

By Kenneth M. Page



The C-7 Caribou light transport aircraft was in US Army service prior to its transfer to the US Air Force in 1966. With the C-7 now out of the inventory, a follow-on aircraft, capable of takeoff and landing on short, unimproved runways, needs to be developed to support SOF missions.

Organizational Structure

Numerous studies have pointed to shortfalls in Air Force SOF capabilities with accompanying recommendations to increase the force structure so the programmed SOF

requirements of the other services can be supported.³ The best way to do that is to organize Air Force SOF into no fewer than four wings. Three of these wings should be assigned to specific geographic areas of responsibility, including wings in Europe, Asia, and Latin America. The critical need for rapid deployment and employment of SOF dictates these forces be maintained within the theater if at all possible.⁴ Due to Latin America's proximity to the United States, that particular wing could be located in the United States. Personnel assigned to

these wings should be completely familiar with the geography, weather, customs, and language of their areas. The fourth wing should be a combat crew training wing located in the United States. An organizational structure such as this would bring the Air Force in line with the Army and Navy organizational structures, thereby complementing them within the US Special Operations Command and theater SOF commands.

Each wing should be composed of three operational squadrons, three maintenance squadrons, and two specialized detachments. The operational squadrons would include two fixed-wing squadrons composed of MC-130s and AC-130s, or their replacements, and a rotary-wing squadron composed of either MH-53 Pave Low IIIs or MH-60G Pave Hawks. There are currently too few AC-130s to form more than the one squadron now located at the 1st Special Operations Wing (SOW), Hurlburt Field, Florida. However, when the next generation of gunships is acquired, the quantities need to be large enough to fill squadrons in each of the other wings. The helicopters will be augmented by the CV-22 Osprey, the "tilt-rotor" aircraft, when it comes on-line in the early 1990s. The three maintenance squadrons would be organized for rapid deployment and consist of an aircraft generation squadron, an equipment maintenance squadron, and a component repair squadron. Whenever any of the operational squadrons deploy, an aircraft maintenance unit—comprised of technicians from each of the three maintenance squadrons—would deploy with it to provide essential on-site maintenance. Two specialized detachments, a special operations combat control team and a special operations weather team, would provide the remaining essential support of each wing. While this wing organization is not new, it has proved very effective to date in the 1st SOW.

Peacetime Capabilities

Next, Air Force SOF need to expand their peacetime capabilities beyond the present,

extremely restricted role to allow the Air Force to take a greater part in providing critical noncombat assistance to friendly third world countries. While the Army has traditionally done much in the areas of foreign internal defense (FID) and civic action, the Air Force has done little, with the possible exception of the air commandos in Vietnam during the early days of that conflict. Several recent studies have concluded that there is little or no capability in these areas due to a lack of clear guidance that has created confusion over Air Force-wide responsibilities for conducting FID and civic action.

By joining with the Army in a cooperative approach in these areas, everyone benefits. The host country gains valuable expertise in the form of instructors and advisers. That expertise pays off as host-country air forces are trained in basic combat tactics and advised in the employment of air power in low-intensity conflict operations. Add a vigorous foreign military sales program—which, depending on a country's specific needs, could include helicopters, light tactical transports, gunships, reconnaissance platforms, and close-air-support aircraft—and the United States can do much to assist the host government in winning the conflict. Additionally, Air Force medics and civil engineering personnel can work beside their Army counterparts in civic actions designed to improve the quality of life in the host country and to win the support of the people. In wars fought for the hearts and minds of the people, that support may go a long way in defeating an insurgency.

The Air Force benefits by advising the host government in low-intensity conflict operations, thereby providing Air Force personnel with valuable experience in applying doctrine to real-world situations. Actual experience in what works and does not work in that environment would provide the crucial feedback needed to revise and update US operational doctrine. More important, the Air Force builds a corps of personnel who have observed low-intensity

conflict firsthand and could apply that experience in combat should the need ever arise.

Air Force SOF personnel, following appropriate training, could begin this vital work in minimal time and at very little cost. One proposal would involve designating a position in all appropriate military assistance advisory groups (MAAGs) for SOF personnel. This use of an already existing organization would result in only small costs and in the necessary infrastructure being put in place. A second proposal would be to attach SOF personnel to military training teams (MTTs), which provide training to other nations under the international military education and training program.⁵

These proposals for restructuring Air Force SOF would do much to improve their capabilities and to enhance their contribution to the effectiveness of the US Special Operations Command as well as the theater SOF commands. An organization that complements the sister services promotes integration and coordination. Expanded peacetime capabilities also provide tangible and intangible benefits to host countries, the Air Force, and the United States. Once these organizational issues are resolved, one needs to look at training.

Training

SOF training priorities need to change with the organizational restructuring and focus on both operational and functional training. Operational training has traditionally been very good; however, problems have arisen recently in two key areas. The first involves initial mission qualification. Under the current program, most of this qualification training takes place in operational units. Since these units are heavily involved with operational and exercise missions, students must compete for equipment and for instructors. This has resulted in a training program, for example, which

The MC-130E Combat Talon (top right) is specially designed for long-range infiltration. This aircraft, or its follow-on, would work well alongside shorter-range Army rotary-wing aircraft as a coordinated, joint-service, special operations capability. The AC-130H gunship (bottom right) needs a follow-on replacement in enough numbers to support a multiwing special operations capability.

takes two or three times longer to initially qualify aircrew members than it should.⁶ This deficiency could easily be rectified by removing mission qualification training from the operational units and placing it under the combat crew training wing discussed above.

The other, and more significant, problem area relates to the limited amount of joint training that can be accomplished due to the small numbers of SOF aircraft and their current locations. As such, SOF components from the sister services may not be as comfortable working with the Air Force as they should be. Likewise, the Air Force may not be as comfortable working with SOF components from the other services. However, the very nature of special operations requires that units who fight together train together. The success of the mission depends on it.⁷ Two examples support this contention.

During preparations for the raid on the Son Tay prisoner of war camp near Hanoi in 1970, absolutely nothing was left to chance. The plan called for nearly four weeks of training prior to employment. During this period, the aircrews flew a total of 1,017 hours in 368 sorties to hone their skills. The three elements of the ground assault force practiced their attack no less than 175 times before the raid. Each element had an alternative plan of action and was cross-trained in the missions of the other two elements. Even the pilot who had to crash-land his helicopter in the center of the prison compound practiced his mission at least 31 times.⁸ The team members knew each other and trained well together, and when the time came, the mission was executed flawlessly. (Poor intelligence rather than poor planning, training, or execution led to the





The Air Force's MH-53H Pave Low helicopter (above) has been caught up in an interservice rivalry over helicopter support for special operations. Current plans suggest the same problem may hamper Air Force and Army V-22 Osprey tilt-rotor aircraft (right) as well. The photo depicts a US Marine Corps MV-22A.

failure to recover any prisoners.) Contrast the Son Tay raid preparation, particularly the training, with the debacle of the Iran rescue attempt.

The Iran rescue attempt has been the subject of intense review and criticism. Many would agree the mission was doomed from the beginning for a number of reasons, one of which was inadequate training. Richard A. Gabriel, author of *Military Incompetence*, writes:

The rescue force did not train together as a complete unit. Instead, each component trained separately, at dispersed training centers, some at their home bases. Moreover, each component trained under the direction of its

own commander and its own service officers, so that, in the end, none of the components was ever evaluated by officers from the other services."

There was not even one final exercise that brought all the separate components together. Although some of the components did train together, the first time the entire rescue force worked together was during actual mission execution. Unfortunately, they discovered too late that each component had its own way of doing things—its own standard operating procedures. Additionally, many of the problems that hampered the mission probably would have surfaced during combined training exercises and



could have been addressed long before employment. Failing to train together definitely contributed to the failure of the Iran rescue attempt.

Although these two examples relate to missions that allowed at least some time in advance to train, the United States may not enjoy that luxury in the future. To avoid the problems associated with inadequate training, it is essential for service components who will fight together to train together. Restructuring Air Force SOF as outlined above will permit Air Force units to train with sister service units who share geographic areas of responsibility. Training together in order to fight well together must be the paramount

consideration in operational training.

Establishing a sound functional training program is more difficult but, for noncombat operations, just as important. This training can be subdivided into regional training and foreign assistance training. Regional training simply orients personnel assigned to overseas units to the region of the world in which they will be operating, and it includes geopolitical, customs, and language instruction.¹⁰ Initial training should be provided in the United States prior to transfer overseas with continuation training provided by the unit. An individual assigned to the wing responsible for Latin America, for example, would be trained in the geog-

raphy, politics, and customs of the various Latin American countries and would learn to speak either Spanish or Portuguese.

Foreign assistance training prepares individuals for service as members of MTTs or MAAGs. Training would build on the base established during regional training and would include more specific information on the host country's political situation, military capabilities, and the nature of the threat. Regional and foreign assistance training prepares SOF personnel for these challenging assignments, enabling them to be more effective in the politico-military environment in which they are expected to work.

Equipping

Perhaps the most neglected aspect of Air Force SOF is equipment. To solve this pressing problem, SOF priorities should focus on two areas: roles and missions, and weapon system design and acquisition. The area of roles and missions has long been a problem between the services, and special operations is no exception. Historically, the Air Force has provided both fixed-wing and rotary-wing support to the SOF community. Today this support is provided by the AC-130, MC-130, and MH-53. Although the Air Force is the obvious service to provide fixed-wing support, responsibility for the rotary-wing mission is not so easily established:

Five years ago, the Air Force and Army chiefs of staff agreed to transfer the special operations rotary-wing mission to the Army. Despite this initiative, no such transfer has taken place. Rather, the Congress has directed the Air Force to enhance its SOF helicopter capability by modifying all of its H-53s to Pave Low III configuration (precision navigation, radar, and enhanced communications equipment). While the Air Force has been complying with the congressional directive, the Army has begun modifying UH-60 and CH-47 helicopters in

preparation for assuming the SOF rotary-wing mission as outlined in the joint SOF initiative. Unless this issue is resolved one way or the other, valuable resources could be wasted in unnecessary modifications and duplication of effort.

Add to this already confused situation the Air Force's acquisition of the CV-22 "tilt-rotor" aircraft with SOF-unique equipment such as extended-range fuel tanks, electronic countermeasure equipment, and multimode radar. The Air Force plans to use these aircraft for long-range exfiltration of special operations forces and to augment the MC-130 in the SOF infiltration and resupply missions. While the Air Force is buying 55 "SOF-configured" CV-22 aircraft, the Army intends to buy 231 "basic" UV-22 models.¹¹ Will history repeat itself? Will the same SOF roles and missions argument for the V-22 surface as was the case with the rotary-wing SOF mission? The issue has come full circle without an adequate answer. Weapon system development and acquisition is another critical area in need of attention. Traditionally, the SOF community has taken a backseat in this important arena. Under both the Tactical Air Command and the Military Airlift Command, SOF enhancement has been neglected, not because of any lack of interest on the part of the commands but because of money. As each command competes for dollars in the budgetary process, it never gets enough to meet all its requirements, forcing the command to order its programs by priority. Naturally, programs such as the advanced tactical fighter and the C-17 are considered more important because they represent the "bread and butter" of each command. As a result, SOF have been equipped with "borrowed" airframes modified to meet the requirements of the SOF mission. Today, SOF operate a handful of converted cargo airplanes and "rescue" helicopters rather than weapon systems designed specifically to operate in low-intensity conflict.

Given these issues, what can the US Special Operations Command do to correct the deficiencies and enhance SOF air assets in

the future? First, regarding the roles and missions issue, the Air Force should continue to keep the long-range infiltration, exfiltration, and resupply missions. This includes the long-range, rotary-wing mission. The Air Force already has the aircrew and maintenance expertise to accomplish the mission with the sophisticated SOF-unique equipment on its MH-53 Pave Low III helicopters. With the acquisition of 33 more MH-53s in the short term and 55 CV-22s in the early 1990s, it will also have the necessary resources.¹²

For the Army to develop an aircrew and maintenance capability to perform the long-range mission while discarding the Air Force assets and personnel experience would be foolish. The Army should assume responsibility for the short-range infiltration, exfiltration, and resupply missions. It has the assets to meet virtually any requirement of this nature due to its large number of helicopters with diverse configurations. The same principle would hold true for the new CV-22 Ospreys. The Air Force should employ its CV-22s for the long-range missions, where the SOF-unique equipment greatly improves the probability of success. The Army would use its basic utility version for the short-range missions where the SOF-unique equipment would not be as important to mission success. The key is to integrate both Army and Air Force assets under an air component commander if necessary to accomplish the mission.

Second, while the CV-22 will be a versatile and exciting replacement for helicopters in the mid-1990s, a replacement for the aging C-130 needs to be developed. Since the US Special Operations Command has been given budgetary and research, development, and acquisition authority,¹³ the SOF community may be able to acquire a follow-on aircraft designed specifically to meet the needs of low-intensity conflict. Three recent studies proposed various aircraft for that purpose.

The commander in chief of the US Southern Command has identified requirements for a light transport aircraft to support US

forces in Latin America. These requirements include:

- Capability to take off and land within 1,500 feet on unimproved runways.
- Minimum cruise airspeed of 200 knots.
- An operating radius of 300 nautical miles with a payload of 10,000 pounds.
- A 1,000 nautical-mile ferry range.
- High flotation, rugged landing gear with low-pressure tires.
- A self-start capability.¹⁴

These specifications translate roughly into a follow-on to the C-7 Caribou, a light twin-engine transport. Since the C-7 left the inventory, the C-130 has been used to fill the gap; however, the size, airspeed, and heavy footprint of the C-130 prevent it from operating in the same environment as the C-7 even though the need still exists.

Jerome W. Klingaman, in an article titled "Light Aircraft Technology for Small Wars," proposes "using modern design formulas and industrial manufacturing techniques to produce a light-armed surveillance aircraft (LASA) for conflicts below the level of general war."¹⁵ Klingaman suggests that this aircraft be designed with performance parameters similar to the O-1D and that it be armed with two forward-firing guns as well as 2.75-inch, high-velocity rockets. In addition to armed surveillance, he advocates the LASA be employed in missions such as reconnaissance, forward air control, convoy escort, and perimeter defense.¹⁶

Another source outlining requirements for SOF aircraft is the *Joint Low-Intensity Conflict Project Report*, issued by the US Army's Training and Doctrine Command, which includes the findings of an exhaustive review of this country's SOF capabilities across the board. The report identifies fixed-wing aircraft requirements in four areas. First, the report calls for a light tactical transport similar to the type proposed by US Southern Command. This aircraft should be simple, rugged, reliable, and able to support flare drop and psychological op-

erations in addition to the transport role.¹⁷

Second, the report identifies the need for a light armed surveillance aircraft similar to the type proposed by Klingaman, but slightly more sophisticated. This aircraft should include an imagery intelligence (IM-INT) and signals intelligence (SIGINT) capability, be capable of short-field operations, and be indistinguishable from other similar aircraft.¹⁸

Third, the report suggests the need to develop and produce a follow-on, side-firing gunship to replace the AC-130. The gunship provides an appropriate level of firepower for counterinsurgency operations and limits collateral damage because of its high degree of accuracy. Like the light tactical transport, the gunship should be simple, rugged, and reliable.¹⁹

Finally, the report supports the need for a forward air control platform. It proposes using modified single-engine, propeller-driven trainers for the mission of locating guerrilla forces and directing air strikes or air-mobile assaults on the target.²⁰

Each of these proposals is good as far as it goes, but it would be unrealistic to suggest that the US Special Operations Command design and acquire a separate aircraft for each of these missions. Rather, the command should pursue a two-pronged approach to this issue. The command should seek a single airframe, which fulfills the light tactical transport requirements, to replace the C-130 in the US SOF inventory. Then, a portion of these airframes should be modified to accomplish the reconnaissance and surveillance missions, including IM-INT and SIGINT capabilities, while remaining externally indistinguishable. Another portion of these same airframes could be modified to support the side-firing gunship mission. So, one airframe designed to meet the demanding requirements of low-intensity conflict could support intratheater airlift, surveillance/reconnaissance, and gunship missions.

Next, the command should pursue Klingaman's proposal for developing the LASA for export to friendly third world countries,

where it could be used in conjunction with export versions of the light tactical transport and gunship in counterinsurgency operations. Troop infiltration and exfiltration missions could continue to be performed by helicopter. Together, these aircraft could provide friendly countries with a formidable set of tools for counterinsurgency operations.

Conclusion

Much has been done lately to improve this country's SOF capability, but much more remains to be done. The military must overcome the institutional myopia that causes it to focus almost exclusively on the high-risk/low-probability levels of mid- to high-intensity conflict to the exclusion of the low-risk/high-probability level of low-intensity conflict. This nation must be prepared to fight across the spectrum of conflict where and when US interests are challenged. Equally important is the need to enhance US capability to advise and train third world countries in counterinsurgency operations while providing the necessary military equipment for them to win the fight.

The SOF community in this country has the opportunity to meet these challenges head-on—to do more to enhance US preparedness and security at the low end of the conflict spectrum than ever before. The time for action is at hand. Failure to address the crucial issues in organizing, training, and equipping Air Force SOF can bear grave consequences. Secretary of State George Shultz says that to shrink from this task means "the world's future will be determined by others—most likely by those who are the most brutal, the most unscrupulous, and the most hostile to everything we believe in."²¹ What will the final outcome be? □

Notes

1. Department of the Army, *Joint Low-Intensity Conflict Project Report*, vol. 1, *Analytical Review of Low-Intensity Con-*

flict. Fort Monroe, Va.: US Army Training and Doctrine Command, 1986, 1-9.

2. *Ibid.*, 1-11.

3. Department of the Air Force, *USAF Special Operations Forces Master Plan* (U), Washington, D.C.: n.p., 1983, 5-1. (SECRET—Information extracted is unclassified.)

4. *Ibid.*, B-1-5.

5. Robert L. Brenni, *USAF Special Operations: The Forgotten Force* (Maxwell AFB, Ala.: Air University Press, 1983), 49-50.

6. Department of the Air Force, *Report of the Panel on Enhancement of Special Operations Forces* (U), Washington, D.C.: USAF Scientific Advisory Board, 1985, 153. (SECRET—Information extracted is unclassified.)

7. *Master Plan*, 4-8.

8. Richard A. Gabriel, *Military Incompetence* (New York: Hill and Wang, 1985), 47, 49-50.

9. *Ibid.*, 107.

10. Harold K. Johnston and Michael G. Slattery, *Policy, Strategy and Special Operations* (Washington, D.C.: National Defense University Press, 1983), 39. (SECRET—Information extracted is unclassified.)

11. Jeffrey P. Rhodes, "The Amazing Osprey," *Air Force Magazine*, January 1987, 83.

12. Department of the Air Force, *The Air Force Issues Book*, Washington, D.C.: Government Printing Office, 1986, 6-13.

13. Senate and House, *Compromise on Special Operations Forces*, S.R. 2453 and H.R. 5109, 99th Cong., 2d sess., 1986, 3.

14. Department of the Army, *Joint Low-Intensity Conflict Project Report*, vol. 2, *Low-Intensity Conflict Issues and Recommendations* (U), Ft. Monroe, Va.: US Army Training and Doctrine Command, 1986, B11-4. Hereafter cited as *LIC Issues*. (SECRET/NOFORN—Information extracted is unclassified.)

15. Jerome W. Klingaman, "Light Aircraft Technology for Small Wars," *Low-Intensity Conflict and Modern Technology*, ed. David J. Dean (Maxwell AFB, Ala.: Air University Press, 1986), 123.

16. *Ibid.*, 130-32.

17. *LIC Issues*, B9-5, B9-6.

18. *Ibid.*, B9-6, B9-7.

19. *Ibid.*, B9-7.

20. *Ibid.*, B9-7, B9-8.

21. George Shultz, "Low-Intensity Warfare: The Challenge of Ambiguity," *Proceedings of the Low-Intensity Warfare Conference* (Washington, D.C.: n.p., 1986), 12.

Ricochets

Continued from page 3

It is evident that centralization of planning, decisionmaking, and intelligence capability is the crux of the matter. Raising the wing commander from the nether regions of the operational level of war implies a tilt toward decentralization, with all that may mean in terms of resource allocation and orientation of roles. It will require delegating responsibility to lower levels and tailoring the concept of mission-type orders to Air Force needs and objectives. The key question is will such decentralization enhance our ability to apply air power in a more timely fashion, with better intelligence preparation against a maneuvering, dynamic opponent? It is an issue worthy of further discussion in these pages and around the Air Force.

Capt Brian J. Morra, USAF
Headquarters United States Air Forces
Washington, D.C.

THE BATTLE MANAGEMENT COURSE AND THE "WEEKEND WARRIOR"

Maj Thomas Buchanan's article, "The Need for Battle Managers in the Tactical Air Control Sys-

tem", in the summer issue of the *Journal* is a well-presented analysis of a problem that has plagued the TACS for at least the 17 years I have been part of the 17XX AFSC. Although much of the training Major Buchanan suggests is in fact being provided, much of it is on an ad hoc, catch-as-catch-can basis at the local unit level. Implementation of a Battle Management Course would be a significant step in the right direction. Time constraints, however, would in all probability severely limit the number of Air Guard personnel who could directly benefit from such a course.

If a Battle Management Course is in fact implemented, thought should be given to taking it to the field so that we "weekend warriors" who are such a large proportion of the TACS can benefit from the program as well. This could be done either through sending instructors to the units on drill weekends or through the development of a training syllabus for individual or group study. In both cases, the training could be meshed with the Systems Training Exercise program already available to the units. □

Maj Stuart B. Lange, Georgia ANG
118 Tactical Control Flight (TCF)
Kennesaw, Georgia

IRA EAKER AND THE EAR OF DIONYSIUS

Col Timothy E. Kline

OLD DIONYSIUS often employed an artful device to keep tabs on his kingdom. By listening above an ancient quarry in Sicily, at a convenient orifice where the chasm tapered to a virtual ear trumpet, he could monitor expressions of divergent viewpoints. The informed monarch would then act to defuse criticism or to redirect policy. Of course, he was not an enlightened bureaucrat. A few people were killed. He was just beginning to wield the informational instrument that Stalin perfected centuries later with his diabolical policy against “state wreckers.” Nonetheless, the ancient tyrant was onto something of benefit to more benign megaorganizations like the United States Air Force. It is never too late to provide safe channels for the upward flow of informal feedback in an enterprise with lots of people, even if you do not intend to crush those thinkers who will surface from time to time. Their usefulness to the life of a military service is a basic premise of this article that

should not require overmuch support. The “ear” and the Eakers are what we are after.

Gen Ira Eaker was remarkable for many reasons. He became a legend by dint of heroic leadership and longevity. Having been honored in recent time with a fourth star that recognized the patriarchal role he had fulfilled since the close of the Second World War, Ira Eaker was a role model for the officer corps. Even in retirement his labors in the realm of communications were legion. Especially in the defense of Air Force roles, missions, and people was the pen of Ira Eaker often the sole focal point for expressing the very vital informal feedback that provides leaders with countervailing viewpoints and permits a clear assessment of whatever potentialities exist within the scope of those challenging views. Percolating up from the ranks were hosts of ideas. General Eaker amplified those worth labeling as concepts. He frequently passed them along in the open press. His was an ear like Dionysius’s.





During the halcyon days of Billy Mitchell's fiery ascendancy, Capt Ira Eaker had functioned as an ear for the chief of the Air Service—Maj Gen Mason Patrick—and for Assistant Chief Mitchell himself while the famous court-martial was in progress. Sitting between the offices of the chief and the embattled assistant chief, both Eaker and Maj Carl "Tooey" Spaatz were fully tuned in to distracting waves of opinion wafting up from the far-flung officers' clubs and thinly manned airfields and warehouses across the continent.

The service was small enough in the twenties and early thirties for a handful of opinion samplers like Spaatz and Eaker to track almost all disparate opinions. And shyness was no hallmark of the aviators who comprised the interwar air arm. Eaker and Spaatz could capture inputs from a Horace Hickam, a Frank Andrews, or a "Hap" Arnold, and the word would quickly get to the highest echelon ungarbled.

But not everyone who is positioned to listen to contending opinion will faithfully retransmit what is gleaned. If a large, modern military organization relies solely on verbal feedback from the troops, it will face the hazard of inevitable distortion manufactured by purveyors of comment who fear self-incrimination. Such is the natural human response once the scale of an organization gets so large that full trust cannot be automatically assured in interpersonal relationships. An impersonal vehicle for carrying viewpoints is needed. And as long as the growing yet fledgling air arm lacked such a vehicle, it paid the bloody price that is the product of bad doctrine. The lesson is that bad doctrine means bad guidance. There is a direct impact on warfighting potential.

Maj Gen I. B. Holley, Jr., USAFR, Retired, tells us that immediately after World War I the Army Air Service courted just one fashionable viewpoint despite the expression of several diverging opinions. The combat experience of qualified fliers was not assiduously sought. Instead, the Air Service afflicted itself with a flawed doctrine: "For

want of an objective and authoritative method of formulating doctrine on air power, the manifestly inadequate doctrine . . . reached publication and consequent circulation while opposing points of view did not."¹ Without an aggressive policy of canvassing and evaluating the variety of thought in the vast marketplace of ideas represented by its own constituency, any service can be caught wearing the blinders of the Army Air Service. Ignoring the combat experiences of the only war in which aircraft had flung mankind's military combatants through the firmament, the spokesmen of the earliest airmen managed to invent a particularly egregious way to start their doctrinal process—administering poison at its birth. What it meant for our forebears was "a doctrine which utilized far less than the maximum potential of aviation."²

From that awful doctrinal beginning in 1919, when the observation role was foisted on an inarticulate Air Service, until 1931, when another equally dangerous doctrinal variant was perfected, the air arm had miscarried in every attempt to give birth to a coherent doctrine. In 1975 Col Fred Shiner asked General Eaker for his appreciation of the doctrinal difficulties facing airmen of that decade-plus period. Eaker's estimate in recalling the struggles to tie down ideas of warfighting is captured by his terse comment that Air Corps doctrine "remained fluid."³

Meanwhile, the almost mythical Air Corps Tactical School (started at Langley Field in 1920) had removed in 1931 from Langley to Maxwell with the aim of becoming the primary locus for doctrine development. Until 1928 it had boasted no victories on the mental front. That year, however, saw a surprising turnaround. Maj Gen James E. Fechet, chief of the Air Corps, reversing a potent engine of ideas, boosted the school into the too familiar fatal groove from which it was never rescued. When Fechet's staff reminded the Air Corps Tactical School of the "independent decisiveness of airpower,"⁴ a headlong drive toward the obsessive idea of bomber invincibility began in earnest. The

sombre fruit of that flawed doctrine required major and wrenching repairs in the white hot combat of the Combined Bomber Offensive. That tale of bombers and fighters is the one legend Air Force partisans do not need to rehash. In the end, a proud combination of missions made victory in the air possible. That lesson is inculcated in various teachings of air power. It is enshrined as well in US Air Force doctrinal publications. Perhaps, on reflection, the corporate Air Corps had once upon a time located its ears too far from the geography of its brain.

All the interwar fumbling for coherence in terms of doctrine amounted to another fashionable thought train that excluded any competing views. Clearly, there is a danger involved in stifling too completely any opposing thought. How does the US Air Force preclude the hazard of a single-frequency receiver today?

Happily, the free society wherein the Air Force is rooted provides plenty of external criticism. Air Force leaders can pick and choose from whatever wends its way across their desks. And military leaders are sensitive to myriad views expounded in the open press. But how does our modern air arm provide an "ear of Dionysius" to collect vital internal opinions reverberating around the interior of its own collective expertise? Does any such device exist?

For 40 years the device was the *Air University Review*. Sometimes maligned, sometimes exalted, this professional journal of the Air Force was the focal point for manifold rays of wisdom within blue-suit ranks. It had no challengers within or without the service. Editorial awards rained praises on its authors, artists, and staff. Unlike the Navy with both *Proceedings* and the *Naval War College Review* (not counting the *Marine Corps Gazette*, which enjoys a dynamic reputation within a separate constituency in the same department), and the Army with *Parameters* and *Military Review*, the Air Force has no internal competition among journals vying for thoughtful reflections or insightful advocacies. The single vehicle for carrying first-class think-

ing across the global Air Force was the *Air University Review*.

Having had a solid reputation for years, the *Air University Review* once enjoyed wide readership. Retirees, civilian scholars, flag officers, and active-duty types of all ranks competed for the limited space available in the bimonthly journal. Despite severe budget cuts and concomitant circulation restrictions, a series of great editors labored in recent years to cull the submissions for gems while rejecting other offerings of excellence. Yes, the Air Force had an "ear of Dionysius," but curious brambles have obscured that only opening available to commentators and readers. A new title (*Airpower Journal*), tighter quarters, and even tighter thematic approaches threaten the larger voice of service critique.

What does all this have to do with Air Force doctrine? Well, for years Air Force doctrine briefers from Headquarters USAF/XOXFP (formerly XOXID) have affirmed to audiences the threefold sources of Air Force doctrine:

1. Historical experience
2. Technology
3. Professional insight

Of these three sources, two were solidly the subject matter of the *Air University Review*. And the technology category, if not so boldly proclaimed, was regularly reflected in discussions arrayed upon the journal's pages.

What other source so admirably combined the available wisdom in a single format? The *Air University Review* was famous as a vehicle for ideas. It owned a known constituency. The journal was attractive. The arena for debate by thoughtful contributors was unmatched within the Air Force family. Therefore, any diminution of the carrying capacity of the journal should be resisted. Can anyone promise the recent downward spiral will be stopped?

In the 1920s, when the United Kingdom faced the prospect of budget cuts such as

now afflict the American services in these late 1980s, Lord Rutherford offered a sombre yet comforting thought: "We've got no money, so we've got to think."⁵ One reality of budget-cutting is a perceived threat to luxury. But one would hope the last thing slated for slicing is the arterial conduit through which surges spontaneous thinking to enliven the realm of thoughtful airmen. An Air Force that fails to consider every competent challenge might as well confine itself to two-dimensional warfare. There is simply little hope for a blindered military force. All the dancing on "laughter-silvered wings" will not recoup bad doctrine. And bad doctrine always costs lives in combat. In the end, it can catastrophically break the back of the American effort in battle. □

Notes

1. I. B. Holley, Jr., *Ideas and Weapons* (Washington, D. C.: Office of Air Force History, 1983), 169.
2. *Ibid.*
3. Footnoted in John F. Shiner, *Foulois and the U.S. Army Air Corps, 1931-1935* (Washington, D. C.: Office of Air Force History, 1983), 43.
4. *Ibid.*, 45.
5. E. N. da C. Andrade, *Rutherford and the Nature of the Atom* (Garden City, N. Y.: Doubleday and Co., Inc., 1964), 188.

Editor's Postscript

AS INTENDED, the author makes a case for the usefulness of internal discussion and dissent in any military service, pointing out that the Air Force's only written, open forum for this activity has been the *Air University Review*. To these points and others pertaining to the importance of doctrine and its origins, the *Airpower Journal* can only nod in wholehearted agreement. The author's desires for an open Air Force forum are exactly coincident with those of the *Journal* and are incorporated into our editorial and operating philosophy. The *Airpower Journal's* purpose is to provide the forum and to act as an educational tool, the end result being solid air doctrine that will stand us in good stead. KWG

net assessment

The Reorganization of the Joint Chiefs of Staff: A Critical Analysis by Allan R. Millet et al. (Washington: Pergamon-Brassey, 1986), xi, 81 pages.

The moderate reforms of the Defense Reorganization Act of 1986 were resisted by DOD, but the handwriting was on the wall. In January 1986 the Institute for Foreign Policy Analysis convened a conference to discuss defense reorganization; this booklet is the result and it contains revised versions of papers by stellar names, including Professors A. R. Millet and Robert Murray and Generals E. C. Meyer and Bernard Trainor.

Professor Millet, most recently noted as a historian of the Marine Corps in terms of "open systems" theory, demonstrates the sharpshooter's instinct. His opening chapter bluntly denies any relationship between the structure of military organization and combat performance. He traces the record from the interwar period to Vietnam, of which he writes that

organization problems in Washington and Southeast Asia no doubt made an unhappy, frustrating war all the more miserable, but they did not rank with American political irresolution and the fragility and incompetence of the South Vietnamese government as causes for defeat. (Of course, the Communist Vietnamese and their allies also had something to do with the war's outcome.) (p. 15)

So Millet's conclusion emerges: "Unthinking support of the organizational status quo may be no virtue, but it is less a vice than the illusion that tinkering with Title 10, U.S. Code, will somehow improve military effectiveness. That task lies beyond the range of organizational reform of the armed forces alone." (p. 17)

Next Mr Mackubin T. Owens, a special assistant in the Department of Energy, examines executive and legislative influence in policy-making about national security. Rightly he stresses the constitutional foundation and effect. Interagency coordination, he finds, is the chief problem within the executive branch. (Here he might have mentioned increasing tension between the Air Force and NASA, but the aerospace dimension is not the focus of the book.)

Owen's recommendations for improvement of the National Security Council will probably have to compete with results of the Iran-Contra hearings for attention and support. He complains that "the main problem in Congress is the inability of that body to consider national security issues in the context of the big picture." (p. 39) Perhaps some current senatorial initiatives will interact with the DOD commission on integrated long-term strategy to improve the situation.

The next three chapters are of particular interest to students of strategy. Lt Gen Bernard Trainor, USMC, Retired, describes and assesses (favorably) the JCS and Joint Staff planning process. The CINC's and operational planning are also discussed. Thanks to an initiative by Gen John W. Vessey, "war plans left the realm of deployment and entered the operational world." (p. 48) General Meyer, the former Army Chief of Staff, argues that double-hatting, pressures of time, and other conflicting demands degrade the quality of military advice below what is necessary to the civilian leadership. (p. 55)

Will the reform measures being proposed do the job? Professor Murray of the Harvard National Security Program devotes six pages to this crucial question. His answer strikes a somber note: "In general, there is more hope than promise in the proposed reforms." (p. 64)

The major deficiencies of the unified system . . . lie mainly outside the organization chart. . . . The danger in many reform proposals is that they enmesh the joint system in the programming and budgeting business, or in the managerial responsibilities of the military departments, to the great detriment of the war planning and preparation tasks. The latter should be the principal occupation of the Chairman and unified commanders. (pp. 66-67)

How is one to assess this booklet? It would be a failure of nerve to note that the implementation of the Defense Reorganization Act is in its earliest stages and to conclude that no evaluation of this work is now possible. In fact, one can assign a very clear and significant place to the proceedings of the 1986 conference here reported. The

conference and the book come 40 years after the fundamental National Security Act of the post-war period and the accompanying work by Maj Gen Otto L. Nelson, Jr., *National Security and the General Staff* (1946). With amazing prescience, General Nelson specified the very functional and organizational defects that ensured the passage of last year's legislation. The act of 1986 is illuminated in a general way by this sampling of informed opinion.

John Tashjean
Washington, D.C.

Soviet Military Policy Since World War II by William T. Lee and Richard F. Staar. Stanford, California: Hoover Institution Press, 1986, 262 pages, \$21.95.

The title of this book is somewhat misleading in that it implies a treatment of the breadth of Soviet military policy, whereas in reality the focus is on strategic nuclear doctrine. To be sure, since 1960 the Strategic Rocket Forces have dominated Soviet military thought. But as the authors do mention, theater "strategic-operational" concerns weigh heavily on Soviet doctrine because the Soviets see contiguous theaters of military operations (TVD) as strategic. Another anomaly to be recognized in this book is that the authors participated in this volume in different ways. William Lee wrote the "basis" for the book and Richard Staar was responsible for "updating and consolidation."

But aside from these distractions, the book is a competent and straightforward treatment of its topic—one that is of the utmost importance due to the ongoing public debate over the Strategic Defense Initiative and its doctrinal implications. The authors' main theme, stated clearly and often (the reader is relieved to see serious scholars take a firm position on an important issue), is that Soviet military "doctrine and strategy clearly state both the reasons for and objectives of the USSR military buildup," and more important, that the "final objectives" are "to be prepared to fight and win wars at all levels, including a nuclear war." The unstated assumption is that we should not make the mistake of "mirror-imaging" the USSR in our defense policy.

The importance of this conclusion cannot be overstated. If one accepts the authors' viewpoint (and there is indeed room for differing interpretation of the data), then the United States is faced

with a mismatch of its own means and aims. The Chinese military philosopher Sun Tzu noted some 2,500 years ago that the object of military policy should be to defeat the enemy's plan. If this is so, and if it is true that the Soviets pursue a warfighting-damage-limiting strategy, then the US concept of mutually assured destruction could be rapidly becoming dangerous in the extreme.

As noted, there are, of course, alternative views of Soviet intentions. Raymond Garthoff's classic defense of a Soviet acceptance of mutual deterrence is an example of this. Lee and Staar's work will certainly not stop this debate; the question of which Soviet sources are to be trusted is almost epistemological in its scope. But the mass of data and the apparent conclusions cannot be ignored.

In fact, the authors make their case well for the warfighting-damage-limitation theory by matching declaratory policy with the observable element of operational policy, that of weapon deployments. Obviously the scope of the book must be limited, but one might expect to see a treatment of the issue that would include alternative hypotheses. Thus, there arguably could be an alternative fit between weapon acquisition policy and strategic doctrine. This may be seen, for instance, if one stresses Malenkov's 1950s or Brezhnev's 1970s view of the horrors of nuclear war. In this perspective, the procurement of counterforce weapons could be viewed through the lens of a technology-driven model perhaps linked with a bureaucratic decisionmaking analysis. This argument may not withstand the rigors of serious analysis, although it may be strengthened by Gorbachev's recent public-policy pronouncements and budget decisions, but one might expect the authors to at least demonstrate the value of their hypothesis over alternative explanations.

The authors demonstrate their point graphically by using the SALT process as a vehicle to illustrate the continuity of Soviet doctrine (a much broader and higher level political-military concept than we are accustomed to in the West). They suggest that the Soviet acceptance of a limit on strategic defense is a change in national strategy comparable to Stalin's pact with Hitler. They identify the basis of this as a realization that the correlation of forces was about to make a historic turn in the 1970s toward the United States. This was due to a lagging Soviet technological-industrial base and the development of an American antiballistic missile (ABM) system. The shift

would have historic consequences in Soviet eyes since it would critically threaten the very basis of Soviet strategy—the warfighting-damage-limiting doctrine that has existed since the 1950s. Using weapons data and open-source publications, the authors make the case that the military suggested and supported the political imposition of a limit on US strategic defense until the time when the USSR could compete technologically. Having accomplished this with SALT I and the ABM Treaty, the Soviets are now in a position to begin again to implement their warfighting-damage-limiting strategy. This does not imply a Soviet ABM capability today, but it does suggest that a “creep-out” of the treaty could coincide with next-generation ICBMs that could meet Soviet hard and soft target-kill requirements with a lower level of launchers. The generally unpublicized Soviet progress in developing and deploying strategic defensive systems would tend to support this view.

In sum, the authors' case is tightly argued and well documented, but as always in studying the USSR, it is based on assumptions that are difficult to define precisely. The contribution of Lee and Staar is that now a coherent examination of weapons acquisition policy, deployed forces, doctrine, and operational concepts has been blended with a case study of Soviet political-military policy. To argue with these conclusions will now take more than a basic disagreement on “Soviet attitudes.” The future of US security policy rests on how we treat the Soviet reaction to President Reagan's Strategic Defense Initiative. Lee and Staar suggest that we study what happened 15 years ago before we take further action.

Maj Douglas L. Erwin, USAF
US Air Force Academy, Colorado

Taking Charge: A Practical Guide for Leaders

by Maj Gen Perry M. Smith, USAF, Retired.
Washington, D.C.: National Defense University Press, 1986, 234 pages, \$7.00.

“Don't buy a book until you have read at least two book reviews to ensure that reading the book is worth your valuable time.” Such is some sage advice given by Maj Gen Perry M. Smith in his recent book *Taking Charge: A Practical Guide for Leaders*. And with that advice, I recommend you quickly find another book review on this masterpiece of leadership wisdom, then obtain a copy of the book so you can start to share and

benefit from General Smith's multitude of “how-to” approaches to different situations, handy checklists, rules of thumb, and detailed case studies and analyses.

Leaders can and should make a difference in the organizations they head, Smith points out, by setting standards and goals and then establishing priorities. With each chapter of this book, another gem of wisdom and common sense emerges for the advancement of both the individual subordinate's performance and unit effectiveness. The first chapter details 20 fundamentals to remember for basic leadership philosophy. Subsequent chapters consider changing command in an organization; steps through the hiring, counseling, and firing of those who work for you; highlights of situations all leaders deal with in daily routine operations on the job; development of ideas for nurturing communication networks; and a focus on the need for strategic vision and the role of planning. Top this off with checklists for busy leaders that include, among others, integrity, hang-ups, and thank-yous. The checklists are followed by a section of case studies and their analysis. In addition, you will find a selected bibliography on literature about leadership challenges and opportunities. The following paragraphs highlight some of the book's clever insights into the role of a leader.

How much time do you spend visiting on the shop floor, conducting meetings, or socializing with your people? *Taking Charge* recommends the four-hour rule, which prescribes that a leader should spend no more than four hours a day in the office and the rest of the time meeting other people, visiting subsidiary organizations, participating in or watching sports activities with subordinates, conducting ceremonies, or giving motivational speeches.

Are you an innovator? Do you hang on to the status quo or get caught in policy rigidities that do not allow much flexibility? General Smith points out the importance of nourishing the mavericks in the organization; of being open to suggestions, ideas, new thoughts, direction, and concepts; and of striking a balance between continuity and creativity.

How can you repeal the Paul Principle? What is the Paul Principle anyway? It refers to the gradual obsolescence of leaders as they lose touch with the unit they lead, become too conservative, resist innovation and change, and fail to take advantage of technological breakthroughs. And what can they do about it? They

can develop a systematic reading program, participate in management training symposiums and workshops, have regular interaction with long-range planners, and brainstorm with the staff.

And what about wordsmithing? A leader crosses an important milestone when signing the first imperfect, but totally adequate, staff paper without editing or changing it personally. General Smith states, "The perfect can be the enemy of the good."

All this adds up to a textbook on valuable leadership actions and philosophies for all leaders at any level. *Taking Charge* is handy for reference purposes and is as readable as it is beneficial.

Capt Sue Slavec, USAF
Maxwell AFB, Alabama

What Are Generals Made Of by Aubrey Newman. Novato, California: Presidio Press, 1987. 344 pages. \$18.95.

How many of us would like to have an informal chat with a major general? Well, the book *What Are Generals Made Of*, by Maj Gen Aubrey "Red" Newman, is probably as close as most of us will ever get to the experience. In this book, General Newman provides clear insights into the lessons he learned throughout his career. Although we are not allowed the luxury of a two-way conversation, Newman's openness and informal writing style convey the feeling that he is talking to you.

Throughout his career General Newman wrote articles for *Army* magazine, and most of the book's 66 chapters are taken from these articles. Each is a focused discussion of a particular concept. General Newman organized these short chapters into three main areas—company grade officers, field grade officers, and general officers. However, even the author admits, "It is not possible to arrange the chapters here in any precise manner, since each theme is developed to stand alone in its own right." I found the book most useful when I could read an individual chapter and mull it over for awhile before going to the next. This was due to both the loose organization between chapters and the quality of the information packed in each short chapter.

The topics covered in the book are quite diverse. Most chapters contain practical guidelines, such as chapter 12, "To Lead Well Takes Heart and Head." Others are editorial in nature, such as chapter 46, "Evaluate: Not Just Read His-

tory." In that chapter he defends Gen Douglas MacArthur against a critical historian, and urges us to read enough history to form our own judgments. Certain chapters appear to apply only to the Army, such as chapter 43, "The Ties That Bind the Airborne." However, that chapter makes the point that a team works more successfully as a unit, which applies to all organizations.

Although General Newman uses examples from his Army career to make his points, a little thought on the reader's part will often reveal a corresponding Air Force situation. Many times while reading the book, I was reminded of leadership principles I had already studied and practices I already used, but these universal themes never bored me because of the author's vivid examples. Also the book provided "refresher training" to reduce my poor habits and strengthen the good ones. Don't read this book expecting a checklist on how to obtain general officer rank (although page 243 contains a short list of needed qualities). Instead use the book to focus your ideas on how to improve as an officer.

Some weak points must be mentioned. Since this book is a compilation of articles written at various times, certain examples do repeat from one chapter to another. I also found that the general sometimes hints at events he never relates. In some cases he expects the reader to know the incident, and my lack of Army background left me guessing. In other cases the author seemed purposely vague about the incident, and I wondered why he mentioned it at all.

General Newman's viewpoints and tales from his career are enlightening. I recommend the book as easy, enjoyable, and worthwhile reading.

Capt Cathryn Plum, USAF
Maxwell AFB, Alabama

The Birth of Independent Air Power: British Air Policy in the First World War by Malcolm Cooper. Winchester, Massachusetts: Allen and Unwin, 1986, 169 pages, \$27.95.

When something important happens and we want to know why, we look for simple answers. Those of us who are not historians—and here I nail my own colors to the mast—love to find one clear cause for each major event of the past. Malcolm Cooper, in his brief study of the developments that led to the formation of the Royal Air Force (RAF) on 1 April 1918, does not permit his readers that luxury. With an almost infuriating willingness to see the opposite point of view,

Cooper provides a meticulously researched analysis of the period from the conception of military aviation itself to the birth of the world's first independent air force. He leads us skillfully through the many factors that "caused" the formation of the RAF.

Cooper's comments on the pre-1914 British government's half-hearted support of aviation research show his refusal to depend on hindsight. While recognizing the disadvantage this gave Britain at the outbreak of war, he simultaneously admits to the justification of the attitude on the grounds of the uncertain potential of aviation and of unwillingness to provoke an aerial arms race that would dissipate Britain's advantages as an island nation.

He shows us how the lack of any coherent government air policy led to the fragmented development of British military aviation. Scores of different aircraft types were ordered by the government from various sources; duplication of effort and waste of resources were the inevitable results. More damaging in the long term was the growing divergence between the army and the navy in the ideas of doctrine and resource allocation and in the perceptions of each other's mission. This, if anything, might be called the primary "cause" of the formation of the RAF.

The backdrop to Cooper's analysis is a gradual shift in dominance, from the enthusiastic naval airmen who were later brought under control by their masters in the Admiralty to the military pilots of the Royal Flying Corps (RFC) gaining confidence in their ability to give effective support to the army in France. But personalities play their part: a young and visionary Winston Churchill who used the Royal Naval Air Service (RNAS) to attack within their bases the Zeppelins that threatened London, and a reluctant Hugh Trenchard who was far more interested in supporting the ground troops than in developing the independent air force whose "father" he later became.

The trigger for the formation of that force was a series of raids by Gotha bombers on London starting in May of 1917. As Cooper shows in detail, there had been attempts to mediate in the squabbles for resources between the RNAS and the (now preeminent) RFC. There were a few visionaries who felt that a new medium of warfare needed a new service. But it was the Gotha raids and the public outcry for retaliation that led the cabinet to combine the RFC and the RNAS into one organization. On the basis of a forecast—and nonexistent—surplus of aircraft, they also

formed an independent bombing force within the new RAF that should have been the weapon to take the war to the German homeland. It is difficult to argue with Malcolm Cooper's researched opinion that the RAF was little different from the RFC it replaced. It continued to concentrate on close air support and reconnaissance, neglecting offensive counterair and interdiction operations and especially strategic bombing. The RAF's later espousal of strategic bombardment, to the exclusion of other valid aspects of air power, was a result of its struggle for survival in the interwar years and was based more on untried theory than on its experiences in 1918.

In many ways this is a sorry story. Cooper describes with brutal directness the inadequate analysis of intelligence and capabilities and the personal disputes and the political infighting that took Britain along the uneven path to an independent air arm. He shows how the lack of strategic direction and the late stage of its formation left the RAF to fight a battle in the 1920s for its continued existence. Yet his even-handed approach prevents him from pillorying individual "culprits." He is always fair.

This book is not written to entertain. It is a detailed and carefully researched description of how independent air power came into existence. Its scope is deliberately limited, but it is a relevant study both to those interested in the history of air power and to those who like to find out how political decisions are taken. The author's professional approach to his research has resulted in a detailed, well-indexed work with comprehensive footnotes and bibliography, which is brought to life by 31 well-chosen contemporary photographs. I recommend *The Birth of Independent Air Power*. It casts light on the problems of making major organizational changes in wartime and, as a cautionary tale, has much to say to us today about preparedness, the balanced employment of air power, and the influence of personalities on policy.

Squadron Leader Peter Dixon, RAF
US Air Force Academy, Colorado

Managing Nuclear Operations edited by Ashton B. Carter, John D. Steinbruner, and Charles A. Zraket. Washington, D.C.: Brookings Institution, 1987, 751 pages, \$39.95 in hardback, \$18.95 in paperback.

This volume is composed of 21 essays that address the various dimensions of managing nuclear forces in peacetime and wartime, with

special emphasis on the all-important transitions from one state to the other. They are grouped in three parts: "Nuclear Operations," "The Command System," and "Policy Perspectives." There are a total of 22 contributors, each with excellent credentials.

The first part of the book contains five essays that address peacetime operations, alerting forces in crises and the outbreak of conventional war, preplanned operations, maintaining control during wartime, and terminating the war. The second part of the book discusses command systems with essays on communications systems and vulnerabilities, strategic and tactical warning, targeting, delegating authority, NATO operations, the role of wargaming, the psychology of command, command centers, and Soviet operations. Part III treats a variety of policy areas including strategic defense, arms control, antisatellite issues, sources of error and uncertainty, acquisition of command systems, command system vulnerability, and the choices and trade-offs involved.

This is a book for the serious student of nuclear doctrine and strategy. It presents no magic solutions to the dilemmas inherent in managing nuclear forces. Its purpose is simply to call attention to this largely overlooked subject.

The authors feel that the "neglect of nuclear operations is a major flaw in the prevailing understanding of security." I agree. With this limited purpose in mind, the book fulfills its objective. However, the authors not only gained my attention, they convinced me that many of the leading thinkers on this subject—people who have influenced and are now at least influencing if not determining policy in this area—are using questionable logic.

Several of the authors offer as accepted wisdom that the command system for nuclear forces does not need to be any more survivable than the forces it serves. They point out that any attack large enough to knock out the command system would be so large as to justify a single large response. And a single large response does not require a command system that has to survive any longer than to order that response. By this logic, they conclude that the idea that the command system is vulnerable to a large attack is irrelevant. It seems to me that this logic is faulty. In a crisis or a wartime situation, a vulnerability to a large attack is an invitation for just such an attack, for a rapid escalation to knock out command systems before launch orders can be disseminated, thus freezing offensive forces in

place where they can be destroyed by follow-on counterforce attacks. What really highlights this faulty logic is the essay by Albert Wohlstetter and Richard Brody in which they postulate missiles armed with very low-yield, highly accurate, burrowing warheads that could act as prompt hard-target killers while causing almost zero collateral damage. They claim the necessary technology has already been developed for the Pershing II. If this is true, we can expect future forces to evolve to such precisely usable weapons. Attacks could be large enough to destroy command systems but far smaller than would justify a single major response option. This tells me that the command system's vulnerability to an attack involving a large number of warheads will not likely remain an irrelevant problem even to those who argue that it is now. Such an attack could wipe out our command system and be the precursor of an across-the-board counterforce attack that likewise would cause extremely limited collateral damage. It could lead to a situation in which the command system is knocked out, forces are largely destroyed, but society is for the most part undamaged and therefore hostage to further attack. Obviously, such logic does not lead to strategic stability.

This is not the best book for the average reader of the *Airpower Journal* to find out what he or she should know about the command and control of nuclear forces. I would recommend first reading *Strategic Command and Control: Redefining the Nuclear Threat*, by Bruce Blair, and *The Command and Control of Nuclear Forces*, by Paul Bracken. (Both authors were contributors to this book.) These books will provide a good foundation for reading and understanding this book.

For those readers who are well versed in this subject area or who serve in any capacity in the area of nuclear operations, I heartily recommend *Managing Nuclear Operations*. The authors are right when they say we have not given the area enough thought. In my opinion, their essays combine to prove their premise.

Lt Col Fred J. Reule, USAF, Retired
Longwood, Florida

Conflict of Myths by Larry E. Cable. New York: New York University Press, 1986, 285 pages, \$30.00.

In Vietnam, "ignorance, not malice, as was later charged by opponents of the war, was at the

root both of American escalation and the ultimate American failure." (p. 279) So begins the concluding chapter of this brilliant new book investigating America's trauma in Southeast Asia. The ignorance referred to was the American failure to understand the fundamental differences between the two basic types of guerrilla warfare: partisan and insurgent. In the American view, all such wars were waged by partisans, sponsored by an external power, and often presaged conventional aggression by the sponsoring power. The result was American military doctrine (theory of victory) skewed toward conventional warfare, particularly the destruction of supply and communications links between the guerrillas and their presumed sponsors.

Cable's thesis offers a plausible explanation for American military strategy in Vietnam, particularly the bombing efforts along the Ho Chi Minh Trail and in the Rolling Thunder campaign in North Vietnam, and explains why we trained, structured, and equipped the South Vietnamese Army in the American image. Such a Clausewitzian viewpoint also helps explain the big unit ground operations throughout South Vietnam. To support his thesis, Cable illuminates the "lessons" learned and ignored by the American military from other guerrilla wars, offering short but amazingly insightful chapters on the Greek Civil War, the "Banana Wars," and the wars in Korea, the Philippines, and Malaya. His recitation of the conversion of these "lessons" into doctrine is very convincing.

All of this adds up to a convincing case, one that is important in understanding the American failure in Vietnam. It is particularly important and convincing for the early years—what the American military refers to as the advisory period. It is important to our understanding of the early years of direct American combat involvement. The argument lost its punch, however, as the war continued and the North Vietnamese became more heavily involved.

Cable's scholarship is impressive and well documented in extensive chapter endnotes and an impressive bibliography. Much of his research was done in various archives (Truman, Kennedy, and Johnson libraries, National Archives, and military service historical centers) and relies on original source documentation. One curious omission was his failure to use the Air Force Historical Research Center located at Air University.

Cable's contribution is most welcome and helpful. He offers not only solid research, but

also considerable insight and a marvelous writing style. It is most encouraging to find a scholar concerned with national security affairs who is willing to do solid research on a difficult subject. All too many scholars in that field content themselves with ruminations about things nuclear (a field in which there is little evidence and even less real research) or endless studies concerning the NATO-Warsaw Pact face-off (a field that has been and continues to be overworked by mundane bean counters and fantasizing scenarists). Cable has tackled a difficult, emotion-laden subject crucial to the most likely future conflicts that may draw American involvement. This book is must reading!

Col Dennis M. Drew, USAF
Maxwell AFB, Alabama

No More Heroes: Madness and Psychiatry in War by Richard A. Gabriel. New York: Hill and Wang, 1987, 174 pages, \$17.95.

Catch-22 in Joseph Heller's novel of the same name stated that if you wanted to fight in a war, you were crazy and had to be medically disqualified from fighting, but if you did not want to fight, you were sane and had to. This book by Richard Gabriel examines a way out of Catch-22: give a soldier chemicals that remove his anxiety, declare him sane, and let him fight till he dies. Mr Gabriel sets up this straw man, and then spends 174 pages being aghast at his own creation.

The book's premises are as follows: almost everyone who fights long enough will become a combat fatigue (CF) casualty. CF losses, he infers, are permanent. As the nature of warfare has become more intense, and as night-fighting capability has removed nocturnal rest periods, we may expect CF to sap quickly any military force's fighting power. In order to maintain this power, military psychiatrists are developing drugs to numb human anxiety so that men will become emotionless fighting robots, undeterred by the fear that would otherwise drive them from the hopelessly lethal modern battlefield. In consequence, all soldiers will fight till they die since neither side will turn and run when things are perceived as hopeless, which they will be. Without fear, the human virtues—heroism, camaraderie, self-sacrifice—that have historically ennobled war will not exist, and war will become meaningless. Soldiers will either take the pills and become virtual automatons or they will not take the pills and be quickly rendered hope-

lessly mad by the intense and never-ending war.

The only way to avoid this Armageddon is (1) not to have wars or (2) to mutually agree to give up some or all of modern weaponry, thus lowering the level of lethality. A brave new world, indeed.

Unfortunately, all is not well in this book. Yes, combat fatigue occurs. Some 25–50 percent of all casualties (not of the total force) may be due to CF. However, about 60–80 percent can be returned to duty in three days or so, and the relapse rate is relatively low at 10–15 percent. Mr Gabriel revels in descriptions of the ailment and entirely neglects the fact that treatment, using little if any medication, has been quite effective in several wars. If combat is so stressful on the lethal modern battlefield, CF will affect both sides and the level of lethality will drop as both sides lose their manpower. We already have fairly effective antianxiety drugs. If their effect is to make men less cautious (as was anecdotally observed in Vietnam), some of these men will, as Mr Gabriel predicts, likely become casualties. Experienced and trained troops foolishly and fruitlessly exposing themselves to enemy fire would not be tolerated by any leader who wanted to win. Fearless, incautious, dead soldiers benefit no one. Even George Patton was quoted as saying that the purpose of it all was to get the other guy to die for his country. Mindlessly aggressive soldiers, given drugs to allay fear and to inflame anger, would not win, and the military, even taken at its worst (as Mr Gabriel generally does) is at least pragmatic. Ethics aside, the idea will not work.

This book has flawed scholarship as well as flawed logic. Of the 12 psychiatric sources cited, five are pre-1960 and one is undated. Farley Mowat's name is misspelled, as is the Ganser syndrome, which is no longer defined as it was in the 1942 source from which the author cites it out of context.

Elavil is an antidepressant medication and will not "prevent or control anxiety." (p. 143) "The author's contention that "the basis of all human emotions is anxiety" is stated without authority and is flat wrong, as is his unsupported assertion that to rid oneself of anxiety would destroy all emotions and, with them, the soul. (p. 148) Sociopaths are indeed out for "their own benefit" at the expense of others, but "their own benefit" certainly does not include fearlessly letting themselves get killed, since they also lack loyalty, dedication, respect for authority—ever had one in your outfit?—or a sense of right and wrong. Such men are not likely to go in harm's

way just because someone tells them to. And the proper term is now "antisocial personality disorder," not "sociopath."

For all this, the book is provocative. Sometimes reading such a book and arguing with it in your head, which I obviously did, leads to useful new insights. Richard Gabriel's view of the nature of modern warfare is that it is insane, and if not driven mad by it, modern men must become, or be chemically made to be, so emotionally numbed as to be unthinking killing machines. Therefore, we must change the way we think and feel about war, or change the nature of war, or face Armageddon. What is your view?

Col (Dr) David R. Jones, USAF
San Antonio, Texas

George C. Marshall: Statesman, 1945–1959 by Forrest C. Pogue. New York: Viking-Penguin, 1987, 528 pages, \$29.95.

Seldom is a biographer better qualified to write on his subject than is Forrest C. Pogue, whose earlier volumes on Marshall are already considered classics. His work is highlighted by personal insight sharpened by his years as a Department of the Army historian. Later he served as both executive director of the George C. Marshall Research Foundation and director of the Marshall Library in Lexington, Virginia. Once again, he has tied his firsthand knowledge of the era to an intimate understanding of Marshall gained over the years. Thus, *George C. Marshall: Statesman, 1945–1959* is more than just a factual account of the final years of an American hero. It is an in-depth study of Marshall the general, the diplomat, and the man.

More than any other leader, Marshall had shaped the Allied victory in World War II. But it was not in his character to serve on as the victorious commander once the job was finished. After 43 years of distinguished service, he sought only to retire to the peace of Leesburg, Virginia. On 19 November 1945, General Marshall submitted his letter of resignation to President Truman. A week later at his retirement ceremony, General Marshall received his only American military decoration of the war, an Oak Leaf Cluster to the Distinguished Service Medal. He had steadfastly refused any higher decoration.

When he returned home to Virginia, the phone was ringing as he walked through the door. A 30-second conversation with the president ended his retirement—he had been appointed as a special ambassador to China. It is this transition

from soldier to statesman that marks the beginning of Pogue's fourth and final volume on George C. Marshall.

This biography gives one the opportunity to view the postwar period from the broad perspective of the most respected and influential man of this time. Marshall dealt face-to-face with Chiang Kai-shek and Chou En-lai as he struggled to find the impossible compromise for the Nationalists and Communists. In desperation, the European heads of state turned to him to formulate the European Recovery Program, which is now remembered as the Marshall Plan. His carefully measured policies were the key to the back-drop for the Truman Doctrine. As secretary of defense, he sought the expanded UN participation in Korea, prepared the US forces for the conflict, and provided the president needed support during the MacArthur affair.

Fortunately for the reader, the author uses a topical approach to this complex period of US history. Most of the book is devoted to the years 1945-1952, when Marshall was a key spokesman

for US foreign policy. During that time, he served as ambassador to China, secretary of state, president of the American Red Cross, and finally as secretary of defense. The challenges Marshall faced in each of these positions are clearly presented as Pogue carefully explores Marshall's foreign policy.

Although popular history seems to have neglected Marshall in favor of the more colorful figures of the time, few men can match the tenure or quality of his service. For over 50 years he served his country with an ingrained quality of selflessness that gave him the freedom to foster greatness in men like Arnold, Eisenhower, Dulles, and Acheson. Forrest Pogue's detailed, informative, yet enjoyable, treatment of Marshall provides an opportunity for the reader to appreciate those contributions and to recognize Marshall's personal greatness.

Lt Col Thomas M. Kearney, USAF
Headquarters United States Air Force
Washington, D.C.

Notices of upcoming conferences, seminars, and other professional notices of a noncommercial nature should be sent to: Editor, *Airpower Journal*, Walker Hall, Maxwell AFB, AL 36112-5532. We reserve the right to edit material for length and editorial content.

Airpower Research Institute, Senior Research Fellow Positions

The Airpower Research Institute (ARI) has two senior research fellow positions available. ARI's research is concentrated in three areas: nuclear and space strategy; development of doctrine, strategy, and force structure for low-intensity conflict; and theater-level military strategy and doctrine.

The two positions will be filled beginning in 1988, preferably early in the year. Both positions are for one year with possible extensions. To be eligible, an applicant must be serving on the faculty of an accredited academic institution of higher learning. Applicants should possess a PhD in a discipline such as political science or history. Fellows will be expected to produce a book-length manuscript based on their research as well as to advise active duty military researchers. Some instruction at Air University's Air War College and Air Command and Staff College may also be involved. All applicants should submit an updated vita and a two-page research proposal to CADRE/RI, Attn: Lt Col Price T. Bingham, Walker Hall, Building 1400, Maxwell AFB, AL 36112-5532. For further information, contact Lieutenant Colonel Bingham at (205) 293-6214.

USAF Academy Military History Symposium

The Department of History at the United States Air Force Academy has announced that its Thirteenth Military History Symposium will be held 12-14 October 1988. The topic will focus on the role of intelligence in military operations. The department has sponsored a symposium series since 1967, and all but the first symposium proceedings have been published through the Office of Air Force History by the Government Printing Office. For further information, please write to:

Executive Director, Thirteenth Military History Symposium, HQ USAFA/DFH, Colorado Springs, CO 80840-5701.

USAFA DOD Psychology Symposium

The Air Force Academy's Department of Behavioral Sciences and Leadership will hold its Eleventh Biennial Psychology in the Department of Defense Symposium at the Air Force Academy 13-15 April 1988. Possible topics for the symposium include leadership and productivity, aircrew performance issues, operational environments, women in the military, the military family, human factors engineering, organizational psychology, educational innovations, and expert systems. The deadline for submission of papers is 4 January 1988. For further information on submitting papers or attending the symposium, contact Lt Col Robert Ginnett or Maj David Porter, Department of Behavioral Sciences and Leadership, United States Air Force Academy, CO. 80840, or call (303) 472-3860/3861 (AUTOVON 259-3860/3861).

Air War College Aerospace Power Symposium

The Air War College will hold its 12th annual Aerospace Power Symposium at Maxwell AFB, Alabama, from 2-4 March 1988. The topic of the symposium will be "Integrating Strategic and Tactical Air Power in Conventional Warfare." The symposium is sponsored by the Air Force Chief of Staff, Gen Larry D. Welch, and provides a forum for exchange of ideas among key air power theorists, students, and practitioners. Key issues will include doctrinal concerns, training implications, applicability to airland/maritime operations, organizational impacts, and logistics considerations. For further information, contact Lt Col Marcy Powers, AWC/XP, Anderson Hall, Maxwell AFB, AL 36112-5522, or call (205) 293-2335 or AUTOVON 875-2335.

USMA History Symposium

The United States Military Academy, with the generous support of the National Endowment for the Humanities, will sponsor a history symposium entitled "The Theory and Practice of Amer-

ican National Security, 1960-1968," at West Point, New York, 13-15 April 1988. Historians and political scientists will present papers on political, strategic, economic, and other aspects of American national security policy during the Eisenhower, Kennedy, and Johnson administrations. For further information, contact Lt Col Charles F. Brower, Department of History, USMA, West Point, NY 10996.

USNA Naval History Symposium Proceedings

The proceedings from the Sixth Symposium of the US Naval Academy are now available. Topics covered include: Navies in the Early Age of Sail, New Perspectives on British Sea Power, Naval Technology, Diplomacy and Intelligence, World War II Naval and Amphibious Operations, and Biographical Naval Studies and Material History. Copies are \$40.00 each and may be ordered from Scholarly Resources Inc., 104 Greenhill Ave, Wilmington, DE 19805-1897.

Air Staff Doctrine Office Change

As part of the DOD reorganization, the Air Force has moved the office that is primarily concerned with Air Force doctrine. This office, formerly XOVID, has become a part of the Force Planning Division (XOXFP).

Intelligence and War Program

The Air Force recently announced the formation of a program to broaden the knowledge base of its intelligence personnel. The program, called the Intelligence and War Program, uses a reading list, a speakers program, and a resource center located at Goodfellow AFB, Texas. There are ten books on the program's core reading list. The books should be available at most base libraries. The resource center contains both classified and unclassified oral histories, intelligence studies, books, films, and static display material. The speakers program provides guest speakers at dinners-in and other events. Speakers are current and former intelligence officers.

Decoy Aircraft

Aeronautical Systems Division (ASD) of the Air Force Systems Command has awarded two contracts to develop decoy aircraft designed to look like F-15 and F-16 fighter aircraft. Requirements of the contract include easy assembly and transport and a requirement to strongly resemble the actual aircraft. This is ASD's first decoy development program. □

I Can Write Better Than That!

OK, then do it! *Airpower Journal* is always looking for good articles written by our readers. If you've got something to say, send it to us. We'll be happy to consider it for publication.

The *Airpower Journal* focuses on the operational level of war, that broad area between grand strategy and tactics. We are interested in articles that will stimulate thought on how warfare is conducted. This includes not only the actual conduct of war at the operational level, but also the impact of leadership, training, and support functions on operations.

We need two typed, double-spaced draft copies of your work. We encourage you to supply graphics and photos to support your article, but don't let the lack of those keep you from writing! We are looking for articles from 2,500 to 5,000 words in length—about 15 to 25 pages.

As the professional journal of the Air Force, we strive to expand the horizons and professional knowledge of Air Force personnel. To do this, we seek and encourage challenging articles. We look forward to your submissions. Send them to the Editor, *Airpower Journal*, Walker Hall, Maxwell AFB, AL 36112-5532.

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 most often-heard reason. 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, 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 you 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, share your thoughts with your fellow airmen.

"They" don't publish "regular people" like me. Just try us! With the *Journal* focusing on the operational level of war, we hope to see more and more articles coming from the people who know what they're talking about—people like YOU. The officer corps, enlisted personnel, and the Air Force civilians are the hands-on experts. You are the people who deal with war and the preparation for war. You are the people who have the ideas we need to hear. We can't guarantee we'll print what you write, but we'll help you in every way we can to achieve that goal.

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 effectively apply combat power.

Convinced? We hope so. If you are, the next step is to write an article that has a good chance of being published. First, write on a topic you are familiar with, either because you have worked in that area or because you have a special interest in the area. Don't try to guess what topic the *Airpower Journal* "needs" an article on. We don't work that way. Likewise, don't stop just because you saw an article on your subject in a recent issue. We review each article on its own merit, and yours may offer a new perspective.

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 expert on the subject of your article as you. 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 them, *don't let that deter you from writing*. You may have supporting illustrations that are more appropriate than those available to the editors, but if not, press ahead.

Once you've written your article, send it to the Editor, *Airpower Journal*, Walker Hall, Maxwell AFB, AL 36112-5532. We'll assess it for publication. If we like it but think it needs some rewriting, we'll work with you to make a stronger article. If we decide not to publish it, we'll let you know why rather than simply sending you a short "thanks-but-no-thanks" letter. We will assist you as best we can to make for the best professional journal possible. That's what we're here for, but it's your journal. Now get out there and write. □

contributors



Air Vice-Marshal R. A. Mason, C.B.E. (MA, King's College, London; MA, University of St. Andrews, Scotland), is air secretary of the Royal Air Force. His previous assignments in the Royal Air Force include director of Defence Studies; director of Personnel Management, Policy, and Plans; and exchange officer on the faculty of the US Air Force Academy. He has been a visiting lecturer to Air War College, National War College, and other universities and military colleges worldwide. Air Marshal Mason is the author of several books and was a frequent contributor to *Air University Review*. He is a graduate of Air War College.



Richard P. Hallion (PhD, University of Maryland), the director, Special Staff Office, Aeronautical Systems Division, Wright-Patterson AFB, Ohio, was selected the Harold Keith Johnson Visiting Professor of Military History for 1987-88 at the US Army Military History Institute. He has been chief historian, Air Force Flight Test Center, Edwards AFB, California; served as curator of science and technology of the National Air and Space Museum of the Smithsonian Institution, and

was professor of history and instructor in aerospace engineering at the University of Maryland. Dr Hallion is the author of ten books on aerospace history.

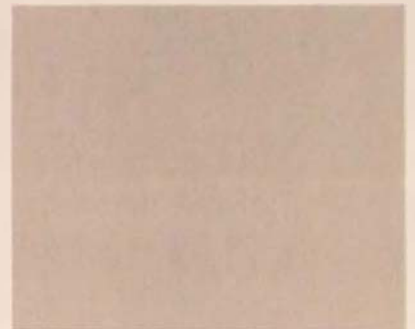


Lt Col (Col selectee) Ronald C. Smith (AB, Princeton University; MS, University of Southern California) is chief, NATO Command and Control Branch, Europe/NATO Plans and Policy, Headquarters USAF. He has served in operational air defense units in the United States, Vietnam, and West Germany and has advised the Royal Saudi military in Saudi Arabia. Colonel Smith participated in test and evaluation of the airborne warning and control system, was a program element monitor and contingency planner in the Pentagon, served as chief of Air Defense Plans for US Central Command Air Forces, and recently was a senior fellow in national security at Harvard's John F. Kennedy School of Government. He is a graduate of Squadron Officer School and Armed Forces Staff College.



Brig Gen Billy M. Knowles, Sr., USAF, Retired (BS, University of Houston; MS, Uni-

versity of Southern California), is director of operational plans, Headquarters Air Force Reserve, Robins AFB, Georgia. He served 38 years with pertinent assignments that included chief of flight operations, 705th Combat Crew Training School, Ellington AFB, Texas; director of operations at Selfridge AFB, Michigan, and Robins AFB, Georgia; vice commander at Rickenbacker AFB, Ohio; and commander at Westover AFB, Massachusetts, and Dobbins AFB, Georgia. General Knowles was a command pilot, instructor, and an operations officer.



Lt Col (Col selectee) Stephen C. Hall (BS, Georgia Institute of Technology; MS, Troy State University) is deputy director for Logistics, US Atlantic Command (J4), Norfolk, Virginia. His previous assignments include almost four years commanding aircraft maintenance squadrons, five years on the US Air Forces in Europe staff, and two years at an air logistics center in the Air Force Logistics Command. Colonel Hall is a graduate of Squadron Officer School and the Industrial College of the Armed Forces, a Distinguished Graduate of Air Command and Staff College, and a previous contributor to the former *Air University Review*.



Maj Kenneth M. Page (USAFA; MS, Rensselaer Polytechnic Institute) is the aide-de-camp to the commander in chief, US Special Operations Command, MacDill AFB, Florida. A senior pilot with more than 1,500 flying hours, he has held numerous flying and staff positions at Detachment 18, 40th Aerospace Rescue and Recovery Squadron, and the 1550th Combat Crew Training Wing, including chief of standardization and evaluation, wing executive officer, maintenance supervisor, and officer in charge of job control. Major Page has also served an Air Staff Training (Program) tour as a congressional affairs and resource planner and an air operations staff officer in Plans and Operations, Deputy Chief of Staff. He is a graduate of Squadron Officer School and Air Command and Staff College.



Col Timothy E. Kline (USAFA; MA, Louisiana State University) is a member of the staff of the National War College. His previous assignments include chief, Long-Range Planning and Doctrine Division, Headquarters USAF; chief, Operations Division, Air Ground Operations School; chief, Fighter Training Branch, 18th Tactical Fighter Wing, Kadena AB, Japan; assistant operations officer, 12th Tactical Fighter Squadron at Kadena; and chief, Doctrine and Concepts Division, Headquarters USAF. Colonel Kline is a graduate of National War College and a Distinguished Graduate of Air Command and Staff College.

... BUT HOW DO I SUBSCRIBE?

EASY ...

- Just write the Superintendent of Documents, US Government Printing Office, Washington, D.C. 20402.
- Tell him you want to subscribe to AFRP 50-2, *Airpower Journal*, ISSN: 000-2594, stock number 708-007-00000-5.
- Enclose a check for \$9.50 (\$11.90 for international mail).
- Spend a year enjoying four quarterly issues mailed to your home or office.

The **Airpower Journal**, published quarterly, is the professional journal of the United States Air Force. It 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. The views and opinions expressed or implied in the **Journal** are those of the authors and should not be construed as carrying the official sanction of the Department of Defense, the Air Force, Air University, or other agencies or departments of the US government. Articles in this edition may be reproduced in whole or in part without permission. If reproduced, the **Airpower Journal** requests a courtesy line.

BOARD OF ADVISERS

Col Kenneth J. Alnwick, USAF, Retired
EAST, Incorporated

Lt Col Donald R. Baucom, USAF
Office of Air Force History

Dr Donald D. Chipman
Educational Adviser, Squadron Officer School

Col James L. Cole, Jr., USAF
Deputy Assistant for Joint Matters, ODJS

Col Raymond A. Hamilton, Jr., USAF
AFROTC, University of Alabama

Maj Gen I. B. Holley, Jr., USAFR, Retired
Duke University

Dr Richard H. Kohn
Chief, Office of Air Force History

AIRPOWER

JOURNAL

Winter 1987-88

