

AIR
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Professionalism and the *Air University Review*

In recent years the military has been taken to task for lack of serious intellectual involvement in its own profession, for its failure to posit new strategies and doctrines for waging war—in effect, for having abdicated its field to civilian minds. Whether this is a valid criticism is debatable, but one fact is not: for 36 years, the *Air University Review* (with its parent *Quarterly Review*) has been the professional journal of the U.S. Air Force, serving us well as a forum for dissemination of ideas from some of the brightest minds, both in and out of uniform.

In reviewing last year's editions, for example, we find that in September-October Major General I. B. "Bill" Holley, USAFR (Ret), has written a minor masterpiece, "Of Saber Charges, Escort Fighters, and Spacecraft," using episodes from military history to review the dynamics of doctrine. Captain Forrest Waller, in May-June, gave us a thoughtful analysis of the defense proposals from the reformers in "Paradox and False Economy: Military Reform and High Technology." In March-April, Major Lonnie Ratley presented a fascinating and useful history lesson, "The Luftwaffe and Barbarossa." Lieutenant Colonel David Dean's article in July-August, "Air Power in Small Wars: The British Air Control Experience," raised important questions about the role of air power in modern low-intensity conflicts. In January-February, Lieutenant Colonel Gerald Venanzi's "Democracy and Protracted War: The Impact of Television" questioned whether television had made it impossible for the people of the United States ever again to support a long war. The September-October edition examined in depth the issue of leadership and management in the Air Force. And there have been dozens of other solid, thought-provoking articles.

In this first issue of 1984, the *Review* looks to the future—and who better to show the way than the Chief of Staff himself, General Charles A. Gabriel, as he discusses his views on the future of the Air Force. Other feature articles examine our relationships with the power centers of communism, the Soviet Union and China.

As we enter this new year, we are reminded of George Orwell's novel *1984*. The hero lived in Oceania and worked at the Ministry of Truth, rewriting history to fit the needs of the ruling party. Fortunately for the free world, the system closest to Orwell's chilling forecast today is not in the Western world but in the U.S.S.R. *Air University Review* does not rewrite history, nor does it reflect only the party line—it *explores* history and serves as a forum for fresh, penetrating thought. In so doing, it makes a major contribution to Air Force professionalism and, in a larger sense, to the defense of the free world.

I have been asked by many junior officers: What can I do to improve my professionalism and my chances for success? My answer: for an easy, enjoyable, and rewarding first step, try reading the *AU Review*.

Charles G. Cleveland
Lieutenant General, USAF
Commander, Air University

AIR UNIVERSITY **Review**



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To be prepared for war is one of the most effectual means of preserving the peace.

George Washington, 8 January 1790

THE AIR FORCE: WHERE WE ARE AND WHERE WE'RE GOING

GENERAL CHARLES A. GABRIEL
CHIEF OF STAFF
UNITED STATES AIR FORCE

SINCE George Washington's time, the task of the military has been to prepare for a war we never want to fight. The United States Air Force, together with its sister services and allies, can prevent war only by having the capability to defend our national security interests wherever and whenever they may be threatened. As John F. Kennedy once said, "Neither smiles nor frowns, neither good intentions nor harsh words, are a substitute for strength."

After a tough period in the 1970s when defense budgets dropped, equipment aged, and we lost many of our most experienced people, things have turned around. The Air Force today is stronger than at any other time in its history. Our people, equipment, and state of readiness are all better than ever before. We have made great strides since the 1970s. Now that we are back on the right track, we need to ensure that our improvement efforts are not derailed because of indifference, inertia, or lack of foresight.

Aviation pioneer Giulio Douhet said: "Victory smiles on those who



anticipate the changes in the character of war, not upon those who wait to adapt after the changes occur." He was right! We need to maintain an Air Force capable of winning not yesterday's but tomorrow's wars.

And war has changed. The United States had three years to prepare for World War I and two years to prepare for World War II. But we might have only days or even minutes to prepare for another major conflict. Because of the "come as you are" nature of today's warfare, we are paying more attention to readiness and sustainability. Over the past two years alone, we have doubled our funding in these areas. And the results are encouraging. The combat preparedness of our units has improved markedly. Mission-capable rates are at all-time highs for the A-7, F-4, F-111, F-15, and E-3A aircraft. Tactical aircrews are now flying an average of 19 hours per month, up almost 50 percent from the 1978 low of 13 hours per month. Sustainability of our forces has also improved greatly. Our spares stocks can generate three times the tactical sorties we could fly in 1980. Airlift utilization rates are also up and increasing. Across the entire Air Force we are building stocks necessary to reach our sustainability objectives.

While we are making every effort to ensure that our current force is ready, we are, as Douhet suggested, also looking to the future. Since we will not be able to match Soviet numbers, we have to depend on better people, better training, and better equipment. We are doing very well in each of these areas.

We have always had high-quality people in the Air Force, and they are getting even better. Our people are smarter, better educated, more highly motivated, and as dedicated as any we have ever had. We are enjoying our best recruiting and retention rates ever. The first-term reenlistment rate is nearly double that of a couple years ago. Had we continued to lose pilots at the rate they were separating in 1979, we would have lost three out of every four after their initial tours. Today, we expect almost three out of every four to stay with us. In 1980, 83 percent of

our new recruits had high-school diplomas. Today, 98 percent of new recruits are high-school graduates.

We cannot rest easy with these successes, however. While strong public support and significant pay raises have helped, the state of the economy has played a major role in our recruiting and retention success. With the economy on the mend, we are going to have to work hard to continue to attract the sharp, motivated people we need. We will continue to help ourselves in the recruiting retention competition by maintaining pay comparability with the civilian sector, by further improving the living and working conditions of our people, and by working hard on other people-oriented programs.

Our retirement system, for example, is an important influence on career retention, and yet it repeatedly comes under attack. I believe as did Theodore Roosevelt when he spoke more than 80 years ago, "A man who is good enough to shed his blood for his country is good enough to be given a square deal afterwards." Military retirement is a commitment to our men and women in uniform. Proposed changes to the system that adversely affect our people do irreparable harm to one of our most important retention incentives.

To ensure that our forces are prepared for combat, we will continue aggressive and demanding training. Exercises such as Red Flag give our aircrews realistic training against a variety of simulated enemy aircraft and ground-based defenses. Through the Joint Chiefs of Staff exercise program, we train as we plan to fight, as part of a combined, multiservice force. Through these exercises we get valuable experience in deploying and employing forces under the same joint operational command arrangement we would have in wartime. Even though we have made our training more realistic and demanding, our accident rate has dropped each of the last three years.

But people and training are not the whole story. Even with the best people and finest training, we cannot have an effective Air Force with-

out modern aircraft, missiles, and equipment. Much of our equipment today is old and outdated, and we are modernizing our forces to ensure that they counter not only today's threat but the demands of the future as well.

Strategic Forces

Our current strategic forces have served us well for far longer than we could have expected. The first B-52 flew more than 31 years ago, and many of our ICBMs date from the early 1960s. Meanwhile, the Soviets have fielded generation after generation of new and more powerful strategic weapons. Were we to fail to act, we would face the destabilizing prospect of substantial Soviet nuclear superiority and the resultant weakened deterrent posture. Consequently, strategic modernization is our first priority.

We have begun production of the B-1B, and the first flight of a production model is scheduled for December 1984. As our first new heavy strategic bomber in thirty years, the B-1B is more survivable and has greater weapons-carrying capability than the B-52 and will penetrate improving enemy defenses.

Additionally, we are developing an Advanced Technology Bomber (ATB) to take advantage of "stealth" technology. The program is proceeding as quickly as it can while still ensuring the aircraft's durability and maintainability across a wide range of combat applications. This evolving mix of B-52s, B-1Bs, and ATBs will provide us a flexible bomber force well into the twenty-first century.

Thanks to Presidential and congressional acceptance of the Scowcroft Commission recommendations, our ICBM force will also continue to be an essential element of the strategic triad, providing those unique attributes not possessed by our bombers and submarines. Early testing of the Peacekeeper missile has been completely successful, and we will have ten missiles in place in 1986 and all 100 deployed in 1989. The Peacekeeper will have ten independently targeted warheads and will have greater target flexibility

and twice the accuracy of our current front-line weapon, the Minuteman III.

Looking a little farther into the future, we have established a program office for a small single-warhead ICBM, dubbed "Midgetman," which will have an initial operating capability in the early 1990s. We are also upgrading our strategic defensive forces by replacing the aging Missile Impact Predictor computers at Ballistic Missile Early Warning System (BMEWS) sites in Alaska, Greenland, and England. We are also modifying the BMEWS radar at Thule, Greenland, to enable the tracking of a larger number of objects with considerably increased accuracy.

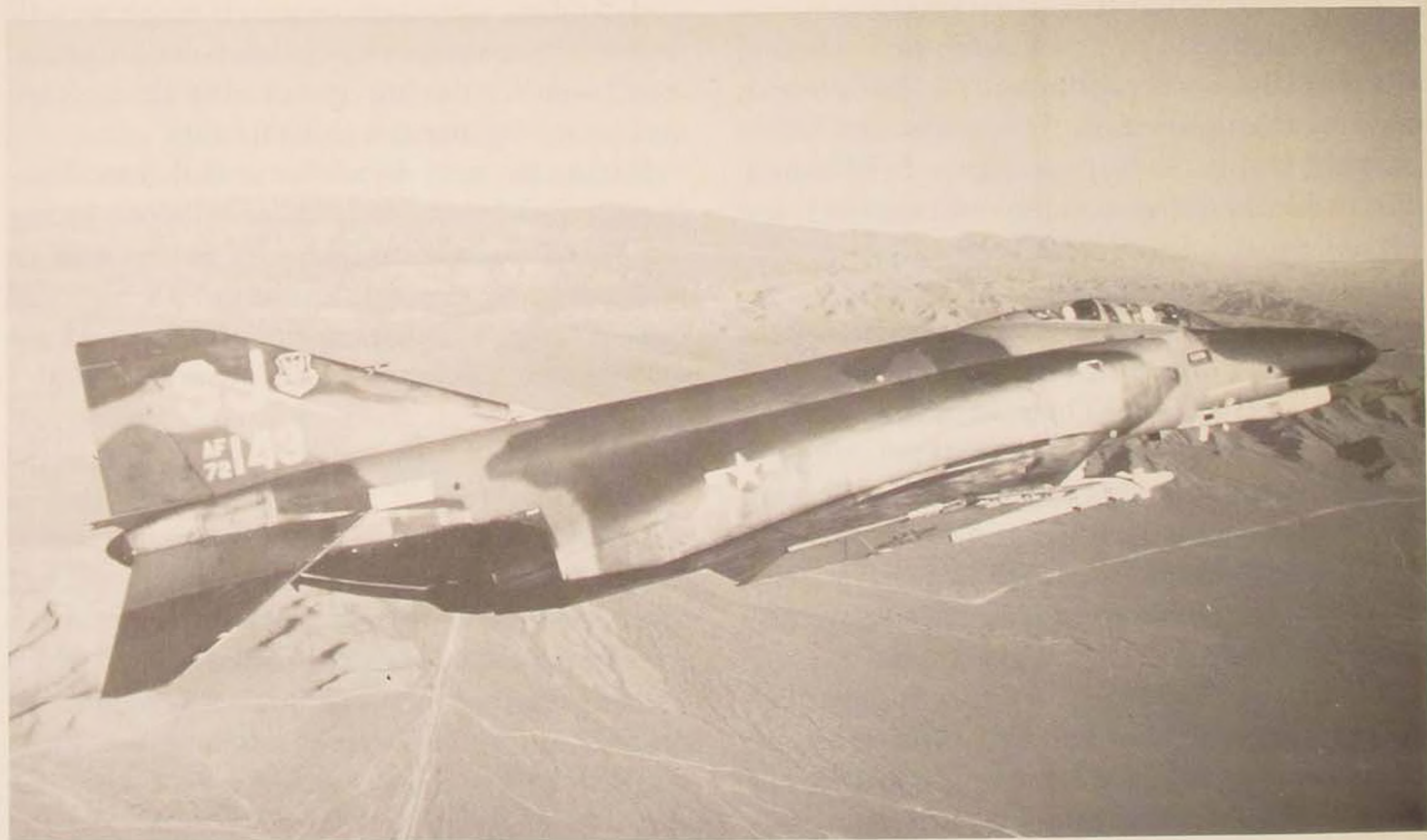
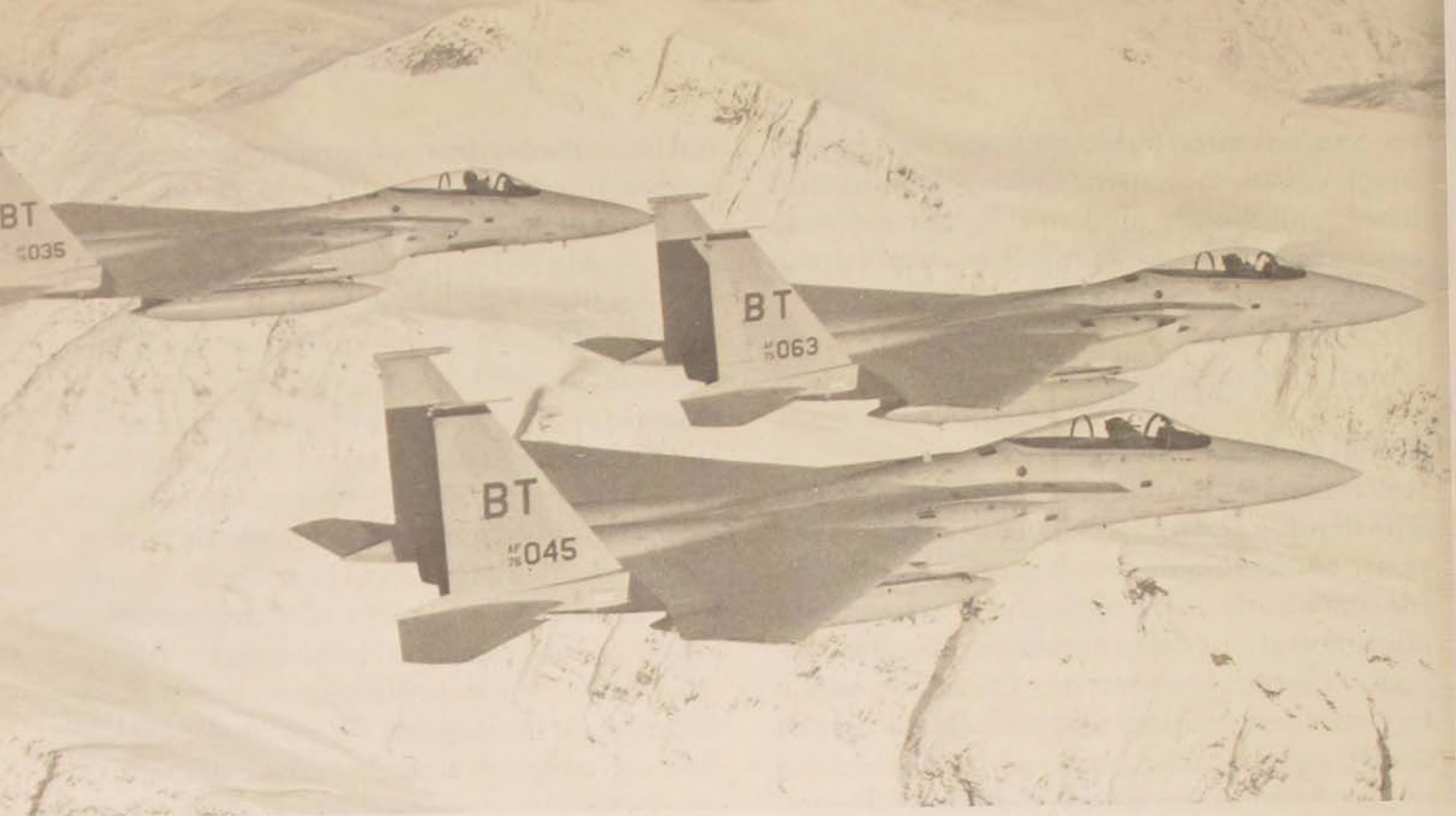
To meet joint surveillance requirements, we will upgrade Distant Early Warning (DEW) line radars in northern Canada and Alaska with 50 minimally attended long- and short-range radars. And to extend our coastal coverage, we will deploy "over-the-horizon" radars looking east, south, and west to provide all-altitude coverage and early warning out to 1800 miles.

During the next decade we will also modernize our fighter interceptor force by replacing our F-106 aircraft. Active duty F-106s will be replaced with F-15s by 1989, and our Air National Guard force, which provides 10 of our 15 air defense squadrons, will switch over to F-16s.

Airlift and Air Refueling

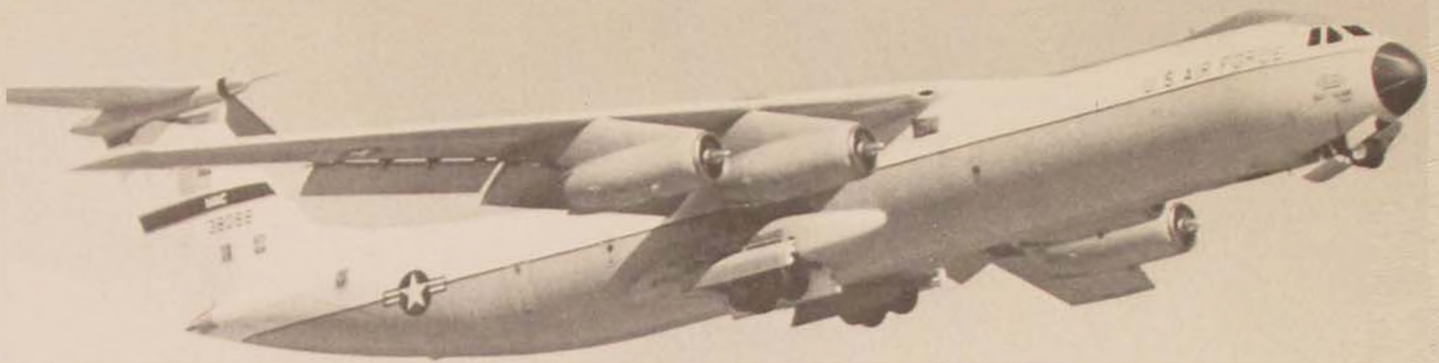
More than 300 years ago, John Dryden wrote, "All delays are dangerous in war." Never has this been more true than it is today. Our airlift force provides us the mobility to respond when and where a crisis may arise and will enable us to minimize and eliminate those delays. Yet, while our airlift force is far and away the best in the world (with probably twice the capability of the Soviet Union's), our requirements for airlift are even greater. Many potential battlefields are four, five, even ten times as far from the United States as they are from the Soviet Union.

Therefore, increasing airlift capability is, after readiness and sustainability, our top priority for conventional forces. Through additional spares



F-15s, F-16s, and A-10s will, by 1985, make up over half of our tactical force as they replace and supplement the venerable but aging F-4 Phantoms.





We have increased our intertheater airlift capabilities 25 percent in the last three years by, among other things, stretching the C-141s.

and stretching of the C-141, we have already increased intertheater airlift capability by 25 percent in the last three years. By adding more spares, modifying some commercial passenger aircraft to a cargo configuration, and buying programmed C-5Bs and KC-10s, we will increase that capability by another 75 percent by the end of the decade.

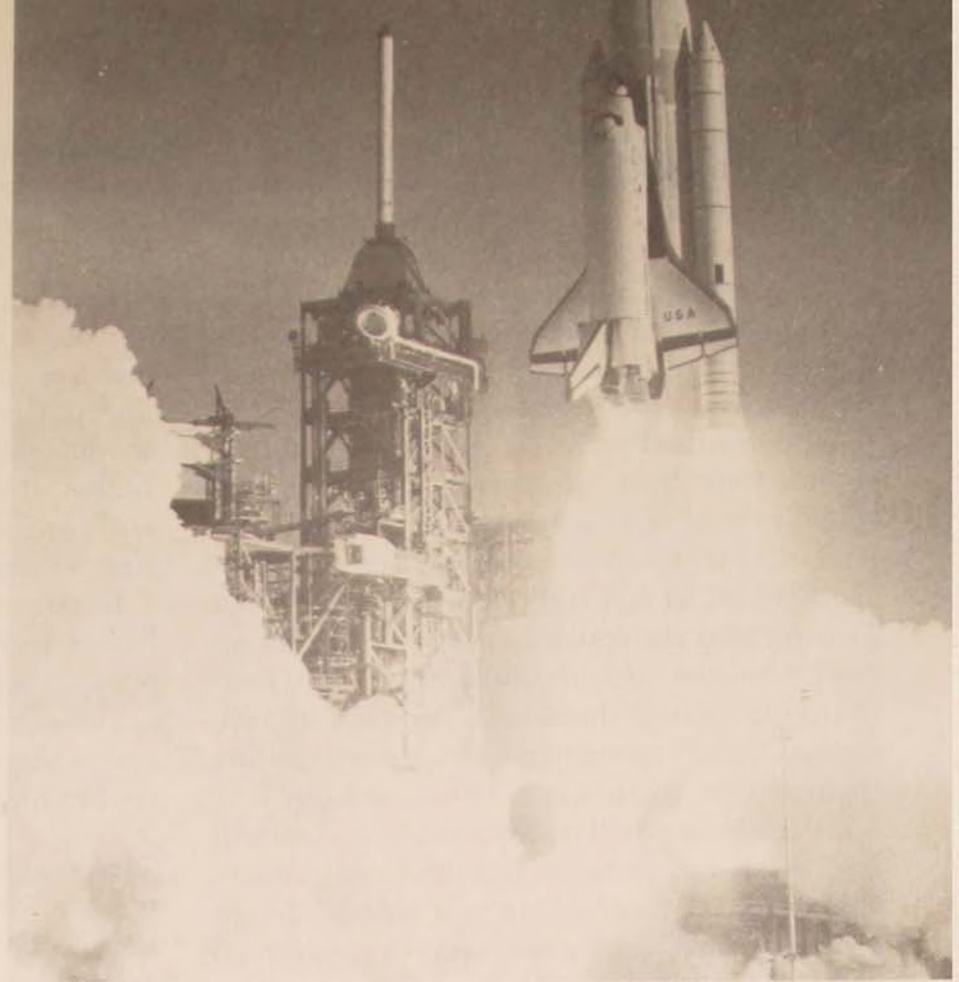
But even that is just a start. We will still need more long-range airlift capability to ensure that our fighter squadrons, Army divisions, and Marine Corps units can deploy rapidly to potential trouble spots. Moreover, despite years of talking about the problem, we still do not have the airlift capability to move Army combat units

between austere airfields within a theater of conflict.

The C-17 will solve both of these problems and provide the combat link between a unit's home station and its theater operating location. With the C-17, for the first time, we will be able to pick up a heavy Army unit at Fort Hood, Texas, or Fort Carson, Colorado, and fly it directly to its combat location in Europe or Southwest Asia without being restricted to major airfields. This ability will eliminate the need to transship smaller "oversize" equipment by C-130 and will save the Army the major problem of road marching—sometimes for hundreds of miles—many of its outsize firepower and support vehicles.

In addition to airlift, almost all our deployments today require air refueling. Since 1960 the Air Force has increased its number of air-refuelable aircraft by fivefold. And because of the extra drag caused by externally carried cruise missiles, our bombers will require additional air

The Air Force is committed to the challenges of tomorrow. The ability to preserve the peace and, if necessary, to fight in space will be a part of that tomorrow.



refueling. In sum, our air-refueling requirements have increased dramatically and will continue to do so in the years to come.

To solve this problem we are upgrading our air-refueling force. In addition to fielding KC-10s, which provide us both airlift and air-refueling flexibility, we are modifying our KC-135 force, replacing the obsolete J57 engine with the more powerful and fuel-efficient CFM56 engine and updating or replacing 34 other systems. Combined with the ongoing wing reskin modification, these changes will enable the KC-135R to do the job of one-and-one-half KC-135As and will extend its service life well into the next century.

Tactical Forces

The worldwide conventional threat posed by the Soviet Union continues to grow. In most potential conflicts, our ground and air forces would be seriously outnumbered. Because the

enemy would also determine the time and place of combat, we rely heavily on the speed, long range, flexibility, and firepower of our tactical air forces to deter and, if need be, defeat aggression.

In recent years we have been rebuilding our tactical force, and today our fighter aircraft are the best in the world. We are rapidly modernizing, and by 1985 one-half of our fighter force will be equipped with F-16s, F-15s, and A-10s.

Within our modernization program, we are expanding our capabilities to fight at night and under degraded weather conditions. Some will recall that almost 40 years ago the ability of Allied tactical air forces to support ground units during the Battle of the Bulge was greatly reduced by rain, snow, and fog. With only an average four-and-one-half hours per day of day visual weather during a European winter, a night/weather capability is vital. The low-altitude navigation and targeting infrared night (LANTIRN) system will help our A-10 and F-16 aircraft penetrate enemy defenses at low altitude,

at night, and under the weather and seek out and destroy enemy targets. We are also working on derivatives of the F-15 and F-16 and are determining through flight testing and analysis what modifications are necessary to improve our weather and night capabilities without sacrificing proven air-to-air performance.

While we modernize, we are also building our fighter force from the current 36 wings to a midterm goal of 40 wings and to a longer-term goal of 44 wings. As we retire older aircraft, we need 250 to 275 new fighters a year to get to our 40-wing goal and continue to equip these wings with first-line aircraft. Because of the ever-changing tactical threat and advances in technology, fighter modernization is a never-ending requirement. By the early 1990s, even our F-15 and F-16 designs will be 20 years old, and we will need a new generation of fighters to stay on top. While not yet committing to a specific design concept, we are working now to develop Advanced Tactical Fighter technologies.

Space

In September 1982, we established Space Command at Colorado Springs to provide focus and direction in the development of future space programs, systems, and operational practices. Additionally, to consolidate space-related research and development, we have created the Air Force Space Technology Center as an element of Air Force Systems Command's Space Division. These and other ongoing moves reflect the Air Force commitment to meet the challenges of

space. Among these challenges is the need to maintain the freedom of space and prevent its use by our enemies as a sanctuary for aggressive systems. In the years ahead, we will be upgrading our space surveillance capability and improving on recent advances in weather predicting and communications. The next quarter-century will produce many more exciting advances in space technology, and the Air Force will continue its effort to capitalize on the efficiencies and advantages of space operations.

But we will also need to capitalize on efficiencies and advantages in many other areas possibly not even thought of today. Although I have not covered even a fraction of our ongoing programs and initiatives, I am convinced that we are heading in the right direction.

THE YEARS AHEAD will bring great change, and the Air Force will change with the times. I do not mean change for change's sake either. We are doing many things right, and they will still be right 20 years from now. But with the innovative, highly educated people who are entering the Air Force today, we need to look for better ways to do things, not fall back on the comfortable ways of the past.

The French philosopher André Gide wrote, "The most beaten paths are certainly the surest but do not hope to scare up much game on them." Like the hunter stalking the untrod path, the Air Force is entering an era unlike any in the past. The opportunities and challenges will be great.

Hq USAF



1984: A HISTORIAN'S REFLECTIONS

DAVID W. LEVY

IT IS a measure of the impact of George Orwell's novel *1984* that we find it difficult to enter this new year without some special uneasiness. Just as those of us beyond a certain age cannot hear the *William Tell* Overture without thinking about the Lone Ranger, so we cannot hear the numbers "1984" without thinking about that grim picture of Western society that Orwell drew for us back in 1949. For thirty-five years we have dreaded this moment, and now it is here. And yet when we reread Orwell's nightmare book, we must all be struck at how badly he missed the mark.

Orwell depicted a society of the most extreme and brutal centralization. At the top stood Big

Brother, his face, stern yet somehow compassionate, gazing down from every wall upon a thoroughly cowed and helpless populace. He was surrounded by members of the Inner Party. Then came the regular members of the Party and, at the bottom, the proletariat. The nation was held together by a chilling fear—the Thought Police prowled the streets arresting people for harboring dangerous ideas; children were trained to spy on their parents and report suspicious conduct to the authorities; people had a peculiar way of disappearing, never to be seen again. There were no laws—only directives blared at the citizenry from the television screen. The central power encouraged membership in the Anti-

Sex League; it rewrote history to make its own actions and predictions seem infallibly correct; and it dealt out merciless torture and terrible punishments (keeping a diary was punishable by death). Everywhere—at offices, in homes, and on the streets—television cameras recorded everything, searching relentlessly for signs of deviancy (among the great dangers was muttering something incriminating in one's sleep). Big Brother made alterations in the English language in order to restrict thought, and he led this monolith of a society into never-ending warfare. The result of all this regimentation was to make "a nation of warriors and fanatics, marching forward in perfect unity, all thinking the same thoughts and shouting the same slogans, perpetually working, fighting, triumphing, persecuting—three hundred million people all with the same face."

Certain features of Orwell's society may remind us of activities in other countries, and some of his predictions may startle and alarm us because of their accuracy. Nevertheless, it seems appropriate, as we start 1984, to acknowledge that, as far as America is concerned anyway, Orwell's picture has so far proved to have been more wrong than right. It also seems appropriate, as we start 1984, to wonder why.

NOT counting natural disasters such as earthquakes and famine, and not counting conquest by outsiders, modern societies face two opposite dangers. On the one hand, they may devolve into the sort of brutal tyranny of centralized power that Orwell depicted. On the other hand, societies may disintegrate into a kind of anarchy as the cement of the community is dissolved by the acid of irresponsible private selfishness. Societies can be ruined, in other words, by excessive power concentrated into the hands of rulers or by an excessive individualism which so absorbs each citizen in personal pursuits that the habit of thinking about the needs of the whole society disappears.

It is crucial to understand that both of these

dreadful possibilities have their origins in the noblest impulses of the human spirit. Tyranny inevitably begins out of the praiseworthy feelings of patriotism: a sense of the unity of the community, a belief in mutual responsibility for our fellows, a faith that our governmental institutions and leaders can, if given enough power and support, construct a strong and just society. And if tyranny starts with a sense of social responsibility, it is nourished along by the deeply felt need, in every society and in every person, for some semblance of social order. Similarly, anarchy inevitably begins out of the deeply felt need for freedom: a sense of the uniqueness of each person and the right of each to as much personal liberty as possible, so as to develop his or her individuality free from confining laws and regulations. And if tyranny is nourished by the instinct for order, freedom is nourished by the faith that a free society is the one which will ensure the steadiest progress.

These two opposite dangers—tyranny and anarchy—bear other complex and curious relationships to one another. In the first place, each tendency thrives by preying on its opposite. Thus a growing tyranny (as Orwell understood so well) marks out instances of excessive individualism as the gravest threat to its continuation, while a growing anarchy becomes increasingly impatient with governmental regulation. In the second place, history offers numerous examples of the way in which "corrections" to perceived situations are conditioned by what has gone before. Thus, in this country for example, the relatively weak centralization under George III led Americans, after the Revolutionary War, to the Articles of Confederation, an ineffective form of government characterized by a relatively weakened central authority. On the other hand, the more rigorous centralization of France in the eighteenth century, or of Italy under Mussolini in the twentieth, led to deeper suspicions of centralized authority, to more spirited attacks upon it, and to forms of government characterized by wild confusion and the inability to conduct the public business. Similarly, moments of

anarchical confusion—as in France before Napoleon, in Italy before Mussolini, or in Germany before Hitler—can lead to “corrections” of quite extreme centralization and tyranny.

All of us who drive automobiles understand this phenomenon. If our car is proceeding down the highway at moderate speed and if we have guided it prudently, staying in the middle of our lane, then adjustments to the left or to the right can be accomplished by the slightest movements of the steering wheel. But if we are driving fast and swerve to avoid an obstacle, our car careens wildly, and we compensate by more desperate spinning of the wheel, to avoid here the disaster of the shoulder and there the disaster of crossing the center line. So it often is in affairs of state. Some countries seem able to travel down the road of history with prudence; and some seem out of control, now perilously close to the disaster of tyranny, now skirting the edge of anarchy.

The secret of running a good society (like the secret in conducting a successful life) is to understand limits. Statesmen must find ways to nurture the noble impulses of both patriotism *and* freedom, to encourage the impulses for both altruism *and* liberty; they must respect and appreciate both the need for order and the hope for progress. But great care must be exercised so that what starts out as a sense of mutual responsibility or as a fear of disorder does not lead to a tyrannical centralization. And similarly, great care must be exercised so that what starts out as a love of liberty and the hope of progress-through-freedom does not degenerate into a distrust of all authority, a surrender of our responsibilities to create a more just community, and a society of dog-eat-dog individualism.

IN 1630, John Winthrop, the wise and intrepid leader of the Puritans, addressed himself to this very problem. The moment could not have been more dramatic. The Puritans had left England and were now aboard their ship in the middle of the Atlantic. They all understood that they were heading for a place

where virtually no traces of European civilization were to be found. What would be the restraints on individual actions once the boat stopped and they all got off? How could an orderly community be created in the middle of the wilderness? How could they guard against the possibility that the strongest and most ruthless might take the possessions, the food, the wives of the weakest? When Winthrop rose to deliver his shipboard sermon, the dangers of anarchy were much on his mind, and it is not surprising that he spoke the message of community:

Now the only way to avoid this shipwreck and to provide for our posterity is to follow the counsel of Micah, to do justly, to love mercy, and to walk humbly with our God, for this end, we must be knit together in this work as one man, we must entertain each other in brotherly Affection, we must be willing to abridge ourselves of our superfluities, for the supply of others' necessities, we must uphold a familiar commerce together in all meekness, gentleness, patience and liberality, we must delight in each other, make others' Conditions our own, rejoice together, mourn together, labor and suffer together, always having before our eyes our Commission and Community in the work, our Community as members of the same body. . . .

In the new land they were about to settle, Winthrop told his Puritan shipmates, they would have to submerge their individualism in order to build a strong and worthy community. They would have to think not of themselves but of their society.

If there is anything obvious about American life during the 250 years after Winthrop's sermon, it is this: our social, intellectual, economic, and political history constitutes a mighty rejection of John Winthrop's advice. If there is any dominant note in American history before the Civil War, it is the note of free individualism; and if there is any inexorable force, it is the centrifugal one. The land was simply too open and too free; the opportunities were simply too manifold. The scope given here to individual energy swept everything before it, and Winthrop's ideal of a “community” where we would

be willing to forgo our luxuries in order to supply others' necessities, that ideal never had a chance.

A few, of course, continued to speak in the accents of community loyalty. Some old Puritans, like John Adams, and some old Federalists, like Alexander Hamilton, worried about the effects of rampant individualism on the nation. But they were easily swept under by spokesmen of the eighteenth-century Enlightenment who exalted the individual in politics and in religion or by the early nineteenth-century Jeffersonian Democrats who, in the name of liberty, celebrated the free and independent citizen. There were some Southerners who claimed that they had created the ideal community in hundreds of small plantations; but their ideal was so intimately tied to an unacceptable social evil that it never penetrated into the consciousness of the majority. There were a few Catholic thinkers, like Orestes Brownson, who preached the glories and the orderliness of medieval communal harmony; but they were ignored by the Protestant majority who took their religious salvation in the same way as they took their economic opportunities—as individuals. And Americans, each pursuing his own interest, were united in only one curious particular: they were joined together in a steady and resolute march away from the social ideal of John Winthrop.

The Industrial Revolution, with its application of technology and science to the ordinary pursuits of men, spawned a vision of a common life that was growing steadily easier and more enjoyable. Nature that had always been seen as the master of man was now becoming his slave. Capitalism, which provided the social framework in which the tendencies of the Industrial Revolution were brought into harness, also promised progress. By pitting man against man with no restraints save the impersonal ones of the marketplace, by allowing the freest play of unregulated individual competition, capitalism seemed to offer both prosperity and freedom. Finally, the political breakthrough—the triumph of democracy and notions of equality—tended

to assure citizens that their aspirations were legitimate and that the political channels for the exercise of equality would henceforth be open.

What interests us here is not the detailed story of these new currents of social change—industrial technology, capitalism, and democratic equality. What interests us is the fact that the coming together of these forces in the early nineteenth century gave rise, in America, to an attitude of buoyant expectation, a belief in automatic progress, an impatience with restraints, and a faith in the free individual—free to invent and improvise for technology, free to struggle and compete for capitalism, free to weigh and decide and participate for democratic politics. When the young French aristocrat Alexis de Tocqueville visited the United States in the 1830s, nothing about Americans struck him quite as forcefully: "They owe nothing to any man, they expect nothing from any man; they acquire the habit of always considering themselves as standing alone, and they are apt to imagine that their whole destiny is in their own hands."

If this constellation of beliefs has any "official" philosopher in America, it is surely Ralph Waldo Emerson. His boundless optimism, his faith in the general progress of mankind, was matched only by his enthusiasm for the free and unrestrained individual. "Let man stand erect, go alone, and possess the universe," he said. "The main enterprise of the world for splendor, for extent, is the upbuilding of a man. . . . The private life of one man shall be a more illustrious monarchy more formidable to its enemy, more sweet and serene in its influence to its friend, than any kingdom in history."

Emerson's notion that man should stand erect, go alone, and possess the universe, was, of course, a very long way from the advice John Winthrop had given two centuries before. And in the heady and excited optimism of nineteenth-century American individualism, had some contemporary Orwell warned about the tyranny of Big Brother and a society of repression, conformity, regimentation, and centralization, the pic-

ture would have seemed so out of harmony with American reality as to have been thought an impossibility.

BY the start of the twentieth century, however, many things had changed. By 1900, it must have been clear to even the most superficial observer that the dream of being borne effortlessly into the happy future on the waves of hardy individualism, the dream of unrestrained freedom leading to steady progress, was in serious trouble.

It is certainly one of the chief ironies of American history that the dream was threatened by the very forces that gave it birth. By the start of the twentieth century everyone could see that the industrial technology, which had promised an ever-rising standard of living, also brought with it child labor, horrible slums, intolerable cities, dangerous mines and factories, and a kind of labor which involved, in the words of Robert Heilbroner, "the trooping to work of industrial pygmies in a landscape of hell; the trooping home from work to the disease and filth-ridden slums of the industrial cities; and not least, the draining from work of everything in it which was human, until man was used only as a machine." It was also apparent, by 1900, that unrestrained, free-enterprise capitalism, which had promised an automatic and self-regulating progress, also brought with it cutthroat competition and (worse) an exaltation of cutthroat competition. The willingness of the government to stand aside and let the economic struggle proceed had resulted in growing extremes of poverty and wealth, ever-worsening depressions, the rapid and wasteful depletion of natural resources, and a hunger for new markets and new areas of investment which thrust the nation into the new world of foreign involvement and imperialism. As the land grew scarce, as opportunities grew slimmer, as monopolies ate their little competition and grew stronger for the eating, it became obvious that capitalism, like technology, was capable of bestowing a mixed

legacy of *both* good and evil.

Finally, it seemed plain to many by the start of the twentieth century that democracy did not produce all that had been hoped from it. The political form which had promised equality and opportunity and orderly change had not always delivered. Not even democracy could ensure equality in the face of the trusts. Nor did the bloody strikes and the bitter class conflict of the late nineteenth century provide very convincing evidence of democracy's ability to guarantee orderly change within the framework of the political structure. To many sensitive men and women of the period, democracy was merely another name for big city bosses marching hordes of ignorant immigrants to the polls in exchange for demeaning favors, political deals between corrupt politicians and the heads of big corporations, ignorant sloganeering to convince half-wits, or a massive political machinery incapable of direction, action, or genuine service to the common good.

In short, the same forces which had been greeted with such breathless expectation in 1800, the very forces which, it was prophesied, would bring America into the enjoyment of an unparalleled civilization of plenty and freedom—those forces seen in 1900 carried a less hopeful and optimistic message. And since that early optimism had provided the chief justification for both an untrammelled individualism and a weak central government, it was apparent that the twentieth century would be required to reopen those questions.

Our century has seen a general abandonment of Emerson's notion that it was possible to "stand erect, go alone, and possess the universe." Plain and powerful Americans alike have felt it necessary, in the face of the modern world, to band themselves together into groups. Businessmen led the way by forming pools, mergers, interlocking directorates, trusts, and huge corporations, all in a frantic attempt to avoid the cutthroat competition of freewheeling capitalist individualism. Workers surrendered the old belief that individuals were strong enough to

bargain, one man at a time, with their employers; they formed unions and began to bargain in groups. Lawyers, doctors, teachers, farmers, actors, veterans—all of them came to understand the futility of standing alone. American Negroes, who had tried for three-quarters of a century after emancipation to conform to the ideal of individualism, who had tried to enter the middle class one person at a time, at last came to understand (like all other Americans) that one's power and the realization of one's aspirations depend on the strength of one's group. Individuals rise in modern America when their groups rise. And despite the persistence of the noble rhetoric of free individualism, almost nobody seemed willing to confront the new environment by himself.

Insofar as the twentieth century has caused us to rethink our political arrangements, it has caused us to search for alternatives to the vanished faith in the noninterfering government. The old belief in free individualism, unhampered by a weak and limited central authority might have been satisfactory for Jefferson's day or for Jackson's or for Emerson's; but it was far from satisfactory for the needs of the twentieth century. The growth of government, the encouragement of feelings of community loyalty and social responsibility toward one another, the substitution of an ideal of national enthusiasm for an ideal of economic individualism—all indicate how far we have come from the old certainties. By the time of the Great Depression, there were very few Americans who did not believe that our government had inherited, in the modern economic situation, a pair of new responsibilities: government had to come to the aid of the powerless, and government had to take steps to control and regulate the too powerful. And to discharge those duties, it had to be more vigorous and powerful than ever before. It had been more than three centuries since John Winthrop had spoken his shipboard advice of communal responsibility and social unity, but that old Puritan would have understood the impulse.

In the ongoing twentieth-century debate between those who want to preserve the old individualism and those who want to encourage greater social unity and greater political centralization, the military has played an important part. In the first place, the military offers one of the most convincing examples of how effective a social organization can be if it is willing rigorously to suppress individualism in the name of some larger group purpose. Like the corporation and the labor union, the armed services have taught the lesson of strength through unity, of power through hierarchical ordering, centralized control, and the willingness to ignore personal freedom. In the second place, war and the fear of war (two conditions which have dominated the American situation since 1914) have made our country ever more tolerant of centralized authority and ever less tolerant of extreme gestures of individuality.

THE debate rages in our own time. On one side are those who advocate communal concern, the eradication of social injustice, and a government big and centralized enough to accomplish its purposes. They want greater controls over the wealthy, greater efforts on behalf of the poor, and the sort of social unity John Winthrop hoped for. Their opponents believe that this program is marching us briskly down the path toward tyranny and a government run by Big Brother. On the other side are those who advocate individual liberty, an end to social welfare programs, and a government willing to abolish, not increase, regulations. They want fewer controls over the wealthy, fewer efforts on behalf of the poor, and the sort of personal liberty, especially in the economic sphere, that was advocated by Ralph Waldo Emerson. Their opponents believe that this program is the first step on the road to an anarchy of private selfishness.

We are, of course, a long way from either dreadful danger—tyranny or anarchy—despite the exaggerated cries of some of the partisans.

Our automobile seems, to thoughtful foreign observers, to be cruising down the middle of the lane, making slight adjustments sometimes to the left, sometimes to the right. We seem, as we enter the fateful year of 1984, to be safe for the moment from slipping off the shoulder into anarchy or from crossing the center line into tyranny. Most Americans wish, no doubt, for further adjustments, in one direction or the other; but few of us would countenance the radical swervings, in either direction, that some nervous Americans fear.

And what of George Orwell's warning? Let us remember as we start 1984 that our President is well known for his advocacy of economic individualism, his lack of sympathy with social programs aimed at eradicating injustices, his impatience with federal restrictions, and his desire to "deregulate" industry. He wants very much to move us farther away from the notions

of social responsibility, social unity, and governmental authority that have characterized much of our recent history. If you were to ask him, he would probably say that he felt our nation was drifting too near the edge of centralized tyranny. If you were to ask his opponents, they would probably say that he was guiding us too near to the edge of social selfishness and anarchy.

The trouble with Orwell's *1984*, the reason why his prophesy seems so far wrong today, is that it warns us only of the one danger—the danger of overcentralization, the death of freedom, and the police state. We must take his warning seriously, of course, and we must be on our guard. But we should recognize that there is another danger as well—in 1984 and the years ahead—the danger of rampant personal greed, the evaporation of our sense of duty to the community, and the drying up of the social sympathies which have made us into one people.

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in our March-
April issue

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AMERICA AND CHINA: THE COMING DECADE

DR. WILLIAM R. HEATON

THE resumption of consultations between China and the Soviet Union and the sharpening of Chinese rhetoric with respect to U.S. policy around the globe has resulted in numerous reassessments of the Sino-American relationship.¹ Evaluations of the changing relationship generally fall into one of two categories. The first category adopts a "rational actor" approach in which both countries calculate their relationship based on the balance of power and specific interests.² According to this analysis, China senses that the Soviet Union has become less of a threat, owing to preoccupation with problems in Afghanistan and Poland; therefore, it is no longer vital to form an anti-Soviet "united front" with the West. Moreover, China's disappointment with the United States on a variety of issues, notably technology transfer and Taiwan, has contributed toward China's loosening of its American ties. The "rational actor" approach also has the United States reevaluating the importance of the "China card" in dealings relative to the global strategic balance and relegating China to the

role of regional power. The overall result is that both sides view the relationship as less crucial than it was previously deemed and have gradually drawn away from each other. There is always the possibility that changed perceptions could once again lead to a closer relationship.

Another analysis attributes changes in the relationship to issues of bureaucratic politics. In this perspective, changes in Chinese policies are a consequence of alterations in the volatile power mix wrought by ongoing factional struggles at the highest level.³ Since most of the key questions in China are domestic economic and social problems, the coalitions that win out on these issues tend also to make decisions on foreign policy issues. China's move away from the United States is a result of Deng Xiaoping's compromises with his opponents; it is the price he pays for getting his way with respect to the succession problem and related domestic political issues. Similarly, the U.S. position stems from struggles between various factions within the Reagan administration and between the administration and Congress.



Both approaches can contribute to our understanding of what has happened in the relationship during the past few years. More important for this article, it can suggest some things that we should look at in trying to understand what may well occur over the next decade. Integrating the "rational actor" approach and the "bureaucratic politics" approach will enable us to consider ways in which the relationship has developed and will develop. As a result, I shall suggest ways in which I think U.S. policies can be creatively applied to improve the relationship between America and China.

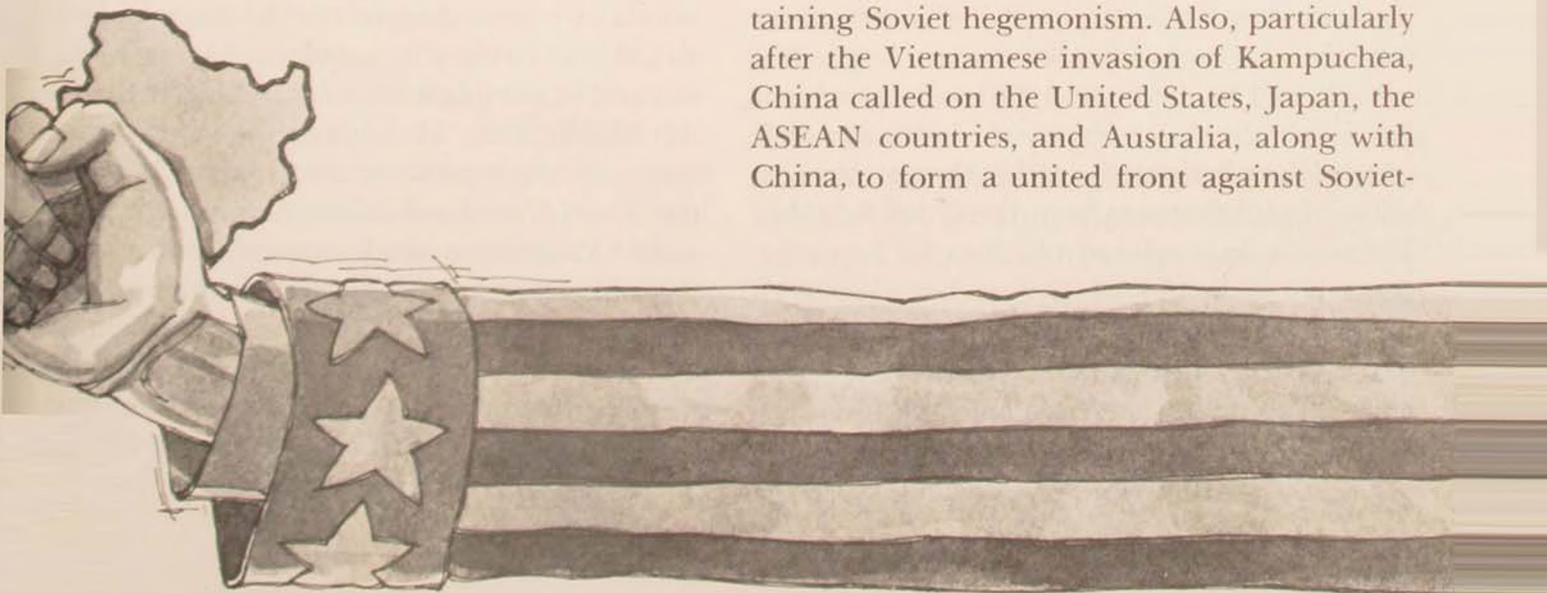
China and the Balance of Power

In the decade following the issuance of the Shanghai communiqué, Sino-American relations developed in an uneven pattern. Steps toward normalization were made haltingly, the Taiwan issue being a principal consideration. China, for example, refused the effort made early in the Carter administration to establish normal diplomatic relations with the People's Republic of China while transferring the Liaison Office to Taiwan. Nevertheless, movement toward normalization of relations proceeded very quickly in the summer of 1978. Following the establishment of diplomatic ties on 1 January 1979, China and the United States entered a period of close cooperation, especially in rhetoric. This cooperation became even closer for a

brief period following the Soviet invasion of Afghanistan. After the beginning of the Reagan administration, the relationship became more troubled, as indicated by a harshening of Chinese statements about U.S. policy.

From a balance-of-power perspective, several factors shaped the nature of specific policies during the decade. The most important factor, which has been identified by nearly all those who have commented on Sino-U.S. relations, was the increased perception of threat from the Soviet Union. The growth of Soviet military power globally, the buildup of Soviet forces along the Chinese border, and Chinese uncertainties about how the Soviet Union might use its military power to affect Chinese internal politics fed Chinese perceptions of insecurity. Under the concept of "a united front against hegemonism," Chinese leaders combined Maoist ideological principles with balance-of-power realpolitik to counteract Soviet pressure.⁴

In the early 1970s Chinese leaders had pronounced a "three worlds" theory of relative power and claimed that China, as part of the third world, could form a united front with other developing countries to counteract the hegemonism of the superpowers. As the threat from the Soviet Union increased, Chinese statements increasingly focused on the Soviet Union as the "antagonistic contradiction" and became less selective as to which countries qualified for united front membership. The NATO alliance was viewed as an important component in containing Soviet hegemonism. Also, particularly after the Vietnamese invasion of Kampuchea, China called on the United States, Japan, the ASEAN countries, and Australia, along with China, to form a united front against Soviet-



Vietnamese hegemonism in Southeast Asia. Beijing insisted that Soviet-Vietnamese policy in Southeast Asia was part of an overall strategy of Soviet global domination and must be strongly resisted.

The manifestation of the new united front definition in concrete policy terms included hastening negotiations with Japan to conclude a peace treaty in the fall of 1978, movement on the obstacles to normalization of relations with the United States, and efforts to upgrade relations with ASEAN countries while reducing support for the Communist-led insurgencies in these countries.⁵ Chinese leaders argued that China was doing its share to challenge the hegemonism of the Soviet Union and called on other countries, particularly the United States, to make a greater effort to do likewise.

As is clearly evident from Chinese writings and statements, the Chinese perception of Soviet hegemonism began to shift in the early 1980s.⁶ Instead of Soviet power's being an unabated expanding threat to China, it became overextended in Southeast Asia and Afghanistan. Moreover, Soviet difficulties in Eastern Europe, notably Poland, have made it highly unlikely that the U.S.S.R. would wish to embark on an offensive against China. As Chinese perceptions of the Soviet threat altered, so did Chinese policy. China became increasingly critical of U.S. global policy and was willing to escalate irritants in Sino-American relations to higher levels. Chinese rhetoric over U.S. arms sales to Taiwan increased, and issues over technology transfer, textiles, railway bonds, defecting tennis players and students, and Asian Development Bank membership seemed to dominate their view of the relationship, rather than a common sense of global threat from the U.S.S.R.⁷ Also, China not only opened the door for consultations with the Soviet Union but moved to improve party ties with various European parties—notably the French Communist Party—and also sought to improve state relations with Soviet East European satellites.

Closely related to China's assessments of the

Soviet threat is the Chinese calculation as to the role of the United States. Many students of Chinese foreign policy believe that the basis for the urgency with which China pursued a cooperative relationship with the United States against Soviet pressure in the late 1970s was its belief that the United States was the only country strong enough to balance the U.S.S.R., but the Carter administration was not sufficiently firm in resisting Soviet expansionism. It became the duty of the Chinese to bolster the United States. Similarly, the argument is made that now that the United States under the Reagan administration has taken a firmer line against the U.S.S.R., the Chinese perceive greater luxury in taking up the cudgel against both superpowers. Other students argue that the Chinese perceive that concessions can be gained from the United States by pressure. Since the United States needs China as a strategic counterweight to the Soviet Union, the United States will eventually bend to Chinese pressures.⁸ They cite the 17 August 1982 agreement on arms sales, the decision to liberalize technology transfer, and U.S. concessions in reaching a textile agreement with China as evidence.

The view that China remains uncertain about the United States was expressed by Huan Xiang, Director of the International Affairs Center of the State Council and a prominent spokesman on U.S. affairs. Huan argued that the United States under Reagan "has scored some success in rebuilding American hegemony in the world," notably in developing its nuclear strategic arsenal, in intensifying its activities in Latin America, and in gaining a more favorable position in the Middle East. He also predicted, however, that contention between the United States and the Soviet Union would increase and that both would experience weakening of control over their allies. Huan predicted that Western Europe would continue to cooperate with the United States against the Soviet Union but that America would experience increasing friction with Japan. He also argued that while the United States had taken some limited steps to "pacify"

U.S.-Chinese relations, continued American interference in Chinese domestic affairs via the Taiwan Relations Act remained of great concern.⁹

While highly critical of U.S. policy, the Chinese have pulled up short of strong actions that could seriously damage the relationship. Initially, the Chinese insisted that they would downgrade relations if the United States did not agree to fix a date for the cessation of arms sales to Taiwan. Yet, in the 17 August communiqué, the United States did not set a date, and China did not downgrade relations. When the United States took steps to restrict Chinese textile imports following the failure to reach a textile agreement, China reacted by restricting U.S. agricultural exports to China but in commodities which had already declined considerably.¹⁰ The U.S. decision to grant political asylum to tennis player Hu Na resulted in the cancellation of some official exchanges, but the effect was limited. China continues to attach considerable importance to acquiring technology and to sending students to the United States. The relationship with the United States is deemed sufficiently important by China that the Chinese leaders have tried to prevent irritants and problems from becoming major catastrophes.

There are, of course, other main factors that could be considered. Beijing's perceptions of the situation in the region, particularly relations with Japan, Korea, and Southeast Asia, are of great importance. Briefly, though, Chinese policies have been attuned to assessments of the relations of the two superpowers and the regional and global balance. Without judging the relative merits and faults of the Chinese assessments, our "rational actor" model shows that Chinese perceptions have varied over time and that policies have been geared to evaluations of superpower intentions and policies. The Sino-U.S. relationship has been affected both positively and negatively as Chinese perceptions have shifted. In just one decade we have witnessed a jerky move toward the United States and now a jerky move toward greater equidistance between the superpowers (though I would

argue that China today is closer to the United States than to the U.S.S.R. and is likely to remain so). From the "rational actor" standpoint, jerkiness is likely to remain a principal feature of Sino-American relations.

Chinese Perceptions: The Impact of Bureaucratic Politics

The shifts in Chinese policy are explained not merely by changes in perception of the global and regional power equation. The past decade has witnessed sharp struggles among the Chinese leadership over policy issues, including foreign policy. Indeed, factionalism among the Chinese leadership is an important variable that must be considered in any analysis. Though information on the exact composition and nature of groupings among the Chinese leadership is difficult to come by, much can be inferred from public statements, articles in the press, and so on.

My own view of factionalism in China is that there are few factions in the true sense. Certainly it is not like that of Japan, where factions within the various parties have a formal character cemented by personal loyalties and the system of fund-raising and electoral districts. I see groupings in China as informal shifting coalitions; a degree of permanency is imparted by *guanxi* (personal relationships), but coalitions sometimes form and dissolve on policy questions. The group that most closely resembled a true faction was the "gang of four" purged after Mao's death in 1976. The dynamic of shifting coalitions is brilliantly revealed by the downfall of Lin Biao in the early 1970s, the rehabilitation of Deng and other Cultural Revolution victims in 1973, the struggle against Zhou Enlai and Deng by the "gang of four" leading to his purge in 1976; then, after the death of Mao, Hua Guofeng briefly emerged and attempted to consolidate his power, only to be undermined and eventually purged by a resurgent Deng, who is now attempting to have his preferred successors effectively installed. Many students of China have

categorized the various coalitions based on personal ties, policy preferences, position in the leadership (e.g., military, region, center), and even ideological outlook.¹¹ Without attempting to assign particular people to particular categories, I would like to suggest that there has been a good deal of bureaucratic infighting and that this has dramatically affected policy.

Specifically, since the death of Mao and the rehabilitation of Deng Xiaoping, China has experienced a struggle between two modes of leadership. The Maoist mode is characterized by an emphasis on charismatic authority, normative incentives for economic development, and equality in social development. The Dengist reform alternative emphasizes routine bureaucratic authority, material incentives for economic development, and the acceptance of social distinctions based on productivity. Since his rehabilitation in 1978, Deng has incessantly waged war on the Maoist mode. In matters of political authority, he has pushed for the renunciation of Mao's leadership style, fostered the rehabilitation of cadres previously denigrated during the Cultural Revolution (including the arch enemy Liu Shaoqi), demanded the growth and consolidation of political institutions, and increasingly pushed to get the military out of civil decision-making. In economic affairs he has strongly supported the adoption of responsibility systems in agriculture and industry, which has given individuals more leeway in making a living. The growth of responsibility systems is already provoking differences in wealth; these, in turn, will have a social consequence.¹²

Deng's efforts have not been without opposition. He was able to get grudging acceptance of many of his proposals at the third plenum of the 11th Central Committee, but it was several more years before he could purge those who advocated the two "whatevers," that is, those who were not receptive to rapid changes in policy. He finally succeeded in purging Hua in stages, as Premier in the summer of 1980 and as Party Chairman at the 6th Plenum of the 11th Central Committee

in 1981. Deng's most important priorities have been getting his chosen successors in place and in reforming the Party apparatus. He has made compromises in other areas to obtain his objectives. He joined in the closing of "Democracy Wall" and the clampdown on the dissident movement, which he had originally encouraged. He compromised with Chen Yun over economic management issues and supported the economic readjustment of the early 1980s, though he was concerned about its implications for Chinese relations with Japan and the United States. He has also compromised over the questions of relations with the Soviet Union and the United States.

With respect to the issue of Sino-U.S. and Sino-Soviet relations, Deng apparently preferred close cooperation with the United States and strong opposition to the Soviet Union. In 1979, Deng clearly envisioned the United States as part of the united front against Soviet hegemonism. At the same time, while some of Deng's reforms were being criticized in 1980 during a period of economic reassessment and readjustment, the U.S. Presidential campaign brought up Taiwan. Deng apparently believed that the Taiwan question could be put on the back burner and resolved over a long period of time, but Taiwan was quickly made into a contentious issue among the Chinese leaders.¹³ Over the next two years China became increasingly critical of U.S. policy toward China and Taiwan and of U.S. global policy in general. This discontent reflects Deng's compromises with other leaders as does the decision to seek consultations with the Soviet Union.

Thus we can see that important policy changes reflect struggles among the Chinese leadership. China's attitude toward U.S. relations with Taiwan cannot be wholly explained by a rational actor model of China's assessment of the superpower balance. It is more clearly understood when the dynamic of informal coalition politics is added in. China's move to greater equidistance between the two superpowers must also be understood in the context of internal

debate over alternative policies. In making predictions about the next ten years, one should remember that changing coalitions among the leadership will have a decisive influence on what policies are adopted.

American Perceptions of China

Just as Chinese perceptions of the United States must be considered from the standpoint of both the "rational actor" and "bureaucratic politics" approaches, so must American perceptions of China. Both models help us understand how the relationship has developed in the past decade. In his writings, Henry Kissinger has established that the principal impetus for U.S. overtures to improve relations with China in the early 1970s was to balance the Soviet Union, "either to restrain it or to induce it to negotiate seriously."¹⁴ From the "rational actor" perspective, the development of U.S.-China relations in the early 1970s demonstrated a conscious desire on the part of American leaders to tune relations with China to relations with the U.S.S.R. Generally speaking, a policy of evenhandedness between the two countries was enunciated by successive administrations.

In fact, in spite of ups and downs noted earlier, the United States continued a gradual shift to a policy of favoritism toward Beijing. During the Carter administration, the growing power of the Soviet Union made some argue that a more cooperative relationship with Beijing was necessary to balance the U.S.S.R. National Security Advisor Zbigniew Brzezinski, generally credited with the "China Card" formula, strongly pushed for strategic cooperation with China, particularly after the Soviet invasion of Afghanistan. Debates between Brzezinski and Secretary of State Cyrus Vance over the issue of security cooperation with Beijing continued throughout Vance's tenure, but prospects for heightened cooperation seemed to be growing.¹⁵

This trend peaked during the Carter administration and has begun to decline during the

Reagan administration. While the Taiwan, textile, technology, and other previously stated issues were at the surface of the turnabout, an underlying conceptual factor was the view that the import of China in the global balance had been overstated. Or, as Ray Cline succinctly put it, "The China Card is a deuce!" China was increasingly viewed as a regional power rather than a global power. The argument that an alliance with Beijing would gain weakness rather than strength was frequently heard. American officials portrayed Japan as the linchpin of American strategy and policy in the Pacific and relegated China to a secondary role.¹⁶

The argument over whether China should be counted as a global power or a regional power by the United States continues to be debated. Brzezinski, for example, argues that "China should be treated as a genuine global partner, not merely as a bilateral squabbler over secondary issues such as textiles or even Taiwan."¹⁷ Similarly, an article by Banning Garrett and Bonnie Glaser faulted the Reagan administration for assigning less importance to China in U.S. global strategy and asserted that "a properly managed U.S.-Chinese strategic partnership will contribute to [the] global deterrence of the Soviet Union by increasing the likelihood of a coordinated two-front war should Moscow escalate a conflict."¹⁸ On the other hand, Ray Cline declares that the idea that China can be a strategic counterweight to the Soviet Union is a "myth."¹⁹ Similarly, Robert L. Downen calls for a "more realistic assessment on the part of U.S. policymakers regarding the limited strategic value of our ties with the PRC."²⁰

Whatever side one wishes to take in this debate, there can be little doubt that the "rational actor" approach is crucial to an appropriate understanding of developments in Sino-American relations from the American perspective. Some of the issues that have emerged between the two sides in the past few years stem directly from a change in U.S. perceptions about the role China might be expected to play in the global

strategic balance. However, it is also important to touch on the “bureaucratic politics” component. Indeed, the amount and openness of the literature in the United States on this component, particularly when compared with that available for China, inclines the student toward the latter approach. We are tempted to view the evolution of our China policy as the outcome of debate between Vance and Brzezinski (State vs. National Security Council) or in the current administration between the ideologues in the White House and the bureaucrats in the State Department.

While there are numerous examples of the impact of bureaucratic politics on American perceptions of and policies toward China, I shall mention only two. First, the enactment of the Taiwan Relations Act and administration policies with respect to the question of arms sales to Taiwan reflect the outcome of wrangling among the White House, the Congress, and various executive departments. The decision whether to sell an enhanced FX aircraft to Taiwan, to continue the licensing arrangements for Taiwan production of the F-5, or to discontinue the sale of either had to take into account congressional interests (including the representatives from districts in which the aircraft were to be licensed or manufactured), organized lobbies, government agencies, political parties, and so on. The ultimate decision to continue the licensing of F-5s was as much the outcome of bargaining among the various groups as it was a “rational” judgment based on how it would affect Sino-U.S. relations. Likewise, the decision to grant political asylum to tennis player Hu Na involved the turf of a number of agencies, and while it was widely understood that the decision would likely harm Sino-U.S. relations, at least temporarily, the pressure brought to bear from conservative supporters of the President caused him to overrule advice from other quarters.²¹

We could, of course, go on at length on the role of bureaucratic politics in American perceptions, but these two examples amply illustrate the bureaucratic interplay that has always

characterized the American approach. As has been noted, because of the structure and availability of information, there is a tendency to apply the “rational actor” approach when looking at the Chinese but the “bureaucratic politics” approach when viewing ourselves. Of course, nearly all of the bureaucratic actors invoke the “rational actor” approach in making their case. Thus, officials in the State Department may argue that a decision to sell certain arms to Taiwan damages the overall U.S.-China relationship and drives China closer to the Soviet Union, while others in the Congress argue that arms sales to Taiwan are necessary to promote U.S. credibility in the region and are therefore favorable to the overall balance of power.²² (Parenthetically, I would add that those of us in DOD know that such arguments go on within agencies as well as between them).

I conclude that our perceptions like those of the Chinese will also be influenced by both rationally based calculations of the balance of power—both globally and regionally—and the outcome of debates among the decision-makers. Since the two political systems are considerably different, there will be obvious differences in how these perceptions evolve, but it is important to keep both in mind as we attempt to predict certain developments in the future and suggest some approaches that might be adopted by the United States.

Factors Affecting Sino-American Relations

If we reconsider major factors that have influenced Sino-American relations in the past decade, we can predict that most of them will continue to be relevant in the coming decade. The first of these is that the Soviet Union will probably constitute the principal threat to both countries over the next ten years. The Soviet Union will continue to pose a global challenge to the United States. Also, though there will be continuing negotiations between China and the U.S.S.R. and perhaps a continuing easing of

Sino-Soviet hostility, Moscow will remain as China's primary adversary.

The three fundamental conditions that China has stated as the basis for normalization of relations—namely, Soviet troop reductions along the border (including withdrawal from Mongolia), Soviet withdrawal from Afghanistan, and cessation of Soviet support for the Vietnamese occupation of Kampuchea—are not conditions that will be easy for the Soviet Union to accept.²³ Even if these conditions were to be partially met, the U.S.S.R. would still constitute the primary threat to Chinese security. Thus, from a balance-of-power perspective, Beijing must continue to seek means of counteracting Soviet pressure in the region. As long as the United States maintains its presence in the region, which it will almost certainly do in the next decade, our nation will figure prominently in China's calculations.

Another factor that will modify the first is that neither government will enjoy stability over the coming decade, and both will adopt policies reflective of political infighting and reassessed priorities independent of rational power calculations. In the United States, we will have three Presidential elections between now and 1993. There is already discussion of a Presidential visit to Beijing in 1984 as part of the campaign strategy. Electoral politics aside, each administration has gone through a China learning phase. Early in the Reagan administration, Secretary of State Alexander Haig pushed hard for a cooperative security arrangement with China, but following his departure, the importance of China was redefined. After a rocky beginning, there now seems to be some headway in reversing the downward trend in relations, but there is no guarantee that present U.S. policy will be maintained even if President Reagan is reelected.

Yet if there is a question of stability in the United States, how much greater is the issue when we consider China? Deng Xiaoping has been relatively successful in implementing administrative reforms and in getting his successors established. However, there has been strong

opposition at key junctures with the result that Deng has been forced to compromise on many issues. We cannot be assured that Deng's reform structures will remain in place once he has departed the scene, which will almost certainly occur within the next decade. The Chinese Communists have not achieved a genuinely collective leadership since coming to power in 1949, and it is very likely that Deng's successors will fight among themselves after he leaves. In this environment, Chinese policy will be heavily influenced by shifts in the ruling coalition as ongoing struggles for power are resolved or partly resolved.

The principal issue between the United States and China over the next decade will continue to be Taiwan. I agree with John Garver that China will probably wage a political-psychological struggle with the United States on this issue while maintaining cooperation with the United States in balancing the power of the U.S.S.R.²⁴ By putting pressure on Washington over Taiwan, Beijing will hope to reduce U.S. support for Taiwan and gain Taipei's acquiescence to Beijing's overtures. Inasmuch as Taiwan remains a contentious issue among the Chinese leaders, it will be used by some groups as a political weapon.

It is my belief that the issue of Taiwan is largely symbolic for the PRC. The reunification of the motherland is a nationalistic concept, and nationalism has been a fundamental premise of Chinese Communist political legitimacy. The legitimacy of the Chinese Communist Party has been jeopardized over the past few years by criticisms of past leaders such as Mao and Hua and more recently by sensational exposures of wide-scale corruption. Consequently, Chinese leaders can ill afford to give up a nationalistic appeal. There are probably few Chinese who really care whether Taiwan is brought back into the motherland; however, the Chinese Communist Party stands to suffer a loss of legitimacy, particularly among the politically active Party members, if it sustains much more embarrassment and humiliation over the Taiwan issue.²⁵ Deng's latest

appeal to Taiwan concedes practically everything necessary for complete independence, except sovereignty.²⁶

Although there has been a great deal of criticism of the 17 August communiqué on arms sales to Taiwan, I believe it offers both sides a way to get the issue relegated to a less volatile stature. The July 1983 announcement that the United States would supply \$530 million of arms to Taiwan was met with only a mild protest, evidencing Beijing's desire to cool the issue. So long as the United States carries out its arms sales to Taiwan quietly and in accordance with the 17 August agreement, I believe it will be more difficult for some Chinese leaders to use the issue as a bludgeon against others. Nevertheless, we should fully anticipate that internal political pressures on both sides will cause the Taiwan issue to simmer as an irritant in the relationship.²⁷

A third factor will be the role played by other states in the region. Over the next ten years, Japan will become increasingly important to both China and the United States. Although Japan will fluctuate on a cooperation-competition continuum with both countries, the relationship will probably become increasingly competitive overall. Chinese leaders assert publicly that Sino-Japanese friendship is improving and will endure, but underneath significant tensions remain. The Chinese press has been highly critical of what is perceived to be resurgent militarism in Japan. Furthermore, new activism by Japan in foreign policy, combined with an incentive for improvements in Japanese military capabilities, is viewed with some suspicion in China.²⁸ Also, the territorial dispute between China and Japan could erupt quickly if a disaffected leadership group in Beijing decided to use it as a political weapon.

Concern with a resurgent Japan will probably cause Beijing to seek moderation in its ties with Washington. China will want alternative sources of technology so as not to become over-dependent on either the United States or Japan. The Chinese leaders will also perceive that a

U.S. presence in the region will act as a constraint on Japanese rearmament. Consequently, we may expect that Beijing will see the United States as a counterweight to both the Soviet Union and Japan. While the United States may well continue to view Japan as being of greater importance than China to the regional and global balance over the next decade, increasing economic friction with Japan will result in bureaucratic pressures in the U.S. government to take actions that will trouble the American-Japanese relationship. Thus, the United States may come to view relations with China in a somewhat different light. Rather than viewing China primarily in the context of superpower balance, China may be increasingly viewed in the context of our relations with Japan. The United States will seek to compete with Japan for markets in China as the Chinese economy changes, and, in another ten years, may well be looking toward China as a balance for Japanese political and military power.

Besides Japan, events in Korea and South and Southeast Asian countries will also influence Sino-U.S. relations. Because of continuing Soviet pressure, China will be anxious to maintain a cooperative relationship with North Korea; yet the United States will not lightly ease its commitment to South Korea. If both Koreas are able to achieve stable successions, then Sino-American cooperation in easing tensions on the peninsula is possible. The United States may encourage increasing contacts between China and South Korea, and both sides may work to promote negotiations between the two Korean parties. However, there are many pitfalls, and the Korean question will probably continue to pose difficulties for U.S.-Chinese relations.

The United States has been supportive of the ASEAN countries in the Indochina conflict. The ASEAN countries want a Vietnamese withdrawal from Kampuchea but do not want the return of the Khieu Samphan-Pol Pot leadership. They are hopeful that Sihanouk will consolidate his position and emerge in a post-Vietnamese Kampuchea. Beijing believes that

only pressure will get the Vietnamese out and that the Pol Pot insurgents are the only viable force able to maintain pressure on the Vietnamese. For the United States, the solution of the Kampuchea question could ultimately contribute to denial of Vietnamese bases to the U.S.S.R. Several of the ASEAN countries believe that Beijing is a greater long-term threat to peace and security in the region than Hanoi. Consequently, increased U.S. cooperation with China, particularly in the military sector, could complicate U.S. ties with Southeast Asian countries. Also, if the present strategy of pressure against Vietnam to withdraw from Indochina does not begin to show results in the next two or three years, the United States may conclude that Beijing's hard line is not in the long-range interests of America.

Besides the geopolitical factors that will influence Sino-U.S. relations, we can expect that a number of specific issues will recur. I have already noted that such questions as technology transfer, railway bonds, textiles, human rights, and so on have had an impression on the record. The United States has made concessions on technology transfer, and Beijing is waiting to see how these will be implemented in fact. We have reached a new textile agreement, and I fully suspect that the Huguang railway bonds case will eventually be disposed of. Nevertheless, I believe that these kinds of issues will continue to come up from time to time. China is fully committed to maintaining a large number of students in the United States, perhaps the best approach in the long-term acquisition of technology.

The human rights issues will probably become more troublesome. A significant number of Chinese students have already sought political asylum in the United States, and a number of dissidents have begun circulating periodicals critical of the PRC. The human rights issue is one that has a strong political constituency in the United States, as we saw in the Hu Na case, and I fully suspect we will have more difficulty with the Chinese government over such issues. If Deng's bureaucratic reforms are successful,

China could become organizationally more like the Soviet Union; certainly, there is no indication that the regime plans to ease its suppression of dissent in the near future. Consequently, I foresee that the human rights question will be troublesome over the next decade; however, the degree to which it is troublesome will depend on the state of the relationship in other areas. In other words, if the Taiwan issue is quiet and if negotiations over technology transfer, textiles, and other questions are going smoothly, I suspect that the Chinese will be more tolerant of inevitable criticism from American groups on human rights issues and will downplay defections.

When we bring these factors together, we come to the not-surprising conclusion that Sino-American relations over the next decade will be mostly cooperative, but with many areas of friction and disagreement. China will view the United States as a strategic counterweight to the Soviet Union and increasingly to Japan. It will also see the United States as an important trading partner and as a source for technology. Beijing will probably want to maintain a healthy student exchange with the United States as part of its technology acquisition program. As for the United States, even though China may be relegated to a regional role rather than a global one, no administration will go so far as to alienate China altogether. The areas of friction and disagreement will emerge from the domestic political environment in both countries. Disputes over textile imports, international organization memberships, and other problems will remain low-key unless volatile issues like Taiwan or human rights are mobilized by political interests in each country.

Suggestions for American Policy

In making recommendations for U.S. policymakers, I am optimistic that it is possible to adopt policies that will maintain cooperative relations with China in the best interests of the United States.

My first recommendation is simply that we take into account the fundamental conclusion of this article: that policies in both countries stem from both rational calculations of power and internal political dynamics. All policies arrived at on the basis of rational calculations will be modified by domestic constraints. U.S. policymakers must remember that our policies will influence what happens in Beijing. This is not to say that we should design our policies to support a particular group of decision makers in China, only that we must be aware that our policies will have an effect. In my view, rhetoric about our support for Taiwan and extensive publicity on arms sales provide ammunition for those who are against Chinese compromise on Taiwan. (It has done little to placate the dismay of the President's conservative political allies either.) Therefore, I believe we should adhere to the provisions of the Taiwan Relations Act but do it without a great deal of hoopla and fanfare. We should especially avoid rhetoric that offends Beijing's sense of sovereignty.

More important, we must adhere to the President's pledge not to get the United States involved in the resolution of the Taiwan question between the two sides; the Taiwan question must be resolved by the two parties themselves, and we should leave it at that. Obviously, U.S. economic ties with Taiwan and continuing arms sales will have bearing on how the two sides approach each other, but to offer to mediate or assist in negotiations would only get the United States more deeply involved and increase the likelihood that internal politics would disrupt the present state of relations.

With regard to security affairs, my recommendation is that Washington avoid close security cooperation with Beijing. Although I do not believe that the China card is a deuce, I do feel that the United States has already made whatever gains it can by using China to counterbalance the Soviet Union. Closer security cooperation raises internal political pressure on both sides; it increases the prospects that opposition groups in both China and the United States

will make the relationship a matter of political controversy, and it sets the stage for a dramatic falling out later on. I hasten to add that a principal reason for lingering Sino-Soviet animosity now is their attempted close security cooperation of the early 1950s. Besides, close security cooperation with Beijing now raises concern among our other friends and allies in Asia, notably the ASEAN countries. Low-key cooperation will maintain whatever value the relationship has in countering the buildup of Soviet military power, primarily the psychological value. Beyond this, I do think that we can participate in some dual technology cooperation and even in limited arms sales, but we should proceed cautiously.

ONE CAN ONLY HOPE that the next decade in Sino-American relations will be a decade of moderation. I have already suggested that it will not necessarily be one of stability because of the multiplicity of factors involved. Though there will be several difficult points of contention, I believe most of them can be weathered by gradualism and muddling through. Some have criticized the ambiguity in the Washington-Beijing relationship, but I believe that ambiguity is a natural state and need not be turned into hostility. Thus, our principal strategy for the coming decade should be to manage problems as they arise with an eye toward primarily cooperative relations. We can participate constructively in the modernization of China while avoiding excessive security cooperation; occasionally, this cooperation will require concessions on our part and also patience and even, at times, firmness. Though this participation will be difficult, it offers the best hope for securing American interests over the next decade.

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Notes

1. Some articles of interest include: Robert A. Scalapino, "Uncertainties in Future Sino-U.S. Relations," *Orbis*, Fall 1982, pp. 681-96; also by Scalapino, "In Quest of National Interest—The Foreign Policy of the People's Republic of China," 28th Bernard Moses

Memorial Lecture, University of California, Berkeley, October 28, 1982, University of California, 1983; Allen S. Whiting, "Sino-American Relations: The Decade Ahead," *Orbis*, Fall 1982, pp. 697-719; Donald S. Zaboria, "Gauging the Sino-Soviet Thaw," *The New Leader*, November 29, 1982, pp. 3-5; Edmund Lee, "Beijing's Balancing Act," *Foreign Policy*, Summer 1983, pp. 27-46; Harry Harding, "Change and Continuity in Chinese Foreign Policy," *Problems of Communism*, March-April 1983, pp. 1-19; John F. Copper, "Sino-American Relations: On Track or Off Track?" *Asia Pacific Community*, Summer 1982, pp. 13-24; Robert G. Sutter, "Future Sino-Soviet Relations and Their Implications for the United States," JX1428 China D (Congressional Research Service, Library of Congress, December 30, 1982).

2. For example, Thomas Robinson states: "... Since China has been the weakest of the three [superpowers], it has had to accommodate its general international orientation and many of its specific policies to power realities within the triangle. Thus, for Beijing, the most important questions have always been: which of the superpowers is the greater enemy? and is the danger so high that major compromises must be made with the other?" "China's Dynamism in the Strategic Triangle," *Current History*, September 1983, p. 241.

3. On factionalism in Chinese politics, see Lucian Pye, *The Dynamics of Chinese Politics* (Cambridge, Massachusetts: Oelgeschlager, Gunn, and Hain, 1981). Pye has reservations about the application of factional politics to foreign affairs; see pp. 34-36. Michael Ng-Quinn also argues that analyzing factions has limited utility in understanding Chinese foreign policy. He maintains that the best approach is using the international system as the level of analysis, "The Analytic Study of Chinese Foreign Policy," *International Studies Quarterly*, June 1983, pp. 203-24.

4. William Heaton, *A United Front against Hegemonism: Chinese Foreign Policy into the 1980s* (Monograph 80-3, National Defense University, March 1980).

5. William Heaton, "China and Southeast Asian Communist Movements: The Decline of Dual Track Diplomacy," *Asian Survey*, August 1982, pp. 779-800.

6. Qi Xin, "From Strategic 'Alliance' to U.S.-China Bilateral Relations," *Chi-Shi Nien-Tai* [The Seventies], April 1983, pp. 51-54; Joint Publications Research Service (JPRS) #4005, pp. 77-84. Also see Xing Shugang, Li Yunhua, and Liu Yingna, "Soviet-U.S. Balance of Power and Its Impact on the World Situation in the 1980s," *Guoji Wenti Yanjiu* [International Studies], January 1983, pp. 25-31; Foreign Broadcast Information Service, *Daily Report*, China, 21 April 1983, pp. A1-A12.

7. "Eliminate Obstacles in Sino-U.S. Relations," *Wen Wei Po* (Hong Kong), 20 February 1983, p. 2; *Daily Report*, 24 February 1983, p. W1-W2. Also see "Chinese Ambassador to the USA on Sino-US Relations," *Beijing Review*, May 16, 1983, pp. 14-15.

8. Thomas Robinson, "Choice and Consequences in Sino-American Relations," *Orbis*, Spring 1981.

9. Huang Shuhai, "Huan Xiang Reviews Current International Situation," 2 parts, *Ta Kung Pao* (Hong Kong), August 16, 17, 1983; *Daily Report*, 19 August 1983, pp. W1-W7. Also see A. Doak Barnett, "China's International Posture: Signs of Change," *China Briefing 1982* edited by Richard C. Bush (Boulder, Colorado: Westview Press, 1982), pp. 85-102.

10. In July 1983, a new textile agreement between China and the United States was signed, and in August, China lifted its embargo of U.S. agricultural products. Trade in the first half of 1983 had declined from the same period in 1982.

11. A recent example of factional groups is that of Victor C. Falkenheim who categorizes the groups as diehard leftists, conservative reformers, and liberal reformers, "Political Reform in China," *Current History*, September 1982, p. 259.

12. For an excellent analysis of Deng's reform policies, see H. Lyman Miller, "China's Administrative Revolution," *Current History*, September 1983, pp. 270-74. Also see Michel Oksenberg and Richard Bush, "China's Political Evolution: 1972-82," *Problems of*

Communism, September-October 1982, pp. 1-19.

13. On the development of the Taiwan issue, see John W. Garver, "Arms Sales, the Taiwan Question, and Sino-U.S. Relations," *Orbis*, Winter 1983, pp. 999-1035.

14. Henry A. Kissinger, "What Should Come out of This Trip," *Washington Post*, January 30, 1983, p. C8.

15. Cyrus Vance, *Hard Choices* (New York: Simon and Schuster, 1983).

16. Leslie H. Gelb, "U.S.-China Ties: Lower Expectations," *New York Times*, February 2, 1983, p. 3.

17. Zbigniew Brzezinski, "Convincing Europe and China," *New York Times*, January 31, 1983, p. 25.

18. Banning Garrett and Bonnie S. Glaser, "The Strategic Importance of Sino-American Relations," *USA Today*, July 1983, pp. 15-16.

19. Ray S. Cline, "U.S. Foreign Policy for Asia," *A U.S. Foreign Policy for Asia: The 1980s and Beyond*, edited by Ramon H. Myers (Palo Alto, California: Stanford University Press, 1982), pp. 1-15.

20. Robert L. Downen, "The Shifting Foundation," paper prepared for workshop of American Bar Association at Stamford, Connecticut, 20 May 1983, p. 26.

21. Developments in the decisions pertaining to the FX and Hu Na cases have been obtained through numerous discussions with U.S. government officials and involved parties.

22. A major debate within the U.S. government has been over the issue of security cooperation with the PRC and, more specifically, over the prospect of arms sales to China. For example, see the papers and discussion in "The Implications of U.S.-China Military Cooperation," a workshop sponsored by the U.S. Senate Foreign Relations Committee and the Congressional Research Service (Washington: Government Printing Office, January 1982).

23. In an interview with *Mainichi Shimbun* on 15 August 1983, CPC General Secretary Hu Yaobang stated that it would take 20 or 30 years for China and the Soviet Union to normalize their relations completely and that the era of close Sino-Soviet cooperation, the early 1950s, would never be restored.

24. Garver, p. 1030.

25. For a discussion of this position, see William R. Heaton, "Assessing the U.S.-China Connection," unpublished manuscript (Washington: National War College, 1983).

26. Deng's latest offer was made in a meeting with Professor Winston L. Y. Yang of Seton Hall University. See Yang Li-yu, "Deng Xiaoping's Latest Concept on Peaceful Reunification," *Chihshih Nientai* [The Seventies], August 1, 1983, pp. 17-19; *Daily Report*, 4 August 1983, pp. W1-W6. An abbreviated version of the key points is in the *New York Times*, August 21, 1983, p. 20. Hu Yaobang confirmed to *Mainichi Shimbun* that Deng's statement was the collective position of the Chinese leadership.

27. The Chinese approach to Hong Kong is related to the Taiwan question. Although China has said that it would recover sovereignty over Hong Kong by 1997, Chinese leaders have tried to assure Hong Kong residents and foreigners that no measures will be adopted to damage Hong Kong's economic well-being. Beijing believes that a satisfactory resolution of the Hong Kong issue could help its appeal for the reunification of Taiwan.

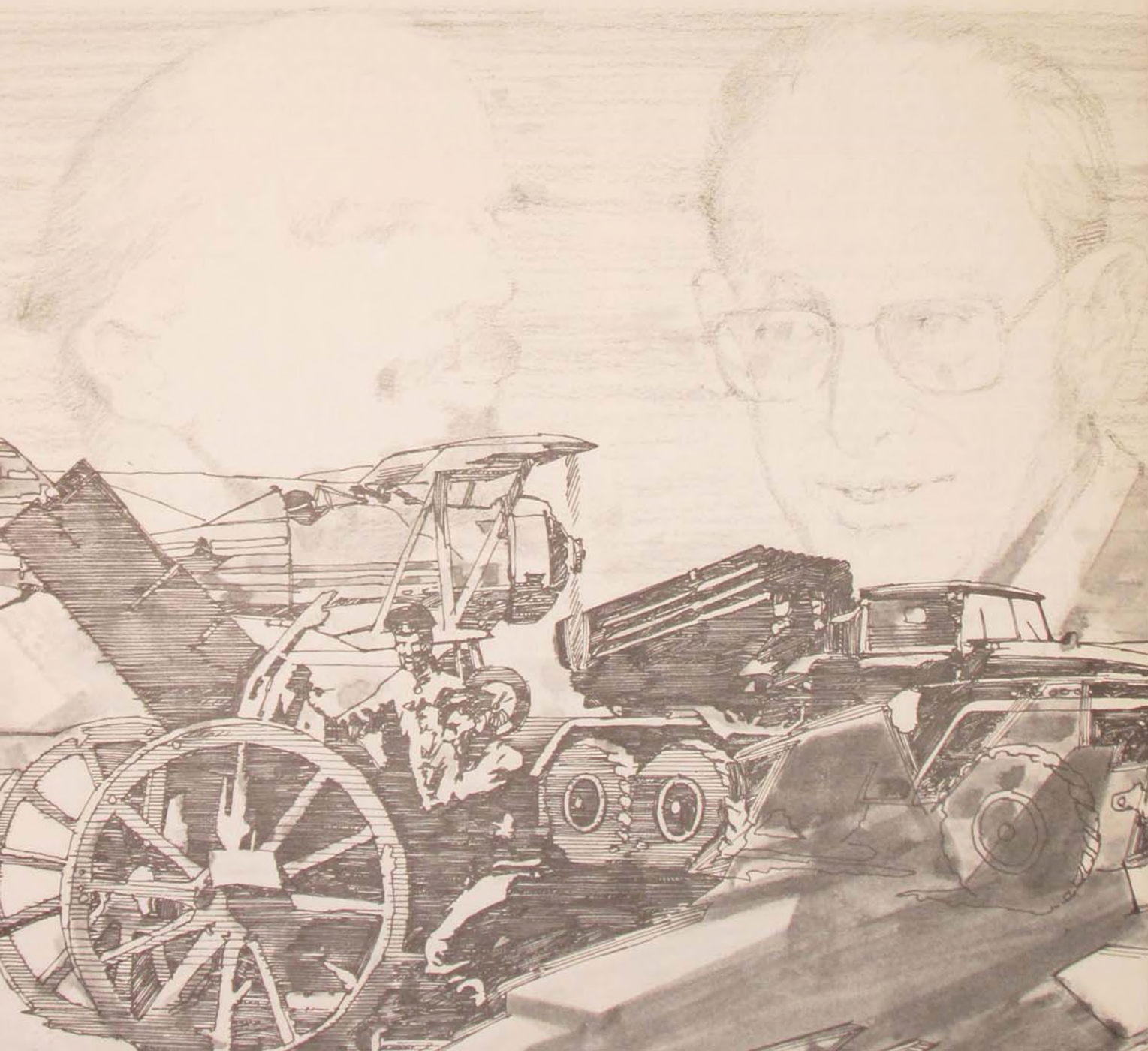
28. In addition to the controversy over Japanese textbooks and films, Chinese media have been reporting more general "unfavorable" trends in Japan. A Xinhua commentary on 20 August 1983, entitled "A New Trend on the Japanese Political State," noted an "adverse current." The commentary observed that there was a movement within the Liberal Democratic Party to amend Article 9 of the Japanese Constitution, that members of the Diet were making regular visits to the Yasukuni Shrine, that Prime Minister Nakasone had pushed for a drive to make Japan a "big political power," and that Japanese arms exporting to the United States and other countries was increasing. The commentary said that these trends were of "grave concern" to the Japanese people and were causing worry abroad. *Daily Report*, 23 August 1983, pp. D2-D3.

TOWARD 1984: FOUR DECADES OF SOVIET MILITARY POLICY

DR. JOHN ERICKSON

IT REQUIRES no great intellectual feat to discern that Soviet military developments can be evaluated with a variety of interpretative methods, each of which has its own merit and advantage. Such discernment may be a matter of looking at military doctrine in its widest

context, force structures and deployments, command arrangements and command appointments, weapons technology and military research and development, or it could consist of scrutinizing particular institutions, such as the General Staff, the Military Districts, or individual



arms and services. In general terms, a very plausible model of change and interaction can be derived by surveying the cycle or cycles of the formulation of doctrine, the development of corresponding armament norms, and the consequent diversification of command and control mechanisms (*upravlenie*) to produce battlefield effectiveness, survivability and flexibility, all within the combined arms framework. Indeed, all these components—doctrine, deployment, weapons technology, command arrangement—can be combined into an intricate matrix, which can indicate types and rates of change within the system as a whole or within select sectors. The systems approach is one that is apparently being adopted with some enthusiasm by Soviet specialists, one objective being to investigate responsiveness and adaptiveness to change (thereby generating, among other things, a new and complex vocabulary related to *voennaya sistemotekhnika*).

On the other hand, a rapid scan of Soviet military policies, programs, and postures over the past four decades hints that the insights of an actuary could be as useful as the skills of the military analyst. Ten-year cycles seem to obtrude themselves, each cycle stamped with its own characteristics—be it doctrine, weapons development, deployment reorganization, or command style—yet inextricably interlocked. While identifying these periods (which seemingly do no injury to the periodization devised by Soviet analysts themselves), we might also stamp them with a particular feature:

- 1943-53, justifiable pride at victory but disfigured by the later Stalinist immobilism;
- 1953-63/4, nuclear introspection, a fundamental tussle over doctrine, marred, distorted, and increasingly disturbed by Khrushchev's own predilections and vagaries;
- 1964-74, satisfaction with the attainment of parity, even to the point of winning a margin of advantage; and,
- 1973/4-83, the 'technocratization' of the command, the search for flexibility and sustain-

ability (*zhivuchest*) within the entire system, rethinking and restructuring but the satisfactions of the previous decade consumed by a sense of foreboding, not least in view of an imminent military-technological competition with the United States and arcs of threat growing apace in a strategic environment subject to rapid deterioration.

The growing asymmetry of the two systems, Soviet and American, can only project a long shadow over the coming decade, a warning note recently issued by Marshal Nikolai Ogarkov, Chief of the Soviet General Staff. *Foreboding* is not too strong a word, for his remarks are redolent of it.

The Soviet Army emerged from the war, especially its latter phase from 1943 to 1945, with confidence suffused with pride at having broken the back of the Wehrmacht, once doctrine, armament norms, and command flexibility had been brought into proper alignment. While wartime experience provided a basis for the further development of norms and numbers, the postwar period was dominated by Stalinist military science, not to say Stalin's own tyrannical hold on military developments, leading to a strange and tense paradox, namely that the petrification of doctrine did not impede the progress of weapons development, with the advent of a Soviet atomic bomb, accompanied by the test of a ballistic missile (the R-1) and the creation even in 1946 of the first missile unit based on a Guards Mortar (Katyusha) Regiment. Nevertheless, the rigidities of Stalinism and Stalinist military science cramped Soviet military developments insofar as they precluded choice in priorities, ordained as they were by Stalin himself.

The death of Stalin is generally acknowledged as a major turning point, unlocking the immobilism and unleashing a decade of doctrinal introspection and structural modification—all signaling the onset of attempts not only to assimilate the nuclear weapon but also to integrate it into classically configured strategic

principles (thus marking the fundamental and enduring divergence between Western and Soviet approaches to defense and deterrence). Strategy, operational art, and tactics had to be related to a revised understanding of the nature of war—and to those main tasks on which a combatant state must concentrate in order to secure victory in war. Confused, obscure, and even contradictory though these debates and discussions were, they have retained their importance, not only for the affirmation of the combined arms principle and the need to coordinate military power as opposed to Khrushchev's insistence on the primacy of the rocket-atomic weapon but also for the decisiveness of the initial period of a nuclear war, which would, in any event, be of short duration.

Coincidentally, the Soviet military command learned two harsh lessons during this turbulent decade:

- that a policy and posture based on a position of strength must perforce possess that strength (which Khrushchev, for all his missile diplomacy, did not possess);
- that professed parity must be rooted in real norms and numbers and, conversely, the retreat to minimum deterrence (already rejected when Malenkov aired it) and peaceful coexistence espoused by Khrushchev could only mean consigning the Soviet Union at worst to permanent strategic inferiority or to the foreclosing of options with forces structured only for one-variant war.

In what straits would the Soviet Union find itself if this deterrence failed?

Neither Stalin's rigidities nor Khrushchev's missile adventurism had solved the problems of Soviet policies and priorities in the nuclear age. These hard-won lessons, however, were put to good use in the ensuing decade, beginning with the package presented to the Twenty-third Party Congress—a program neither a simple reversal of Khrushchev's radicalism nor a reversion to ultraconservatism, showing the firm grip of the resurgent General Staff as now back in Marshal Zakharov's hands. The new policy hinged on a

recognition that nuclear war was a realistic contingency, requiring both a revision of the inferior strategic status of the Soviet Union and further investment in damage-limitation capabilities (including the centralization of civil defense organization). Nor did the provision for theater operations—at any level of warfare and weapons—lose out in this process, with the Ground Forces emerging in 1967 in revamped form, their status as an independent arm was fully restored. The suspended animation enacted by Khrushchev, who saw little need for large ground forces, evidently did not impede modernization which speedily turned out more armor, improved artillery, battlefield air defense systems, and the formidable BMP (infantry combat vehicle). Yet another of Khrushchev's bugbears, tactical aviation, also underwent rejuvenation and resuscitation.

The rethinking between 1965 and 1967 and the military buildup throughout the subsequent decade have proved to be of fundamental importance in Soviet military policy, which is committed to an active struggle for the creation of *definite capabilities* for achieving victory. The ICBM buildup, begun in the mid-1960s, was no improvised crash program but the purposeful pursuit of parity, which generated not only counterforce capability—conforming to the classic concept that the aim of battle is the destruction of enemy military power—but a margin of advantage (duly confirmed in the outcome of the SALT I negotiations). An anti-ballistic missile system was also admitted into a newly invigorated concept of defense in the reshaping of an offensive-defensive mix. Norms and numbers were as important as ever, but expansion coupled with greater diversification in strategic missile forces promised selective strategic targeting, inducing the beginnings of that flexibility for which the Soviet command had long pressed. This in turn prompted a shift in doctrine, away from the preemption first adumbrated in the mid-1950s and suffused through Sokolovskii's work to a form of nuclear *kontrpodgotovka*, by no means first strike as

such, more a strategic disruptive strike—though this might not of itself cripple the capitalist foe, hence the recourse to and reliance on an all arms solution.

Much of this remained to be worked out, not least the fit between strategic and theater operations. At the same time, however, increased attention was paid to organizing command arrangements and the coordination of the military-economic effort, producing the interlocking system of a nuclear command with the Defense Council (*Sovet oborony*) at its head and the General Staff sustaining centralized operational control. Marshal M. V. Zakharov's achievements were far from unimpressive and were reinforced in turn by the Grechko-Brezhnev compact that was both personal and military-political in scope.

The latter part of this third decade certainly provided its own satisfactions with the Soviet attainment of rough parity—an inexact description for an inexact situation—as well as the refurbishing of its general-purposes forces. Viewed over time, doctrine and armament norms (including nuclear firepower) were now much more closely aligned, making the “revolution in military affairs” no longer a mere catchphrase. Yet, by way of balance, a significant shift in Soviet military thinking after the mid-1960s was the recognition that theater warfare might open with an extended nonnuclear phase. This notion later became more pronounced in the early 1970s (though it was not to be construed as a move from a nuclear to a conventional strategy, a dichotomy that was and is alien to Soviet military concepts).

The death of Marshal Grechko, preceded by the death of Marshal Zakharov and the succession of Kulikov to the General Staff in 1971, marked both an end and a beginning. Starting from the concept of a combined-arms force operating on a theater battlefield—the *point de départ* of the mid-1950s—by the early 1970s this was maturing into planning and preparation for coordinated operations *in a global framework*. Rethinking and restructuring now went

almost hand in hand, a process accompanied by the increasing technocratization of the Soviet officer corps, the advent of Dimitri Ustinov as Defense Minister, and the arrival of Nikolai Ogarkov at the General Staff in 1977.

Although the pursuit of norms and numbers has not abated, greater attention is being paid to the system and its responsiveness, in particular, to regulate the relationship between centralized strategic control and decentralized battle management. Insofar as the matter is in the hands of Ogarkov, the search is on for both greater flexibility and survivability in the Soviet system, a requirement born of both revised threat assessments and improved Soviet capabilities. If anything, the contingency of more protracted war seems presently to pervade Soviet thinking, but that may be too brusque an explanation of the changes brought about since the mid-1970s and projected further into the 1980s. One prominent feature has been the establishment of strategic regional commands (built around the TVD concept), together with the reorganization of theater forces. These same theater commands are intended to form a key intermediate echelon of command and control between the strategic direction provided by the General Staff and major field forces. With flexibility in force packages and effective command, control, and communications, rapid deployment and redeployment should be facilitated for a larger scale of military operations as opposed to the wartime fronts—the *strategic* operation within the theater of combat operations. While the buildup in intercontinental missile forces has proceeded apace, this has not led to the neglect of regional nuclear strike forces (e.g., the SS-20) or to a failure to appreciate the increased effectiveness of *conventional munitions*. Concurrently, major reorganization has occurred in the air defense forces to provide all-round air and aerospace protection with the creation of the *Voiska PVO*, the merging of the forces of the Air Defence Command (*PVO Strany*) with the Soviet Army's own air defense troops to produce a huge new operational entity, while the Soviet Air Force

has been even more drastically reshaped; the former air armies of the Military Districts have been turned into air forces designed to provide support to the field forces at all levels, even as strategic air strike elements have been formed from five air armies (24th, 4th, 30th, 46th, and 36th) covering all theaters.

Coordination appears to require greater integration in this scheme. Marshal Ogarkov's reference to Soviet strategic nuclear forces has about it more of the ring of a Soviet triad (ICBMs, SLBMs, and bombers), an integrated strike force in which the mix can be reshaped as circumstances demand. The reorganization of air defense systems does at least begin to meet threats posed by the cruise missile and the manned bomber, while for offensive operations the acquisition of a new Soviet manned bomber and the development of a long-range cruise missile furnish a degree of versatility to existing flexibility, though some time is still needed to modernize the SLBM force completely and fill out theater nuclear systems. So far, the Soviet command cannot be displeased with the state of the correlation of forces or with the preliminary results of the restructuring of Soviet forces prompted, in part at least, by the findings of the General Staff/General Staff Academy think tank assigned to this task. Such restructuring and repackaging meet some of the requirements of coordination for globally spread operations even if it could conform to a Soviet version of a strategy of *tous azimuths*, but a certain forebod-

ing has begun to shine through—expressed by Marshal Ogarkov in his discussion of revolutionary new American weapons and American technology for command and control capable of qualitatively changing the management of strategic operations. The Soviet command must look, therefore, to its own *sistemotekhnika* as a matter of urgency: a missile moat is not enough.

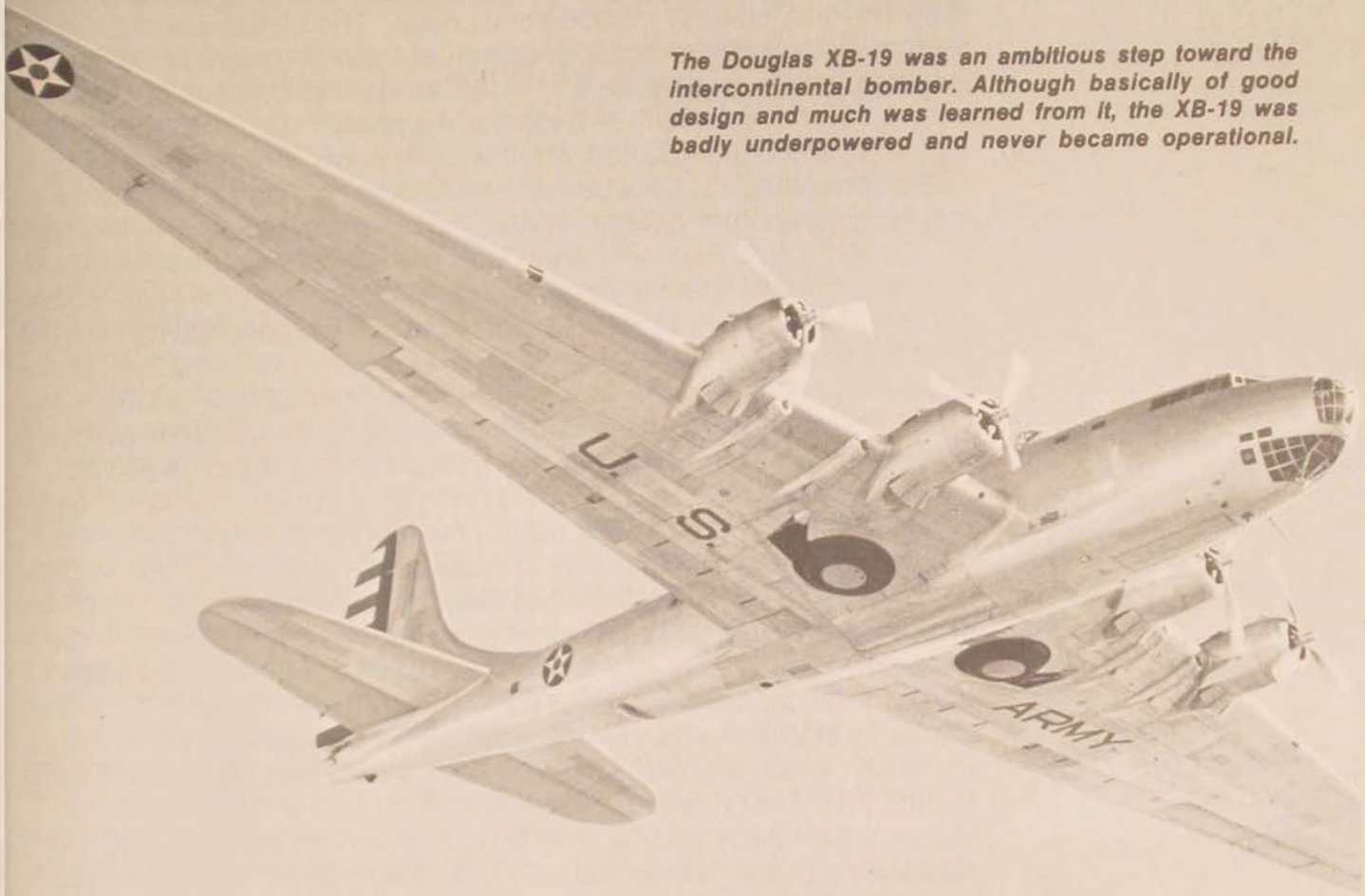
THE CYCLES of Soviet military development, the division by decades, may well be something of a circumstantial or actuarial illusion after all. By looking both backward and forward, we may see but one sustained cycle, with elaboration, diversification, and sophistication piled on a few tried and tested strategic concepts, which afford both continuity and consistency. It is tempting but misleading to interpret this process in Western terms and through Western terminology, such as the first strike, or superiority, or any other rubric. I am inclined to think that the fundamental Soviet quest, embracing past, present, and future, is for nothing less than military invulnerability, the achievement of which would encompass both offensive and defensive designs. This is at once an expression of great power combined with a great and possibly growing sense of insecurity, a syndrome that shows no sign of dissipating: military impregnability is the single, continuous theme, whatever the decade.

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The Evolution of Jet Fighters: A New Point of View

WALTER J. BOYNE

The Douglas XB-19 was an ambitious step toward the intercontinental bomber. Although basically of good design and much was learned from it, the XB-19 was badly underpowered and never became operational.



WHEN the whistle of the jet engine was first heard in 1939, it was a clear but unrecognized commentary on a major reversal in design process. Prior to that time, airframe development had been limited by engine development; every new operational requirement was keyed to the often tortuous delays occasioned by the introduction of a new engine of greater horsepower. Oftentimes airframe designers were too optimistic and anticipated greater power than was actually realized; as a result, outstanding airplanes like the Boeing XB-15 and the Douglas XB-19 were underpowered and thus not brought into production. The basic reason was simple: the design of more powerful reciprocating engines was both more expensive and more time-consuming than the design of airframes that could employ them.

This dependence on engine power can be traced in the serial development of famous fighters like the German Messerschmitt Bf 109 or the British Supermarine Spitfire. The initial prototypes of these aircraft flew, respectively, with the Rolls-Royce Kestrel V engine of 695 horsepower and the Rolls-Royce Merlin "C" of 990 horsepower. The Messerschmitt quickly switched to a German engine, of course, and successive requirements for increased performance were met by introducing new subtypes of the Junkers Jumo and Daimler-Benz liquid-cooled V-12 engines. The last variant of more than 33,000 Bf 109s built, the K-6, was powered by a 1550-horsepower Daimler-Benz DB 605 engine that could, with methanol injection, reach 2000 horsepower for short periods. The Spitfire, of which 20,334 were built, had in its Mark 22 version a 2050-horsepower Rolls-Royce Griffon. As an American yardstick for comparison, the North American XP-51 flew with a 1150-horsepower Allison, while the last version, the P-51H, had a 2218-horsepower Packard Merlin.

Thus, in the roughly ten years between the first flights of the European prototypes and the end of the war, conventional fighter demands were met by tailoring airframes to engines that had just about doubled in power.

More powerful piston engines were being brought into production in every country. Through greater volume, increased supercharging, and vastly greater complexity, the goal was to increase the horsepower limit. In England the Rolls-Royce Eagle, a 24-cylinder "H" style engine, was bench run in 1944 and ultimately achieved 3450 horsepower. In Germany, a 3900-horsepower BMW 803 engine was bench run; it was a 28-cylinder air-cooled, four-row radial, similar to the Pratt & Whitney R-4360 in the United States. The latter was flown in a Goodyear F2G Corsair before V-J Day and ultimately, of course, became a workhorse engine in the Convair B-36, Boeing B-50 and other multiengine aircraft.

The largest piston engine ever built, however, the Lycoming XR-7755, was a liquid-cooled, 36-cylinder, four-row radial engine that was intended to generate 5000 horsepower. Not even bench run until after World War II, the XR-7755 represented a peak in reciprocating aircraft engine power but was never required, for which maintenance crews were undoubtedly very grateful.

As the piston engines increased in power, so to a greater degree did their mechanical complexity, weight, size, maintenance requirements, fuel consumption, and cost. By unusual engineering achievement, the jet engine arrived on the scene at a horsepower equivalent to where the reciprocating

engine was peaking out. In addition, the jet engine had a relatively simple construction that did not require the same investment in heavy machinery and was relatively lightweight and low in cost. While initial fuel consumption was high and reliability low, the jet engine improved rapidly in both these areas.

Perhaps even more important, from the standpoint of increasing absolute speeds, the jet engine eliminated the requirement for a propeller, with its inherent complexity and limitations.

Given the terrible urgency of wartime conditions, it is a tribute to both Sir Frank Whittle and Dr. Hans von Ohain that the inspired courses they pursued in the invention of the first jet engines were tolerated in their respective countries. At the time they were advocating the radical new style of power plant, the upper limit of piston engine development was not clearly perceived, while the need for thousands of more powerful engines was. Their genius attracted sufficient backing to enable the jet engine to come into being at exactly the time the reciprocating engine had reached its developmental limit.

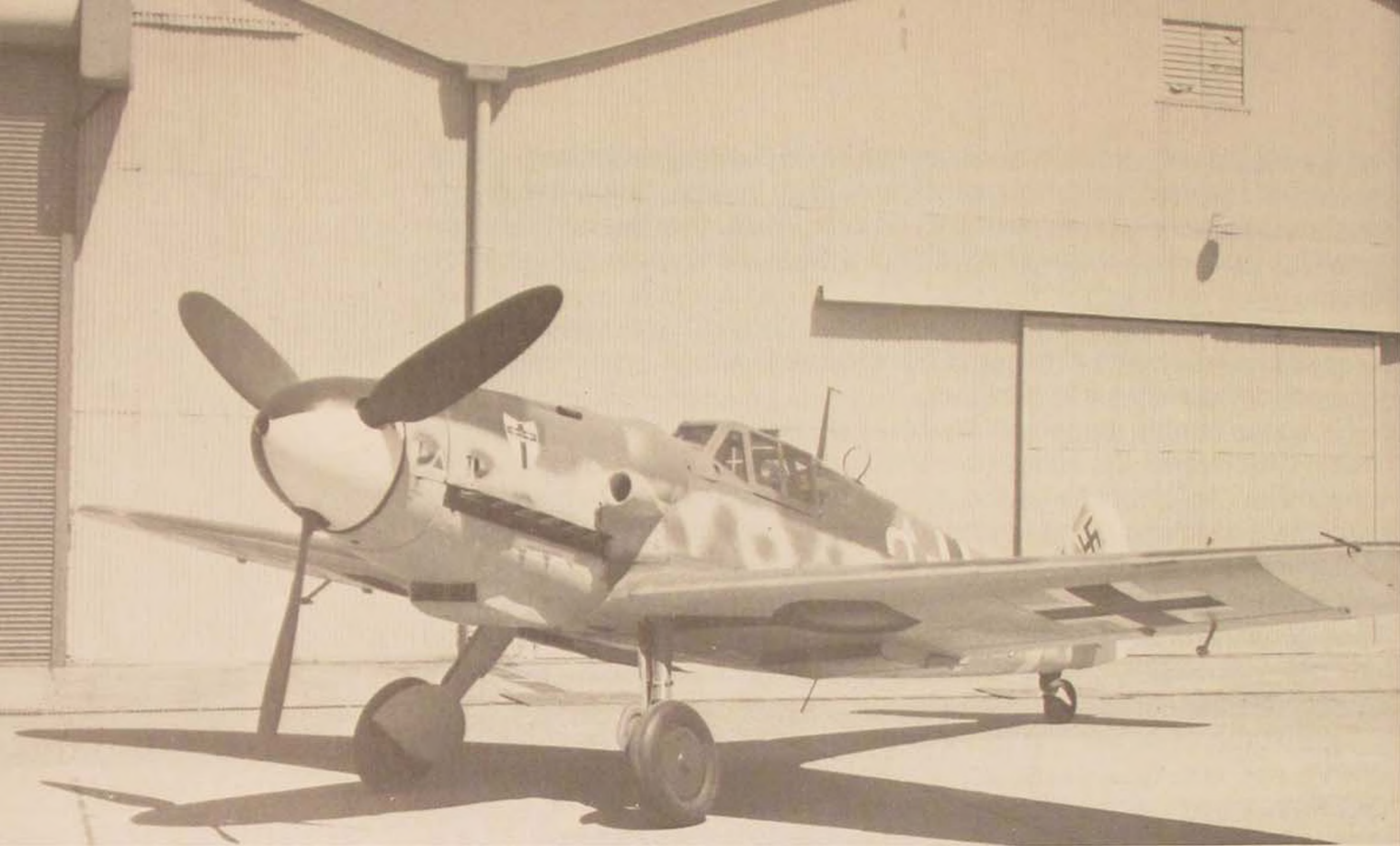
The number of pioneers in the turbine engine field was very small; besides Whittle and von Ohain, the only contributor of comparable stature was Dr. Franz Anselm, who developed the axial-flow Junkers Jumo 004 used in the Messerschmitt Me 262, the world's first operational jet fighter.

When the war ended, the piston engine fighter was still predominant, but the future was clearly signaled with the Me 262, the Arado Ar 234, the Gloster Meteor, and the Lockheed P-80.

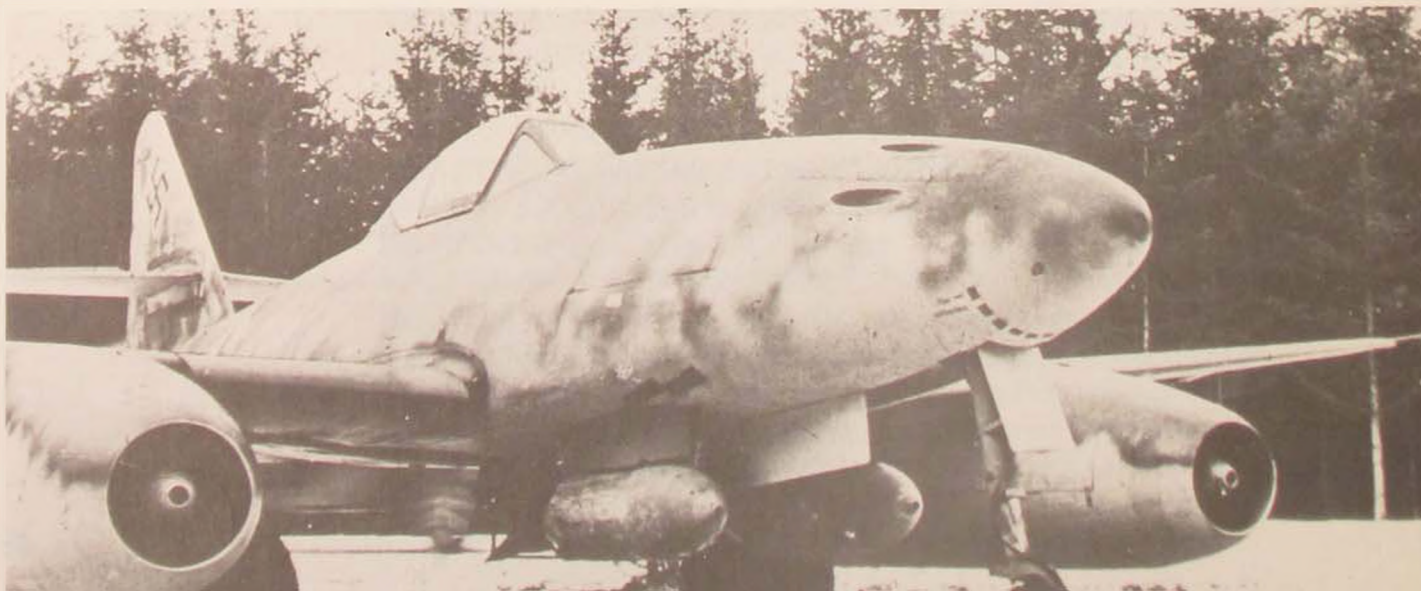
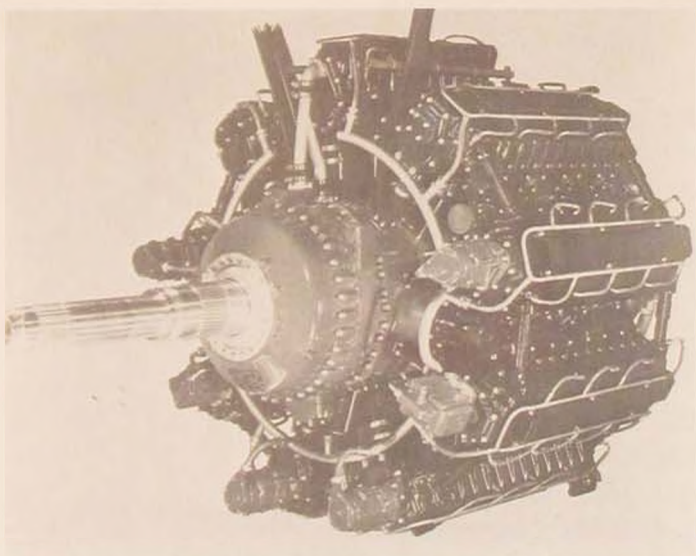
After the war the situation changed dramatically; the piston engine was abandoned by designers first for fighters and then bombers; it was not long before transport and utility aircraft would also be turbine-powered. Engine and airframe designs were in abundance. Designers became encouraged by the fact that for the first time engine power was becoming available in greater increments, over a shorter development time, than ever before; engines and airframes could be designed almost in parallel.

The situation was exploited, and there was a flowering of designs in numbers that probably will never be seen again. Jet engines appeared to be relatively simple to manufacture in terms of machine capability, and everyone sought to get into the act. Allison, Curtiss-Wright, General Electric, Lycoming, Marquardt, Pratt & Whitney, Westinghouse, and others competed in what seemed to be virgin territory. Soon, however, the list began to dwindle as manufacturers found that the degree of engineering skill necessary to reach new levels of power and reliability was difficult to muster.

Airframe developers followed a similarly diverse course. The path of fighter progress was marked by a curious set of factors. Although the rapid development of engines enabled designers to overcome some discouraging new aspects of the fighter aircraft business, the specter of available power caused military requirements to be increased to levels that would have been considered absurd just a few years before. This had the effect of vastly increasing the development time necessary to bring an aircraft from concept to flightline because of the ever-increasing size, cost, and complexity. This combination of factors meant that not only would older fighters have a much longer service life than had been anticipated but that newer fighters would be procured in far smaller numbers than ever before.



The brilliant Willy Messerschmitt conceived the original Bf 109 (above) as "the biggest possible engine placed in the smallest possible airframe," and he engineered a fighter with a 690-horsepower engine; by the end of the war, the same diminutive airframe was packing an engine capable of 2000-horsepower sprints. . . . The biggest piston engine ever made was the Lycoming R-7755 (left). Its 36 cylinders were designed to produce 5000 horsepower.





A German pilot took up the classic Messerschmitt Me 262 (facing page, bottom) for its first flight in early 1942. . . . More than eleven months later, on 5 March 1943, the British flew their first operational jet, the Gloster Meteor (above). It entered squadron service on 16 April 1944 but no Meteor ever encountered an Me 262 in combat.

To utilize the thrust expected to be available and meet the increased requirements, aerodynamicists were forced to evolve a whole series of new airframe innovations, almost always of greater and greater sophistication and complexity.

Thus, while sweptwings were adopted to enable aircraft to approach mach 1, it was necessary to apply the formulations of Whitcomb's area rule to design airframes to slip smoothly through the supersonic region without excessive drag buildup. In a similar way, the need to combine long-range, good load-carrying capabilities, and high speed with reasonable takeoff and landing distances led to the development of variable-geometry aircraft. Other practices ranged from the subtle change of wing airfoil and camber to aerial refueling to the inclusion of a second crew member, always a problem in fighter pilot psychology. With these new advances came problems of



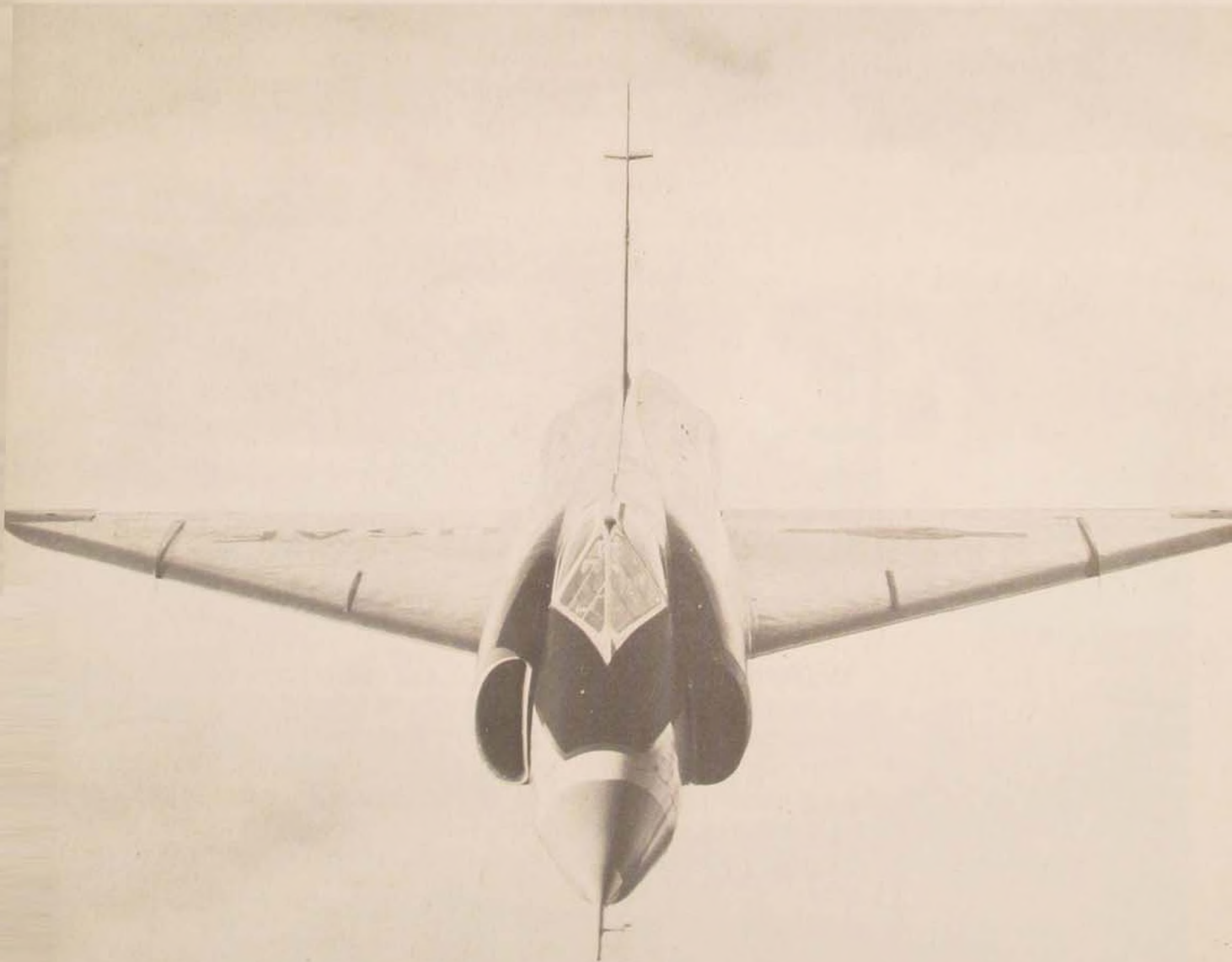
The first operational U.S. jet fighter, the Lockheed P-80 (above), used a development of the Whittle engine, the General Electric I-40 (later J33) of 3850 pounds static thrust. It was the start of a long line of successful Lockheed fighters. . . . North American, riding on the success of its Mustang fighter, produced the remarkable F-86 (left), an airplane which was loved by its pilots in most of its models. The Sabre adopted sweptwing technology to achieve a transonic capability. From the F-86A to the F-86H, power advanced from 5200 pounds of static thrust in the General Electric J47 to 8920 pounds of static thrust in the GE J75. . . . Hottest of all the Lockheed fighters was the supersonic F-104 (below). The Starfighter was built in great numbers and serves in a wide variety of roles in a number of air forces. On the ground, the knife-sharp leading edge of its wings have been fitted with a cover to prevent possible injury to pilots and ground crews.



structural strength, fatigue, corrosion, training, repair, etc.

One can trace this pattern of increased power, size, and complexity in the aircraft delivered to the United States Air Force. The Lockheed P-80, first operational USAF jet fighter, led to the F-94 Starfire, and ultimately to the F-104 Starfighter with its razor-thin wing. The sweptwinged North American F-86 was improved through a long series of design changes before being replaced by the far larger and heavier supersonic F-100. Convair entered the field with two much-advanced fighters, the delta-winged F-102 and F-106, before developing the controversial F-111, the first swing-wing aircraft in the USAF inventory. Northrop achieved success with the F-89 Scorpion before turning, in advance of all of the other manufacturers, to a lightweight fighter in the form of the F-5.

Convair's F-102 was not supersonic until it was modified with the area ruled fuselage (coke-bottle shape) apparent in this view. With the nipped-in waist, the F-102 Delta Dagger was easily supersonic and served with distinction for years as an interceptor and later as a drone. More than 25 squadrons of the Air Defense Command employed the F-102A during its peak years of service, a quantity which seems almost unimaginably large by today's standards. The aircraft was powered with the versatile, dependable Pratt & Whitney J-57 engine, which generated 17,000 pounds of thrust with afterburner.





Perhaps the greatest jet fighter of all time and certainly the most widely used by Western forces, the McDonnell Douglas F-4 (above) has been on the scene for more than 25 years. There are prospects of reengining the aircraft with a derivative of the Pratt & Whitney F-100 engine. The F-4 has set many records, scored many victories, and won the hearts of many pilots. . . . Northrop sensed, before any other major U.S. airframe manufacturer, the need to develop a low-cost, lightweight fighter with competitive performance. The F-5 has had a phenomenal sales record and serves in numerous air forces.



McDonnell Aircraft, after years of being a Navy supplier, evolved the long-range, supersonic F-101 Voodoo and followed this with the immortal F-4 Phantom II, perhaps the most important jet fighter in history.

Republic (subsequently a division of Fairchild Industries) created the F-84 almost in parallel with the P-80, and the design matured into a long line of rugged, successful warplanes. From these evolved the immortal Thud, the indefatigable F-105 that carried a major burden in the air war over North Vietnam.



Just as North American followed the Mustang with the Sabre, so did Republic follow the Thunderbolt with the Thunderjet (left). Powered with a 3750-hp General Electric J35 engine, the Republic F-84 first flew on 28 February 1946. It set a speed record of 611 mph in September of that year. The Thunderjet continued the Republic tradition of rugged fighters with long takeoff rolls. . . . The North American F-107 (below left) seemed to be a winning design, but it did not go into production. Power for the aircraft was supplied by a 24,500-hp afterburning J75 engine. Its maximum speed was mach 2.2. . . . The Thunderceptor (below right) is powered by both a GE J47 jet engine and a XLR11-RM-9 rocket engine. Its wings had a distinctive inverse taper. Only two were built.



An idea that sounded good but was difficult to work out in practice was that of the McDonnell XF-85 Goblin. A parasite fighter developed for escort work with the B-36, it was designed to be carried in the belly of a B-36.





The General Dynamics F-16 is part of the new breed of fighters, infinitely more sophisticated than their predecessors and much more capable.

These fighters were the workhorse aircraft that provided the USAF with a worldwide capability from Korea to Vietnam, and they represent the main lines of development in response to the increased power of turbine engines. Interspersed with these aircraft were others designed to fill special niches. For various reasons, they failed to achieve operational status. Among the more interesting of these were the last fighter from Curtiss, the four-engined F-87 Blackhawk; the improbable-looking XF-85 Goblin, designed to be carried in the belly of a B-36; the mixed-power, inverse taper-wing Republic XF-91; and the fast, capable, humpbacked North American F-107.

Two other revolutions in aircraft design, both quite as important as the development of the jet engine, were also going on, but their effects have somehow been generally overlooked because they were so much slower in coming to maturity.

First was the almost painful evolution of the effective air-to-air missile. Expectations had been high for the rocket-powered missile ever since the first Le Prieur rockets were launched from Nieuport 17s during World War I. Somehow, missiles never reached their full potential until Vietnam, but even there their utility was vastly limited by the rules of engagement. Not until the most recent generation of missiles and fighter tactics did the concept of the missile-equipped jet fighter reach maturity.

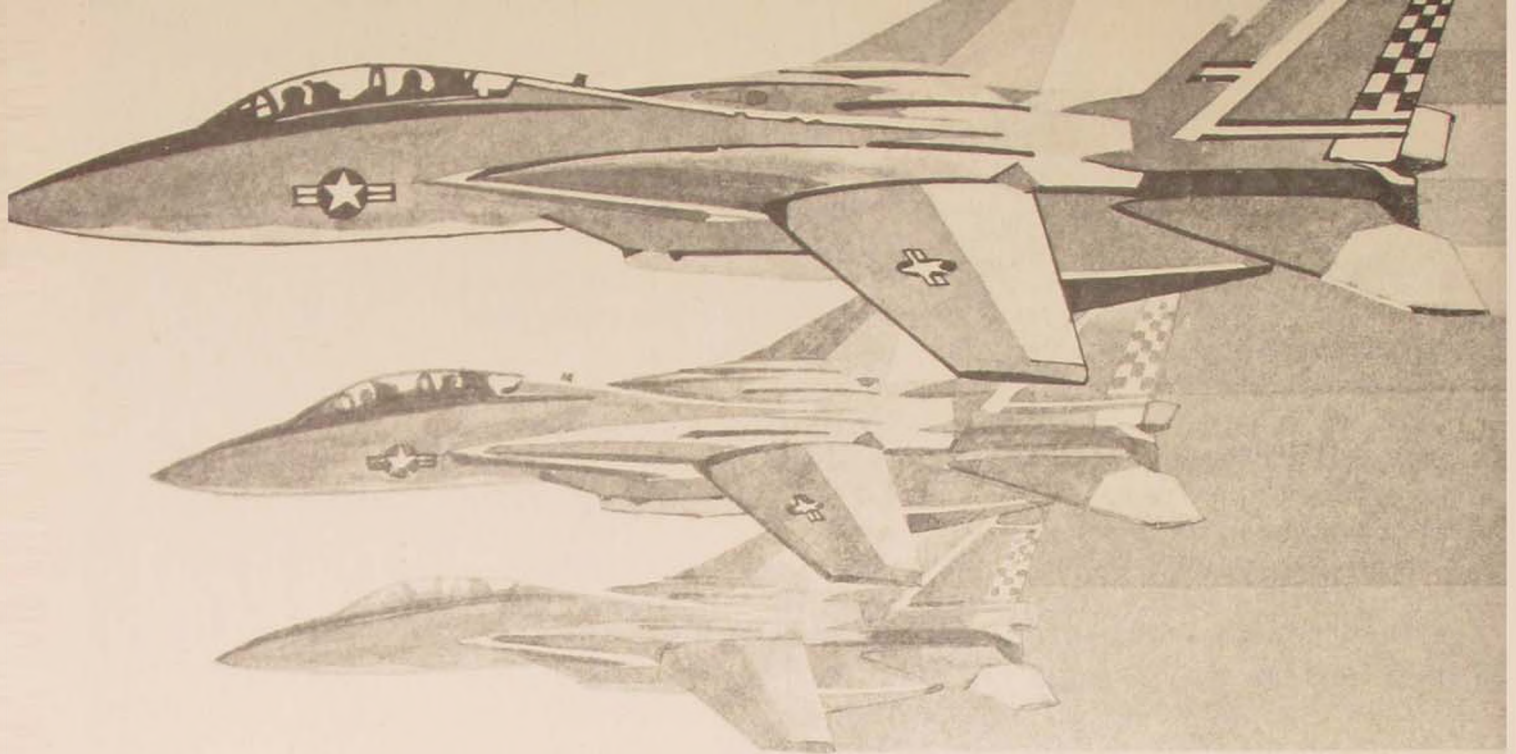
The second revolution was in the multiple application of computers, not only to onboard use but also to the design of the aircraft and its systems.

Airborne computers were not "user friendly" even through the McDonnell Douglas F-4s. Space, weight, and the crew inputs necessary for optimum use were all excessive by today's standards. Perhaps even more important was the fact that only in the post F-4 generation of fighters, in the General Dynamics F-16 and the McDonnell Douglas F-15 and F-18, has there been sufficient use of computers in the basic design process.

As a result of these two revolutions, airframe design has for the first time entered the jet age and caught up with the jet engine in development potential. One can assume that computers of the future will enable simultaneous development of airframes, engines, and missiles that will avoid the timing mismatches of the past.

The evolution of fighter aircraft since World War II has been a fascinating process. From the straight wings of the P-80 through the sweptwings of the F-84F, past the swing wings of the F-111 and beyond the melded body and wings of the F-16, one can look to a future that might include such things as vertical takeoff, vectored maneuverability, and so on. The fighters of the future will undoubtedly be neither so numerous nor so diverse as the fighters of the past, but they will embody successive developments and will depend, as always, on capable crews that fly them for ultimate success.

*National Air and Space Museum
Washington, D.C.*



SOVIET DESIGN POLICY AND ITS IMPLICATIONS FOR U.S. COMBAT AIRCRAFT PROCUREMENT

REBECCA V. STRODE

THE COSTS of U.S. tactical aircraft have increased enormously over the past three decades, to the point that severe budgetary pressures now constrain the nation's efforts to procure aircraft in the numbers required to maintain its accustomed defense capabilities. The most expensive tactical aircraft currently under production, the Navy's F-14, is fifty times more costly (measured in constant dollars) than the most expensive World War II fighter.¹ If the postwar trend continues, the unit cost of a hypothetical "F-1985" might well exceed \$50 million, or almost three times the price of the F-14. The consequence of higher procurement prices is fewer purchases, so that the U.S./Soviet numerical balance in tactical aircraft shifted over the decade 1965-75 from a 78 percent U.S.

advantage to a 7 percent U.S. deficit. (See Table I, next page.)

Quantity, of course, is not the only measure of military capability; quality plays an equally important role, and it is precisely the high-performance characteristics of recent U.S. aircraft that have been largely responsible for the escalation in price. High performance and high costs both derive from two basic aspects of U.S. fighter aircraft design, versatility and technological sophistication. American aircraft have consistently embodied systems and components that have marked the bounds of the technologically feasible at the time of their construction. This trend in U.S. design was clearly endorsed by Rear Admiral T. R. McClellan, Chief of the Navy's Air Systems Command, in testimony

before the Senate Armed Services Committee. Asked why the Navy chose the Grumman F-14 over McDonnell Douglas's less expensive aircraft, Admiral McClellan replied, "In a fighter aircraft, sir, we try to get the maximum design we can."²

The second aspect of U.S. design, versatility, enables a single fighter to carry out a variety of missions: close support, air superiority, interception, and interdiction. Close support constitutes the tactical air forces' most immediate contribution to the battlefield outcome by striking directly at the enemy's deployed forces while they are engaged against friendly ground units. It requires the ability to fly at very low altitudes under heavy fire. Air superiority is achieved by destroying enemy air power on the ground and by maintaining air-to-air combat dominance in

the sky. This mission puts a premium on energy-maneuverability, particularly the ability to turn inside an opponent and bear high-load factors, since air battles are generally not fought at maximum speed but in an "envelop" ranging from mach 0.6 at 10,000 feet, to mach 1.4 at 17,000 feet. The interception of enemy bombers and other aircraft requires speed, maneuverability, and range. Finally, modern multirole combat aircraft (MRCA) are designed to accomplish missions of interdiction; that is, to conduct deep penetration of heavily defended areas in order to attack well-guarded targets. Because this mission pits the pilot against a wide array of enemy radar, missile, and other air defense systems, interdiction requires great range and payload, low-altitude capability at mach 0.8-0.9, sophisticated avionics and navigational equipment,

Table I. United States/Soviet balance in tactical aircraft

1965			1975		
U.S.	U.S.S.R.	Ratio, U.S.:U.S.S.R.	U.S.	U.S.S.R.	Ratio, U.S.:U.S.S.R.
5800	3250	1.78	5000	5350	0.93

Source: *United States/Soviet Military Balance: A Frame of Reference for Congress*, Library of Congress, Congressional Research Service, Washington, D.C.: Government Printing Office, 1976, p. 45.

powerful electronic countermeasures/electronic counter-countermeasures (ECM/ECCM) equipment, and efficient fire control systems—all of which translate into larger and more expensive aircraft than would be necessary for fighters not required to operate deep over hostile territory.³

Interdiction is the most controversial of tactical air missions because its risks and costs are high while its outcome, the reduction of enemy logistical support, constrains the opponent's military initiatives only in the long run and with debatable effectiveness. Yet it has played a major role in U.S. combat experience. During World War II, interdiction accounted for 51 percent of U.S. sorties in the European theater. During the Pacific Leyte campaign, where air superiority had not yet been achieved, most sorties were sent on counterair missions; nevertheless, almost 20 percent involved interdiction. In the Korean War, the share was 55 percent, and while precise figures are not available for the war in Southeast Asia, it is not unlikely that interdiction strikes accounted for 75-90 percent of all U.S. sorties.⁴ Should the United States become involved in an air war within the next decade or so, multirole fighters would probably spend between one-sixth and one-third of their flight time on interdiction missions.⁵

While the versatility typically built into U.S. fighters may drive up their unit costs, less versatile aircraft would not necessarily be less expensive. Multirole aircraft provide several program, as opposed to unit, cost savings, including:

- developmental savings (it being easier to design one aircraft than several),
- production economies of scale, and
- maintenance savings through standardization.

Multirole aircraft also offer the important combat advantage of flexibility. Since aircraft are not lost in equal or predictable proportions in time of war, it is beneficial to have at one's disposal aircraft that can perform a variety of missions and hence can be shifted about as necessity dictates. The disadvantage of multi-

role aircraft is a certain loss of cost-efficiency due to the requirement that each possess the capability to fulfill several missions, even though performing only one at a time. Consequently, on any given assignment, a multirole aircraft is equipped with a number of systems that are superfluous to the accomplishment of its mission.

The advantages and disadvantages of mission-specific aircraft are the obverse of those enumerated for multirole fighters. On the one hand, single-mission aircraft appear to be more cost-effective, since they need not embody "superfluous" capabilities. On the other hand, such aircraft do not provide the economics of scale and standardization offered by MRCAs. As for combat, the advocates of more specialized aircraft argue that no multirole fighter can perform any single mission as proficiently as one specially designed for the task. However, those who favor MRCAs point to the loss of flexibility which a mission-specific force structure entails and contend that it is preferable to perform several missions reasonably well than one superbly and others not at all.⁶

Further examination of this debate lies beyond the scope of this article. Suffice it to say that a growing number of critics of U.S. procurement policy exist who feel that MRCAs place an inordinate fiscal burden on tactical air forces. It should be noted, however, that the argument of many of these critics does not stop at challenging the value of multimission fighters but goes on to question the need for maximum technologies in general, be they incorporated in multirole or mission-specific aircraft. The F-111, for example, is mission-specific (for deep penetration) but at the same time very expensive (unit cost = \$15 million) due to sophisticated capabilities. Now it is clear that the use of state-of-the-art technology increases cost as well as capability, and insofar as there are budgetary constraints, there will be a tradeoff between quality and quantity. The task, then, reduces to determining the extent to which combat advantages accrue to technologically superior aircraft.

ADVANCED American fighters have confronted inferior Soviet aircraft on several occasions, and it is instructive to examine the results. In the MiG Alley of Korea, the F-86 Sabre was pitted against the MiG-15 deep over hostile territory, a condition that favored the North Korean, Chinese, and Soviet pilots. Yet the American aircraft—larger, more complex; indeed, the most expensive fighter the United States had yet built—achieved a remarkable kill-ratio against its Soviet opposite and thus proved to be clearly cost-effective. But the results of more recent battles have been more ambiguous. The currently deployed F-4 Phantom and MiG-21, for example, have met over both Vietnam and the Middle East, and while the American plane again proved to be the better fighter, its margin of superiority was not always so great as to justify its cost in the unequivocal manner of the F-86. The exact combat ratio between the F-4 and MiG-21 in the Vietnam War remains classified, but William White of the Brookings Institution has estimated it to be about 2: or 3:1 in favor of the Phantom. During one short period for which data are available, the summer of 1972, air-to-air combat resulted in the loss of 12 MiG-21s, 4 MiG-17/19s, and 11 F-4s, yielding a kill-ratio of about 1.5 MiGs for every Phantom shot down.⁷ In the October 1973 War, Israel's 550 combat aircraft—127 of which were F-4 Phantoms—were highly effective in air-to-air combat against Soviet-built MiGs but proved vulnerable to the Egyptian Army's surface-to-air missiles (SAMs).⁸

Where national security is at stake, cost-efficiency analyses alone are hardly persuasive, and it must again be stressed that the F-4 did win the battle for the sky in both Vietnam and the Middle East. But to the extent that cost-efficiency criteria are valid considerations in determining force structure, the F-4's performance might be seen as somewhat disappointing. Almost three times as heavy as the MiG-21 and with a 38 percent greater combat radius, it costs about three times more to produce when measured in

dollar terms.⁹ But is it three times more effective, or do technological improvements at some point become subject to diminishing returns?

Critics of current U.S. force structure believe the latter to be the case and contend that saving could be realized without significant loss of combat effectiveness by limiting the missions and capabilities of tactical aircraft. Proponents of this policy frequently look to the Soviet Union for an example of an alternative procurement policy, claiming that the U.S.S.R. has secured its defense at lower cost by restricting its tactical air forces to air superiority and ground-attack missions, with little regard to interdiction; by building simple, mission-specific aircraft rather than MRCAs; and by resisting the temptation always to push technology to the limit when designing new aircraft, opting instead for quantity over quality. A closer inspection, however, reveals this analysis to be seriously flawed. In the first place, it is not at all clear that Soviet tactical air forces truly "cost less" than their American counterparts. Second, the argument confuses past capabilities with current policy and then unjustifiably projects that policy into the future. The purpose here is to provide a more accurate understanding of Soviet design policy and suggest the implications that that policy holds for future combat aircraft production.

Missions, Performance, and Design

It is true that the U.S.S.R.'s Frontal Aviation forces have generally not undertaken deep interdiction missions and that the service's aircraft are primarily designed for air superiority or ground attack. They are also more mission-specific than the major U.S. fighters. The MiG-21 and -27 are designed for air superiority; the Su-7 and -17 for close support; and the Su-24 for penetrating ground attack against hardened targets. Within *Voiska PVO*, too, aircraft are designed for specific, limited roles. Pilot training, for example, concentrates on ground control interception, not free air combat, and the

MiG-25, while performing high-altitude, high-speed interception ably, is far less capable in other roles. The Su-9 was designed as a point defense interceptor; the Yak-28, as a low-altitude interceptor. The Tu-28 was built specifically for long-range interception.¹⁰ None possess the multirole capabilities of U.S. fighters.

It is also true that Soviet aircraft do not exhibit the same level of technology as U.S. aircraft. But one should not underestimate Soviet equipment, for in some areas it performs very well. The U.S.S.R.'s electro-optical and laser systems are highly capable, as are its ECM and infrared equipment. But overall, Soviet designers do not build into their aircraft the high-performance characteristics typical of U.S. forces. Their on-board computers are less sophisticated, and they fall far short of the United States in the use of composites and miniaturized avionics.¹¹ Indeed, the MiG-25 in which Lieutenant Viktor Belenko defected in September 1976 did not even make extensive use of advanced metals. The aircraft was constructed primarily of steel, with titanium found only in structures subject to extreme heating, such as the wing leading edges. The resultant weight penalty reduced the amount of equipment that could be carried, and this constraint was still further exacerbated by the aircraft's use of vacuum tubes rather than solid-state circuiting in its electronics. A comparative examination of climb, acceleration, turn radius, and radar capability reveals the superiority of the F-15 and F-16 to late-model MiG-21s and the MiG-25, and even the older F-4 compares not unfavorably.¹²

Underlying the differences between U.S. and Soviet aircraft are divergent approaches to aircraft design. The United States has emphasized complexity, versatility, and technological sophistication and has been willing to sacrifice a certain amount of quantity in exchange for higher quality. Within the Soviet Union, however, radically different practices were fostered among the research and development (R&D) community during Stalin's rule and have remained persistent features of Soviet design policy to this

day. The five most prominent of these recurrent patterns are simplicity, commonality, prototype modeling, incrementalism, and reliance on foreign technology.

The simplicity of Soviet designs relates to their modest performance specifications, just sufficient to allow completion of the minimum tasks required and no more. Simplicity is evident in the designs as a whole, in the utilization of conventional, readily available construction materials, and in the lack of detailed finishing. Commonality refers to the use of standardized parts and assemblies on various types of aircraft whenever possible. Alternatively, an entire aircraft series, on reaching obsolescence in its original role, may be modified to fulfill some new system requirement. (This is not, however, the multirole principle found in NATO designs, in that Soviet aircraft have usually not been designed with more than one function in mind. It is only after an aircraft can no longer perform the specific mission for which it was originally created, or when an unforeseen requirement has arisen for which no aircraft yet exists, that an attempt is made to find a new use for the older series.) The ASh-82 engine, for example, was used to outfit the World War II-vintage La-5 fighter, the Tu-2 frontal bomber, and the Pe-8 long-range bomber. Indeed, twenty years later it was still in service on the Il-14 passenger carrier and the Mi-4 helicopter.¹³ Similarly, the Su-7 ground-attack fighter and the Su-9 interceptor, although fitted with different wings, armament, and equipment to suit their particular roles, nevertheless possess identical fuselages and tails.¹⁴ To take another example in a somewhat different vein, the M-4 Bison, though currently being phased out of its bomber role, is being modified to serve as a tanker, and a version of the old Tu-95 Bear has been developed to operate in an antisubmarine warfare capacity.¹⁵

The third feature of the U.S.S.R.'s design process, prototype modeling, specifies the purpose to which research, development, testing, and evaluation are being directed. In the Soviet Union, newly designed aircraft fall into two

categories, "test" (*opytnye*) and "experimental" (*eksperimental'nye*). Test models are designed to serve as prototypes of forthcoming series production aircraft, and the emphasis is placed on feasibility and existing technologies. Experimental aircraft, on the other hand, are not intended for series production but are built to test a particular new technology or flight characteristic—record-breaking speed, new maneuvers, a new design principle, etc.¹⁶ Prototype modeling, then, provides a link between the static traits of Soviet design policy (simplicity and commonality in series production aircraft) and the dynamic features that foster innovation (incrementalism and foreign input).

The conservatism of Soviet aircraft design policy is nowhere better exemplified than in its stress on innovation through incremental improvement. The approach blends well with the nation's predilection for commonality, since when only modest, step-by-step changes are introduced to upgrade performance, follow-on aircraft are left with many of the same features as their predecessors. While experimental prototypes (I and Ye series) occasionally introduce major improvements in technology, the predominant pattern has been gradual upgrading. Even what appear to be discontinuous advances in the performance characteristics of deployed aircraft have, in fact, been achieved little by little through prototype testing. The transition from the MiG-19 to the delta-wing MiG-21, for example, involved five intervening prototypes: (1) the Ye-50, a sweptwing aircraft with an upgraded MiG-19 engine; (2) the Ye-2A, a sweptwing model equipped with the future MiG-21 production engine; (3) the Ye-5, a delta-wing prototype with the same fuselage and engine as the Ye-2A; (4) the Ye-6, a preproduction series very similar to the Ye-5; and, finally, (5) the production version, the MiG-21F/Fishbed-C. This model itself has undergone extensive upgrading since its introduction in 1960, so that the most recent version has twice the range and payload of the original.¹⁷

The other major avenue to qualitative improve-

ment employed by the Soviets is to borrow from Western technology and experience. Numerous examples could be given, from the jet engine to integrated circuitry. Such innovation may take the form of partial borrowing or complete replication (*bez otsebiatiny*). As A. Fedoseev, an applied scientist who recently defected from the Soviet Union, explains: "The themes of new military developments are taken from foreign technical journals and intelligence information on foreign equipment, and often arise as a result of obtaining actual examples of the equipment from abroad."¹⁸

Sources of Soviet Design Policy

Conservatism and simplicity are evident in all aspects of Soviet design, but the reasons for their prominence are not so easily identified. Do they result from the free choice of the nation's leaders in light of various cost-benefit analyses? Or do they reflect the limited options available to a country plagued by economic irrationality, bureaucratic ossification, and negative historical experience? Those who see in Soviet force structure an alternative to the escalating costs of defense procurements generally accept the former explanation, and the Soviets do claim to find in their approach practical advantages which do not inhere in the more complex United States designs. However, there is strong evidence that the deeper source of the conservatism and technological modesty found in Soviet aircraft designs lies in the systemic inadequacies of the Soviet polity.

Certain benefits do accrue to that Soviet design policy. Aircraft can be completed more quickly, for instance, if they are unencumbered by nonessential accessories and are derived from previous models.¹⁹ In addition, simplicity facilitates pilot training and eases the pilot's task under the difficult conditions of combat.²⁰ World War II in particular drove this lesson home to the Soviets. As former test pilot M. Gallai explains:

"A plane does not live by speed alone"! Consequently, all our efforts were directed toward getting

the new fighters "off," with the goal of making them reliable and accessible to any pilot of average qualifications. (In a major war, you won't get very far on aces alone!)²¹

With this in mind, the Soviets not only designed simplicity into their MiG-3s but, on receiving American lend-lease aircraft, straightway stripped them of their nonessential equipment—extra fuel lines, gauges, etc.²²

Commonality, too, makes good sense. It reduces the logistics problems associated with providing spare parts, saves time and resources, and makes it easier for pilots to switch from one type of aircraft to another.²³ Prototype testing minimizes uncertainty and avoids the problems that can arise when one attempts to manufacture unproven designs. Through prototype testing, costs and performance can be scrutinized before substantial commitments to a project have been made.²⁴

Like simplicity and commonality, incremental innovation can facilitate pilot training and performance. For example, a MiG-21 was modified in the 1960s to provide an experimental analog to the Tu-144 supersonic transport then in development. The "Analog" MiG had its tailplane removed and was fitted with a scaled-down version of the Tu-144's ogival wing in order to accustom the test pilots to the wing's aerodynamic effects before they took the larger plane into the air.²⁵ But far more important is the impact of the incremental approach on quantitative measures of military power. Once again, the U.S.S.R.'s wartime experience played a crucial role:

The fact is that any measure—even the most effective—is not suitable if its realization would hold up the output of combat aircraft from the assembly line for even a few days. The front can't wait! Over the field of battle in those days our aircraft were already fewer in number than the enemy's. This gap had to be reduced, or at least not increased. Therefore, in the course of designing aircraft, the necessary results had to be obtained with relatively few means—only those which could be incorporated without holding up production.

This was a good school! The ability to achieve

improved tactical-technical characteristics without having to turn the whole aircraft design upside down became one of the most important elements in the work style of our aeronautical engineers and scientists, even in relatively calm times, when there was no special need for it.²⁶

The Soviets do not like to discuss their reliance on foreign technology, but one can surmise that this method of innovation reduces R&D outlays not only on individual projects but on applied science as a whole. Thus, when the technology, materials, and equipment needed to replicate a Western aircraft or other weapon have been lacking, entire new branches of industry have been created. According to Fedoseev, the government believes this to be an infallible method of determining how best to allocate the nation's research funds and order investment priorities.²⁷

But for all the advantages of Soviet design practices, there are costs as well. Overreliance on foreign technology, for instance, may bring short-term savings on R&D, but it exacts a tremendous toll over the long run by inhibiting domestic experimentation and ultimately weakening the nation's scientific base. That the U.S.S.R. spends some 40 percent more on R&D than does the United States, yet continues to exhibit inferior technology, is a clear manifestation of this dilemma.²⁸ Moreover, while incremental innovation can provide steady, gradual improvements in aircraft capabilities, it inhibits the realization of major advances and thereby exposes the Soviet Union to the risk of sudden obsolescence due to technological breakthroughs in the United States.

Logistics savings provided by commonality and interchangeability of parts may not be sufficient to offset the logistics burden of servicing faulty equipment. Here an instructive illustration may be taken from civil aviation, about which information is more accessible. When the U.S.S.R. entered the export market for jumbo jet liners, it priced its Tu-154 at only half the cost of the Boeing 747 in order to compensate for the aircraft's marked technological inferiority. Several sales were made to developing nations, but

within six months, these buyers had canceled all contracts. Even with its much lower purchase price, the Tu-154 could not justify its operational costs: time between overhauls, for instance, was but 600 hours, compared to 3000 for the 747.²⁹ Commonality of parts constantly in need of repair is hardly a positive characteristic.

Finally, although the relative simplicity of Soviet aircraft would seem to translate into lower unit costs than those obtaining in the United States, this may not be the case. Dollar cost comparisons estimate only what it would cost to replicate Soviet equipment in the United States; they do not indicate the true cost of that equipment to the U.S.S.R. Given the vast differences between the two countries' economic systems, resource endowments, labor productivity, and industrial-technical capabilities, these two costs may vary widely even in fiscal terms, not to mention the more complex issue of opportunity cost. It may be that the Soviets build unsophisticated aircraft because that is all they are capable of producing, and even such as they build are extremely expensive in terms of human and material resources consumed (and denied to the economy as a whole). Certainly this would be the conclusion suggested by the performance of the civilian industrial sector.

There are, however, important distinctions between military and civilian production processes in the U.S.S.R. which partially mitigate the impact of overall inefficiency on armament production. To an extent not true of the civilian sector, something akin to consumer sovereignty may be discerned in military production, the consumer being, of course, the Soviet government. Weapons producers respond to the demands of the Ministry of Defense, which delineates detailed specifications that the new equipment must satisfy. Quality control standards are more demanding and inspection commissions less susceptible to supplier pressure. In the civilian sector, quality control is the responsibility of the Department for Technical Control (*Otdel tekhnicheskogo kontrolya* or OTK), but since OTK inspectors receive bonuses from the enter-

prise and therefore benefit when the plant does well, they can usually be persuaded to accept defective products if correction would so disrupt the production schedule as to jeopardize plan fulfillment. Where weapon systems are produced, however, the OTK inspection is followed by a special military inspection. The *voenpredy* ("military representatives") who conduct this examination are permanently attached to a particular enterprise but are completely independent from its management. Their wages are paid by the Ministry of Defense, not the enterprise, and hence they have no vested interest in the enterprise bonus system. The *voenpredy* are instructed to pay no heed to production delays that might result from the rejection of defective output. While this presumably improves product quality, rejections are reportedly quite frequent, which must drive up costs.³⁰

Perhaps the feature that most distinguishes military production in general and aircraft production in particular from the civilian production process is the existence of competition among military design bureaus. Competitive designing has been the rule in the aviation industry since 1939-40, when more than twenty designers were instructed to come up with two or three basic types of aircraft. Competition occurs in all aviation projects, civil and military, at the initial, preproduction stage (when broad, tentative ideas are put forward), but for military aircraft it continues among two or three bureaus all the way down to the prototype testing phase. But while competition remains an important feature of aircraft research and development, there is some evidence (admittedly incomplete) that it has abated over the years. In 1945-49, 37 percent of identified prototypes were put into production; in 1950-54, 44 percent; in 1955-59, 57 percent; and in 1960-65, 50 percent.³¹ Unfortunately, more recent data are not available, but it may be that rising R&D costs have made it increasingly difficult to shelve designs on which considerable resources have already been expended. Occasionally, both competing prototypes are accepted for series production.³²

Despite these departures from nonmilitary practice, military industrial production—especially in such high-technology fields as aircraft development—remains hampered by many of the same scarcities, irrationalities, and disincentives that plague the civilian sector. The design philosophy that has emerged from these circumstances has simply attempted to make the best out of a bad situation. Quantity is not chosen *over* quality; it is accepted for lack of any other option. For reasons to be explained later, the Soviet R&D community has simply been unable to produce the sort of sophisticated equipment found in Western air forces and has hence been obliged to make a virtue of necessity. This interpretation was trenchantly summarized by the famous designer Andrei N. Tupolev:

The country needs aircraft like it needs black bread. Of course, you can imagine pralines, tortes, etc., but to no purpose—we haven't the ingredients to make them. From this it follows:

- (a) that we must develop a doctrine concerning the missions which aviation is to perform, and that doctrine must be based on a realistic conception of the capabilities of projected aircraft;
- (b) that, on the basis of technology and production processes which have already been assimilated, we must turn out long production runs of those aircraft which correspond to that doctrine;
- (c) that if these aircraft fall somewhat behind those in the West in terms of technology—to hell with them; we'll get by on quantity; and
- (d) that, in order to prevent quality from falling *too* far behind quantity, the design bureau should (i) concentrate on the technology of constructing experimental aircraft, without being burdened with responsibility for series production, and (ii) work on two basic tasks: designing aircraft intended for production and designing purely experimental aircraft used to achieve technological breakthroughs.³³

As indicated in this passage, Tupolev traced several aspects of Soviet design policy—the creation of simple, “black bread” aircraft in large quantities, for limited missions, by means of prototype modeling—to the short supply of materials and equipment apparently endemic to the planned economy. This situation is some-

what alleviated in the production of weapons, due to the top priority enjoyed by the military sector. Nevertheless, problems remain. In order to accommodate the plan, researchers are required to specify at the beginning of the year all the supplies they will need throughout the entire twelve-month period. Yet a researcher cannot know in advance which materials he will require for experiments of which he has not yet conceived. As Fedoseev notes:

I could never comprehend why they would entrust me with millions in the plan system (and sometimes even wastefully), yet not trust me to spend literally a few rubles to encourage people, to raise their interest in their work, or to purchase an instrument or some material directly from a store. After all, *I* knew how to make my planned work less expensive.³⁴

One response of Soviet industrial officials to the problems of supply has been to keep the production process as much as possible within their own organization, be it the enterprise or the ministry. Consequently, the aviation industry is highly concentrated, at both the development and the manufacturing level. Design bureaus are few and of the thousands of components that make up an aircraft, 90-95 percent are produced by the Ministry of Aviation Industry.³⁵ But such ministerial “empire-building” creates its own set of problems. Transportation costs, for example, will often be needlessly high as parts are procured from a plant perhaps several hundred miles away, yet within the same ministry, rather than from a plant producing identical components, but for a different ministry, right in the same city. Moreover, as military equipment grows more complex, it becomes more and more difficult, even in the face of ministerial protectionism, to insulate weapon production from the deficiencies of the rest of the economy. Thus Brezhnev, at the Twenty-fifth Party Congress, insisted that planners and producers take greater cognizance of the interdependencies that exist among branches of the economy, and Major General M. Cherednichenko soon responded that the defense industries had taken the secre-

tary's admonition to heart and would act on it.³⁶ To what extent procedures have changed, however, is unknown.

The role of the party at the operational (as opposed to the declaratory) level is itself ambivalent. Within the civilian economy, one of the chief functions of *obkom* and *raikom* officials is to overcome supply bottlenecks, primarily by authorizing violations of the plan.³⁷ Presumably, the same holds true for defense industries. But such has not always been the case, and while recent evidence is lacking, past experience indicates that on occasion the party may even obstruct the flow of supplies. A. Yakovlev recounts in his memoirs that for more than five months in 1946 no progress was made toward constructing a design bureau called for in the plan. Neither materials nor workers had been provided. The Minister of the Aviation Industry, Mikhail Khrunichev, complained to Stalin:

... the local organs not only do not help, but even hinder ... You see, the Obkom Secretary has been detaining the construction workers sent to us there, figuring that they are more useful in reconstruction work.³⁸

This episode, coming soon after the war, may be atypical, but the reconciling of conflicting claims on scarce supplies remains a major task of the party *apparatchiki*, one they may not always be able to fulfill. As for the ministry itself, it does its best, as indicated by Khrunichev's appeal. But here, too, problems of supply are sometimes so severe that the government simply resigns itself to their inevitability and urges producers and scientists to do the same. General Artem Mikoyan once complained to a group of Canadian industrialists, for instance, that the Ministry of the Aviation Industry would not allow him to use as much titanium in his designs as he would like, and engine designer Kuznetsov confirmed that he had met with the same difficulty.³⁹

Even designs that have been approved for series production and hence presumably utilize only available materials remain jeopardized by unforeseen shortages. Gallai notes that demands from the production engineers "grab the designer

by the throat," as costs and breaches of contract by "tens and hundreds of supplying plants" make the original design unworkable.⁴⁰ It may take an entire year to convert the design into a blueprint that can be produced,⁴¹ and the process is far from orderly. Designer O. Antonov has remarked:

It is common knowledge that the director of a plant engaged in series production and the chief designer who plans the machines or other items produced by the plant often get along like cats and dogs.

It is common knowledge that the introduction of a new and better product, or even a proposal to improve and modernize an item already in production, sometimes meets a hostile reception by the director.⁴²

Taut planning and short supplies not only result in production delays but also slow the pace of modernization at the plant. In response to a recent appeal by O. Antonov for improved quality in the production of sophisticated equipment, the Novosibirsk aviation enterprise director G. Vanag replied that everyone recognized the need for innovation, but until resources are provided, few results can be expected. Too often, Vanag complained, the enterprise is left "to fight one-on-one against difficulties which [the planners] themselves are simply unable to handle."⁴³

While supply problems have placed limits on the sophistication the Soviets have been able to achieve thus far in their combat aircraft, such difficulties could conceivably be overcome by allocating a still greater share of the country's material resources to this sector at the expense of civilian consumption. There is, however, a deeper source of the simplicity (or, one might say, backwardness) characteristic of Soviet designs, the roots of which go back to the early years of Soviet rule, particularly the 1930s, and which is much less amenable to solution. It is the network of disincentives to innovation which pervades the scientific and industrial communities and atrophies their performance potential. Reluctance to experiment with new methods and concepts has been ingrained through historical memory and current experience; through excessive bureaucratization and rigid planning; and,

above all, through the basic distrust in which the scientific community is held by the Soviet government.

Obstacles to Innovation

Of the bureaucratic impediments to innovation, some arise from the ministerial system of organization and others from the planning mechanism. As noted previously, the industrial ministries have attempted to build self-contained "empires," partly in an effort to reduce supply difficulties but perhaps more to consolidate and enhance the authority of their various agents, be they enterprise directors or government officials. Consequently, enterprises, research organizations, and individuals subordinated to one ministry often lack contact with their counterparts elsewhere, and these communication barriers hinder the flow of information across ministerial lines.⁴⁴ The result is duplication of effort and slower progress. Ministries may hesitate to endorse technological drives which would necessitate reliance on organizations outside their control. The Minister of the Aviation Industry, for example, might be reluctant to force the pace of innovation if such a policy would depend for its success on input from the Academy of Science. A slower pace that remained within the capacities of the ministry's own research institutes and experimental design bureaus might seem preferable to dependency on nonsubordinates.⁴⁵

Within the mechanism of central planning, the Soviets have been unable to define criteria of success which guide economic units to optimum output. Early efforts at cost-efficiency calculations specified weight as the unit of account, the goal being greater weight at lower cost. The perniciousness of this standard in aircraft production soon made itself felt, for it removed the incentive to build aircraft with the lightweight materials needed to obtain high thrust-to-weight ratios.⁴⁶ But even when gross output targets were superseded by financial indicators in 1965, the defense industries may have used the newly instituted profitability norms to justify risk aversion

and discourage innovation rather than improve efficiency through technological advance.⁴⁷ Even tying bonuses directly to innovation has failed to produce the intended effect. The bonuses tend to lose their merit/incentive character over time and become an expected component of the researcher's salary. Moreover, there is a tendency toward artificial innovation, wherein existing products are given but minor modifications and new names in order to meet innovation quotas.⁴⁸ When bonuses can be obtained by such simple measures, there is little incentive to undertake major innovation programs, particularly since they may temporarily require a reduction in the other plan indices (gross output, profitability, etc.) by which success is measured.

The most important incentives encouraging innovation are prestige, financial benefit, and career advantages provided to designers whose prototypes are accepted for series production. But the process also encourages conservatism insofar as designers believe that their designs will have a greater chance for approval if they resemble aircraft accepted previously.⁴⁹

Apart from the simplistic, often irrational, incentive structure developed by the central authorities, the plan framework and its bureaucratic accouterments retard innovation through their inflexibility. Before beginning a project, a research team must draw up two documents: the "technical assignment" (*tekhnicheskoe zadanie* or TZ) or the "tactical-technical requirements" (*Taktiko-tekhnicheskie trebovaniia* or TTT) and Plan Form No. 4. The TZ or TTT defines the proposal and must be approved by (1) the director of the team's scientific-research institute, (2) its *voenpred*, (3) a representative of the military client, (4) an agent of the Defense Ministry's coordinating organization for military research, and (5) the particular ministry to which the research group is subordinated. The procedure at best takes months and can draw out for as much as two years. The various authorities involved often have divergent interests and place incompatible demands on the project. Plan Form No. 4 is a cost estimate and time schedule for the pro-

posal and specifies the types and quantities of all materials and equipment that will be needed. It must be signed by the research group's ministry—and often by the Minister himself—as well as by all concerned enterprises, suppliers, and planning organs.⁵⁰

The TZ, TTT, and Plan Form No. 4 cannot be changed without permission of the ministry, which is rarely given. If, during the course of research, it becomes evident that an anticipated procedure is no longer necessary, still it must be performed in order to fulfill the plan. "Thus," writes Fedoseev, "having expended a tremendous amount of nerves, labor, and time on the TZ or TTT and Form No. 4, the researcher dons the cruelest corset, binding himself hand and foot."⁵¹

The plan framework, into which defense contracts must fit, and the rigidity of the approval process just described conspire to freeze aircraft designs at an early stage. The MiG-25 high-altitude interceptor is a case in point. Designed to counter the B-70 high-altitude, supersonic bomber, which the United States had under development in the early 1960s, the fighter would appear to have lost much of its *raison d'être* when the B-70 program was canceled. Yet production of the MiG-25 has continued to the present; indeed, it did not even make its maiden flight till after the B-70 program had been dropped. While its high speed and ceiling grant it continued value in a reconnaissance role, as an interceptor its relatively poor performance in low-altitude regimes at a time when the air threat to the Soviet Union has shifted decidedly toward low-flying attackers (both aircraft and cruise missiles) has considerably degraded its effectiveness. It might have been wiser from the Soviet perspective to have canceled the MiG-25 altogether and to have undertaken the development of a new interceptor of radically different design, but the momentum of the program was apparently too great to overcome. Such are the costs of bureaucratic inertia, plan rigidity, and risk avoidance.⁵² Thus, while much can be said for a steady state production process, its negative concomitants ought not be ignored. The gradualist approach to design so

commonplace in the Soviet Union makes rapid adjustment to changing situations that much more difficult, especially when the new conditions call for major departures from previous designs.

The Communist Party leadership has at times sought to overcome excessive caution in the scientific community by exerting pressure for discontinuous leaps in technology. In this regard, design bureau chief O. Antonov has noted that it sometimes "takes a fight" to push through an innovation: "The Party has several times rolled up its sleeves, gone after one industry or another, and, dragging it out of the morass of gradualism, given it a powerful push in a direction that the country required."⁵³

On the other hand, party and government officials have also on occasion offered resistance to innovative proposals put forward by researchers. Gallai, for example, although generally endorsing the nation's incremental approach to force improvement, nonetheless criticizes the obstacles presented by the "conservatism" of the leadership and bureaucracy.⁵⁴ The problem is also described in Yakovlev's memoirs. In 1951, Stalin told Yakovlev to stop work on several new designs, explaining:

We already have a good plane in the MiG-15, and there is no sense in building new fighters in the near future. Better just to modernize the MiG.⁵⁵

This attitude disturbed Yakovlev for two reasons: first, cancellation might lose him the trust his designers had in his leadership abilities; and second, he knew that:

If all experimental work were organized around modernizing existing series of aircraft and not on building new, more advanced ones, before long we would inevitably fall behind . . . I felt it was necessary to create something qualitatively new.⁵⁶

Yakovlev therefore began work in conjunction with the engine designer Mikulin on a fighter with an improved thrust:weight ratio, the Yak-25 reconnaissance aircraft. Stalin was impressed and ordered Artem Mikoyan to use the same engine on an interceptor. The result was the

MiG-19, another illustration of incrementalism and commonality in Soviet aircraft design.⁵⁷

Party conservatism in matters of applied science derives in part from the leadership's lack of confidence in the abilities of Soviet scientists. Fedoseev reveals that research engineers in the U.S.S.R. are frequently ordered to copy Western equipment without modification and are not allowed to make improvements even if such are clearly needed. Later, no doubt, the United States or other originating country will correct the problem, but unless the U.S.S.R. obtains an example of the improved model, no correction will be made on the Soviet copy.⁵⁸

Ultimately, the leadership's lack of confidence in the skill of Soviet scientists probably derives less from past performance—the deficiencies of which can largely be attributed to the defects in the economic and incentive structures already discussed—than from the basic distrust the leadership feels toward all intellectual segments of the society. This distrust impacts negatively on the quality of Soviet science in a number of ways. First, it has fostered censorship, which weakens the country's scientific base by limiting the number of people to whom access to foreign scientific and technical materials is allowed.⁵⁹ This element has probably lessened somewhat with time and may continue to do so. A more serious problem derives from the harsh sanctions imposed for failure and the fear which the threat of such sanctions engenders.

The system of unlimited liability for failure reached its apex under Stalin, who felt that the "epidemic of improvements" degraded weapon designs. He encouraged designers to resist demands for innovations from the military consumer, saying:

The designer shouldn't be at everyone's beck and call; he above all others answers for the machine, and if he is given unfounded, irresponsible demands, he must protest.⁶⁰

Stalin's advice often turned into an angry warning. At one confrontation, Yakovlev recalls:

He pointed his finger at us and threatened, "Remember: a designer must be firm; he must pro-

tect his aircraft from irresponsible advisors. It's hard to make a good machine, but very easy to spoil it. And it's the designer who'll have to answer for it!"⁶¹

The sanction for errors included criminal prosecution under laws "on technological discipline," and punishment was extremely severe. A man could lose his job and see his career ruined even for petty mistakes and delays, while significant failures could mean imprisonment or even death. Moreover, the system was arbitrary, with even the best designers being incarcerated in various *sharagi* or special prison-laboratories in which scientists and engineers were forced to do research. Such was the fate of the great designer Tupolev and many of his subordinates during the 1930s and 1940s.⁶²

Such sanctions are no longer imposed for errors in design, but they still remain in the memory of historical cognizance of many scientists in the U.S.S.R. today. The phenomenon was not unique to the Stalin period; even under Khrushchev, the aircraft designer Aleksandr A. Arkhangelskii was imprisoned for his failure to produce a successful prototype of the Tu-110. And still today, not a chart is drawn, not a formula computed, without someone's signature at the bottom. An error can still cause severe detriment to one's career, prestige, and living standard.⁶³ Given the price that failure may exact, combined with the quite comfortable lifestyle which moderate success will bring, it is not surprising that designers hesitate to contract into ambitious projects. Risk aversion is the salient characteristic of the Soviet aircraft R&D community. It is this which encourages design simplicity, modest, incremental innovation, and heavy reliance on proven foreign technology.

Those who see in the Soviet Air Force an example of a limited-cost force structure fail to appreciate the true cost that industrial inefficiency and economic irrationality impart to the U.S.S.R.'s defense programs. In addition, misinterpretations arise when the dearth of positive incentives and the existence of actual disincentives to innovate are equated with a deliberate

cost-effectiveness decision. Past performance as well as current developments indicate that the relatively unsophisticated technological level of Soviet aircraft derives rather from lack of ability than want of desire. As the capabilities of the R&D community improve, therefore, one can expect Soviet designs to grow more complex.

This trend can already be observed in the recent, growing emphasis among the Frontal Aviation forces on deep interdiction missions, particularly with the deployment of the Su-24 and MiG-27. It can also be seen in the latest prototypes of Soviet tactical aircraft currently being tested at Ramenskoye Airfield. The Ram-K, a variable-geometry air superiority fighter believed to have been designed as the follow-on to the MiG-25, appears to be "a close approximation" of the Grumman F-14, according to a Pentagon spokesman. The Ram-L, a Sukhoi analog to the McDonnell Douglas/Northrop F-18, will be equipped with advanced medium-range air-to-air missiles (AMRAAMs) of the type now in early development in the United States as the aircraft reached full deployment in 1983. Finally, the Ram-J or T-58 ground-attack aircraft, which is already in production and whose deployment is imminent, resembles the Northrop A-9, the aircraft rejected by the United States Air Force in favor of the Fairchild A-10 close-support aircraft.

All three prototypes evince progress toward more complex, more expensive fighters; and the Ram-K/L exhibit considerable multirole capability. The trend, then, seems to be away from the single-mission aircraft produced by the Soviet Union heretofore. Among the advanced systems now in evidence are terrain-avoidance radar; Doppler navigational equipment; look-down, shoot-down, and side-looking airborne radar; Gatling-type guns mounted in pods; laser-guided weapons; and real-time electro-optical surveillance equipment—precisely the sort of equipment that has escalated U.S. fighter costs.⁶⁴

THE implication of this interpretation of Soviet aircraft design policy is that the

U.S.S.R. will produce aircraft of as high a quality as it is capable. Just what technological levels will be reached is difficult to project, as it depends on the extent to which the government can rationalize its economy and improve its incentive structure. As Stalinist repression fades into the more distant past and a new generation of researchers comes to the fore, fear of innovating may subside somewhat. But unless deeper changes transpire in the leadership's attitude toward intellectual segments of society, it seems doubtful that risk aversion will disappear altogether. One might expect, therefore, to see a more rapid pace of technological advancement in the future but one still somewhat behind that of which the United States is capable.

Even given this interpretation of Soviet policy toward aircraft design, it might still be the case that the United States should move toward cheaper aircraft in greater quantities. But in weighing this alternative, it is essential that Soviet trends not be ignored. Since technological inferiority is not the preferred Soviet strategy, one cannot assume that the capabilities of Soviet aircraft will remain static. Consequently, if the United States opts to reduce unit costs by procuring less sophisticated aircraft, it must be willing to see its margin of qualitative superiority over the Soviet air forces gradually erode.

This is not necessarily an unacceptable situation, since technological superiority does not always translate into greater combat effectiveness. For example, the short service life of Soviet equipment is less a penalty in military than civilian aviation. Since civil aircraft are generally designed for approximately 30,000 hours of flight service, while designers of combat aircraft aim for only 5000, a component whose durability is far too low for civilian use may be perfectly satisfactory in military aircraft. To take another example, consider the MiG-21C captured by Israel during the 1967 war. Although gaps of up to one-eighth inch were found in the butt joints of the skin panels, the drag penalty of such shoddy finishing was minor. Faced with a choice between poor workmanship and delays on the

production line, the Soviets, as one observer noted, "showed no hesitation in choosing the former and getting the hardware."⁶⁵ Choosing the proper balance of quality and quantity, weighing technological sophistication and cost reduction, is an extraordinarily difficult task, but correct decisions cannot be made without due regard to the aircraft with which one's own pilots might have to contend in some future conflict. The nature of Soviet design policy

suggests that the U.S.S.R.'s fighters will be the most complex and capable aircraft that the Soviets can produce.

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Notes

1. Measured in constant 1975 dollars, the F-14's flyaway unit cost is approximately \$17,000,000; that of the World War II F4U Corsair, \$350,000. See William D. White, *U.S. Tactical Air Power: Missions, Forces, and Costs* (Washington: Brookings Institution, 1974), pp. 47-48.

2. U.S. Congress, Senate, Committee on Armed Services, *Fiscal Year 1973 Authorization for Military Procurement, Research and Development, Construction Authorization for the Safeguard ABM, and Active Duty and Selected Reserve Strengths, Part 6: Bomber Defense, Tactical Air Power, and F-14, Hearings*, 92d Congress, 2d sess., 1972, p. 3788.

3. White, pp. 63 and 69.

4. The large number of interdiction flights during the Southeast Asian conflict is in part a reflection of the lack of strong air opposition by the North Vietnamese, a factor that reduced the need for counterair strikes. Thus, because the supply of U.S. air power was abundant and the demand for alternative missions limited, the heavy reliance on interdiction during the Vietnam War may not be indicative of normal U.S. tactical air doctrine. See White, p. 67.

5. The estimate of an industry specialist.

6. White, pp. 56-58; and Bonner Day, "Pros and Cons of a Multi-mission Fighter Force," *Air Force*, April 1979, pp. 60-61.

7. White, pp. 45 and 65-66.

8. Of the 114 Israeli aircraft lost, all but 20 were shot down by SAMs, whereas some 400 of the 500 Arab aircraft lost were shot down in air-to-air combat. See Nadav Safran, *Israel: The Embattled Ally* (Cambridge, Massachusetts: Harvard University Press, 1978), pp. 275 and 311.

9. White, p. 65. This estimate should be accepted only in conjunction with two caveats. First, the estimated dollar costs of Soviet aircraft are conjectural. White, for example, estimated the MiG-21's price tag to be \$1.3 million, while the Israelis believe it to be \$2 million (1975 dollars). Second, and more important, dollar cost comparisons are often misleading in that they do not reflect the true burden a weapon system places on the Soviet economy. A weapon that costs \$2 million to replicate in the United States might be far more costly to the Soviets, in terms of resource allocation and opportunity cost, due to systemic industrial and research inefficiencies. That such inefficiencies do exist in Soviet aviation R&D is a point this study seeks to demonstrate.

10. U.S. Department of the Air Force, *Soviet Aerospace Handbook* (Washington: Government Printing Office, 1978), pp. 40 and 45.

11. Composites are nonmetallic construction materials (such as graphite epoxy) which have higher strength:weight ratios than commonly used aircraft metals (aluminum, steel, titanium). With weight savings of 25-50 percent over conventional materials, they also provide high thrust:weight ratios. In addition, composites improve vibration damping, enhance resistance to fatigue, and retard environmental damage. Composite materials will not rust or corrode, and hence they

extend vehicle durability and reduce operational costs. The United States began development of advanced composite materials for Air Force applications in 1963 and currently uses them on the F-111 horizontal stabilizer, F-5 fuselage, F-15 wing, F-16 forward fuselage, and B-1 horizontal and vertical stabilizers.

12. *Jane's All the World's Aircraft, 1975-76*, edited by John W. R. Taylor (London: Jane's Yearbooks, 1977), pp. 386-88 and 500-01; *Jane's All the World's Aircraft, 1976-77*, edited by John W. R. Taylor (London: Jane's Yearbooks, 1978), p. 445; and George Panyalev, "MiG-21bis and F-16A Air Combat Potential: A Comparison," *International Defense Review*, 1978, No. 9, pp. 1431-32.

13. M. Gallai, "Ispytano v nebe," *Novyi mir*, No. 4, 1963, p. 51.

14. Arthur Alexander, *R&D in Soviet Aviation* (Santa Monica: Rand, R-589-PR, 1970), pp. 21-22.

15. U.S. Department of the Air Force, *Soviet Aerospace Handbook*, pp. 50 and 92.

16. M. Gallai, *Tret'e izmerenie* (Moscow, 1973), p. 9.

17. Arthur J. Alexander, *Decision-Making in Soviet Weapons Procurement*, Adelphi Paper No. 147/148 (London: International Institute for Strategic Studies, 1978/79), pp. 34 and 49-52.

18. A. Fedoseev, *Zapadnia: Chelovek i sotsializm* (Frankfurt/Main: Posev, 1976), pp. 115-17.

19. Arthur J. Alexander, *Weapons Acquisition in the Soviet Union, United States, and France* (Santa Monica: Rand, 1973), p. 10.

20. Gallai, *Tret'e izmerenie*, pp. 32-33.

21. M. Gallai, "Ispytano v nebe: Okonchanie," *Novyi mir*, No. 5., 1963, p. 86.

22. Alexander, *R&D in Soviet Aviation*, p. 23.

23. U.S. Department of the Air Force, *Soviet Aerospace Handbook*, p. 93; and *Samolety Strany Sovetov* (Moscow, 1974), p. 183.

24. Alexander, *Weapons Acquisition*, p. 11; and Alexander, *Decision-Making in Soviet Weapons Procurement*, p. 34.

25. *Samolety Strany Sovetov*, p. 234; and Heinz J. Nowarra and G. R. Duval, *Russian Civil and Military Aircraft, 1884-1969* (London: Fountain Press, 1970), p. 201.

26. Gallai, *Tret'e izmerenie*, p. 33.

27. Fedoseev, *Zapadnia*, pp. 115-16.

28. U.S. Department of the Air Force, *Soviet Aerospace Handbook*, p. 94.

29. Information provided by an industry specialist.

30. Hannes Adomeit and Mikhail Agursky, "The Soviet Military-Industrial Complex and Its Internal Mechanism" (Kingston, Ontario: Queen's University Center for International Relations, 1978), pp. 19-25.

31. Alexander, *R&D in Soviet Aviation*, pp. 22-25.

32. This was the case with the Yak-15 and MiG-9 fighters and the An-10 and Il-18 transports.

33. A. N. Tupolev, quoted in G. Ozerov, *Tupolevskaya sharaga*, 2d

edition (Frankfurt/Main: Posev, 1973), p. 57.

34. Fedoseev, *Zapadnia*, p. 144.

35. D. P. Andrianov, M. Z. Gendel'man et al., *Management, Planning, and Economics of Aircraft Production*, translated by Translation Division, Foreign Technology Division, Wright-Patterson Air Force Base, Ohio (1964), p. 97.

36. Major General M. Cherednichenko, "Sovremennaia voina i ekonomika," *Kommunist voozruchennykh sil*, September 1971, pp. 25-26.

37. For a thorough study of this point, see Jerry F. Hough, *The Soviet Prefects: The Local Party Organs in Industrial Decision-Making* (Cambridge, Massachusetts: Harvard University Press, 1969).

38. A. Yakovlev, *Tsel'zhizni: Zapiski aviakonstruktora*, 2d edition (Moscow: 1970), p. 485.

39. Alexander, *R&D in Soviet Aviation*, p. 12.

40. Gallai, *Tret'e izmerenie*, p. 271.

41. Alexander, *R&D in Soviet Aviation*, p. 16.

42. O. Antonov, "Why Does It Take a Fight to Modernize Output?" *Current Digest of the Soviet Press*, May 29, 1957, p. 6.

43. G. Vanag, "Upravlenie kachestva," *Trud*, January 6, 1979, p. 2.

44. Alexander, *R&D in Soviet Aviation*, p. 16.

45. Karl F. Spielmann, "Defense Industrialists in the USSR," *Problems of Communism*, September-October 1976, p. 60.

46. See S. A. Sarkisian, "Predvaritel'noe opredelenie zatrat na proizvodstvo aviatsionnykh izdelii—vazhnaia ekonomicheskaiia problema," in *Predvaritel'noe opredelenie trudoemkosti i sebestoimosti izgotovleniia aviatsionnykh izdelii*, edited by D. P. Adrianov and S. A. Sarkisian (Moscow, 1962).

47. David Holloway, "Technology, Management, and the Soviet Military Establishment," Adelphi Paper No. 76 (London: International Institute for Strategic Studies, 1971), p. 6.

48. A good description of this process in the civilian economy may be found in Joseph Berliner, *The Innovation Decision in Soviet*

Industry (Cambridge, Massachusetts: MIT Press, 1976), particularly Chapter 14.

49. Alexander, *Decision-Making in Soviet Weapons Procurement*, pp. 32-33.

50. Fedoseev, pp. 161-64.

51. *Ibid.*, pp. 164-65.

52. Norman Friedman, "The Soviet Mobilization Base," *Air Force*, March 1979, pp. 67-70; and William Schneider, "Trends in Soviet Frontal Aviation," *Air Force*, March 1979, p. 81.

53. Antonov, p. 6.

54. Gallai, *Tret'e izmerenie*, p. 271.

55. Yakovlev, p. 491.

56. *Ibid.*, pp. 491-92.

57. *Ibid.*, p. 493.

58. Fedoseev, p. 116.

59. See also Adomeit and Agursky, p. 31.

60. Joseph Stalin, quoted in Yakovlev, *Tsel'zhizni*, p. 347.

61. *Ibid.*, p. 348.

62. See Ozerov, *Tupolevskaia sharaga*, for an eyewitness account. See also Fedoseev, p. 117.

63. A graphic illustration of the pressures under which Soviet aircraft designers work was provided to a group of Canadians by Alexander Yakovlev when he said, "After considerable negotiations with the customer as to *what* will be produced, the designer signs the contract and symbolically hands over his testicles with the contract. When the aircraft is delivered as specified, he gets his testicles back." Quoted in Alexander, *Decision-Making in Soviet Weapons Procurement*, p. 60.

64. Clarence A. Robinson, Jr., "Soviets to Field Three New Fighters in Aviation Modernization Drive," *Aviation Week & Space Technology*, March 26, 1979, pp. 14-15.

65. William H. Gregory, "Soviet Union Seeks Balance in Technology," *Aviation Week & Space Technology*, March 18, 1968, p. 88.

Until they become conscious they will never rebel, and until after they have rebelled they cannot become conscious.

George Orwell

1984

The hallway smelt of boiled cabbage and old rag mats. At one end of it a colored poster, too large for indoor display, had been tacked to the wall. It depicted simply an enormous face, more than a meter wide: the face of a man of about forty-five, with a heavy black mustache and ruggedly handsome features. . . . It was one of those pictures which are so contrived that the eyes follow you about when you move. BIG BROTHER IS WATCHING YOU, the caption beneath it ran.

George Orwell

1984

The USSR is run according to the ideals of Marxism-Leninism by the Communist Party. It is, the Party believes, its historic mission to bring the USSR to full communism, and to assist the spread of Soviet-style communism throughout the globe. . . . In pursuance of this goal, the Party claims the right to control *every* aspect of human affairs in the USSR, and to direct every sector of Soviet society. The Soviet Armed Forces are no exception.

C. N. Donnelly

"The Development of Soviet Military Doctrine," 1981

GROUPTHINK: A PACIFIST POEM AND THE SOVIET PRESS

DR. MICHAEL J. DEANE
DR. ILANA KASS

ONE of the persistent apprehensions of Soviet leaders has been that the Soviet populace might internalize the leadership's "peace" propaganda that is intended solely for Western consumption. Thus, Soviet Party and state officials, responsible for protecting the Communist system in the U.S.S.R., and Soviet military officers, responsible for promoting ideological vigilance and combat readiness of the troops, have traditionally shared a joint interest in maintaining the citizenry's military-patriotic fervor at the highest possible level. In

April 1979, however, vague signs began to surface in a Communist Party of the Soviet Union (CPSU) decree that all was not in order. The decree attributed an overall declining trend in the effectiveness of Soviet domestic propaganda to the extent that today's better educated people find the leadership's indoctrination efforts "boring" and "unconvincing." Two subsequent factors have only exacerbated the problem. First, the antimilitary arguments, launched by the Soviets as part of their "peace offensive" against NATO's decision to deploy the Pershing II and cruise



missiles in Western Europe, were—as Soviet media acknowledged—boomeranging and finding a receptive domestic audience. Second, Soviet troop involvement in Afghanistan, with mounting casualties but no end in sight, was—as Soviet media hinted—stirring some uneasiness among the Moslem population in the southern sector of the Soviet Union.

Only recently, however, the Soviet media have been more forthright in suggesting that these factors are being fused into a Vietnam-like anti-military backlash among Soviet citizens. Moreover, during the early months of 1983, there were clear indications that pacifist tendencies had transcended the bounds of individual objectors and were receiving strong reinforcement from at least one major Soviet institution, the educational establishment.

Institutions in Conflict

The first step toward a direct and public confrontation was initiated on 11 December 1982, when *Teachers' Gazette* (*Uchitel'skaia gazeta*), the central newspaper of the Soviet Education Ministry and the Teachers' Union, printed an explicitly pacifist poem, entitled "We Shall Play War No More." According to *Teachers' Gazette*, the poem was written in the Daghestan language by Medzhid Medzhidov, a poet-teacher from the Moslem republic in Transcaucasus, and translated into Russian specifically for publication in the teachers' newspaper.

The following is our free translation of the Russian version of the poem:

Please, kids don't play war.
 My grandpa never came home from war!
 Enough steeling yourself in battles.
 Enough shooting sticks made into rifles.
 Come on, Aka, get out from the shelter, quick.
 And you, Gamid, get down from the watchtower.
 Throw down your weapon.
 Don't cock your gun.
 My neighbor came home from war with both his
 legs gone.
 Old Aina is crying and crying.
 War took away her only son.
 We shall play soldiers no more.

We shall not kill each other or take each other
 prisoners of war.
 Let's throw all the weapons from the mountain-
 top down into the abyss
 So that such games will forever cease to exist.
 Let's break all the cannons, till the last one is gone.
 Let's make war forever be gone.
 Please, kids, don't play war.
 My grandpa never came home from war!

That the poem was translated into Russian and widely distributed in an official Soviet organ, in this case a newspaper targeted at teachers and educators at all levels, is both astonishing and unique. For in essence, the poem goes beyond appealing for an end to war games and hero worship, on which the entire Soviet military-patriotic indoctrination system is predicated, to call for private citizen actions to restrain the militarization of Soviet society and curtail Soviet war-fighting capabilities. As such, the poem cannot but be construed as an overt, direct challenge to the Soviet national ethos by the very institution constitutionally charged, in party and state decrees, with the responsibility for implementation of military-patriotic instruction and indoctrination of Soviet youth from kindergarten through the universities.

It should be noted at the outset that all the Soviet media are subjected to an elaborate, multifaceted, and tight network of censorship and control. Specifically, a poem of this sort should have been authorized for translation into Russian and publication by any Soviet newspaper only with the express permission of high-level officials. Since there can hardly be a mistake as to the actual nature of the poem and, hence, a simple error in judgment must presumably be excluded, one has to conclude that the publication was deliberate and that the poem reflects the perceptions of a significant undercurrent in the populace that the educational establishment desires to support.

The Soviet military, as an institution with a primary vested interest in the continuous militarization of society and effective patriotic indoctrination of future inductees, obviously felt threatened by the publication of the poem and

the pacifist sentiments it reflected. The ensuing reaction was most unusual in the Soviet context: utilization of the daily organ of the Soviet Ministry of Defense *Red Star* (*Krasnaia zvezda*) to challenge its institutional opponent's mouthpiece, i.e., *Teachers' Gazette*, and reassert its own position.

The military's first indignant response to the poem's publication was fired by *Red Star* on 13 February 1983. In an article signed by Colonel A. Khorev, the military charged angrily that the poem "is not a mere poem, but an invocation: children, don't play war and that's that! And the only argument advanced in support of this idea consists of the fact that many soldiers did not return from the last war." Censuring *Teachers' Gazette* for printing the poem and thereby causing "harm to the cause of military-patriotic education," Khorev asserted that such "incitement to a pacifist concord" is impermissible, particularly "today, when the imperialists are so brazenly brandishing nuclear-missile weapons." Taking its wrath one step further, the military urged the banning of future publications by the offending poet.

Curiously, *Red Star* reprinted five of the original stanzas of the poem "lest the reader think that the matter pertains only to a few unfortunate lines." In truth, Colonel Khorev deleted some of the most explicit pacifist imagery, including the references to the weeping mother and lost son, the neighbor who returned without legs, and the appeal to "throw down the rifle," crawl out of the shelter, and abandon "the watchtower." Nonetheless, Medzhidov's antimilitarist message was brought to the attention of millions of rank-and-file soldiers and officers who do not read *Teachers' Gazette* but do read *Red Star*.

While the poem's key message is universal in its thrust, the poet's nationality and, consequently, the poem's setting in a Moslem milieu (e.g., the Moslem names of the combatants on both sides) are highly significant. For one, at least in the initial stages of the war in Afghanistan, the lion's share of the Soviet contingent sent to fight there was comprised of draftees from the

U.S.S.R.'s Moslem republics. The resultant anti-war sentiments were, presumably, superimposed on and fueled by inherent local nationalism and endemic opposition to the official Russification policy. In this context, the author's appeal to Moslems on both sides—Soviet and Afghan—to cease combat and fraternize on a pan-Islamic basis acquires a whole new dimension.

While these ramifications go far to explain the military's indignation, the clear echoes of the combat in Afghanistan—obvious to the average Soviet reader, who is attuned to and skilled in reading between the lines of the centrally controlled Soviet publications—make the military's decision to reprint even a part of the poem all the more puzzling. For with some 100,000 Soviet troops bogged down in Afghanistan for the third year now and with no end in sight, the message is sure to strike close to home to all Soviet citizens regardless of nationality.

To wit, the military followed up its initial censure, publishing on 27 February 1983 what was purported to be "a mother's response" to the Medzhidov poem and the military daily's censure. The woman, G. Voronina, professed "wholehearted support" for Khorev's criticism on the premise that "the time is not yet ripe for our children to abandon war games." Emphasizing the positive and active role of parents in "bringing up a citizen and a patriot," Voronina offered as an example her own son's progress from a toddler who dreamed of becoming a soldier and demanded military toys even before he was able to pronounce the words *weapon* and *missile* to a proud cadet in a military academy. By way of conclusion, she contended:

Let our children understand from their earliest years, even before an ABC book is placed in their hands, that they have to be their great and peaceloving Motherland's defenders. Let them be made ready not only for labor, but also for defense. Let games help them be like Chapaev and Budennyi. . . .

On 30 April 1983, a *Red Star* editorial statement recounted once again the entire issue and reiterated Khorev's initial censure. The newspaper also printed some of the alleged "numer-

ous readers' reactions" sent to its editorial board following the 13 February article. According to *Red Star's* editors, those readers "expressed bewilderment that such pacifist doggerel could have appeared in such a respected and popular newspaper [as *Teachers' Gazette*]." It was with obvious satisfaction that *Red Star* took note of the deletion of the offending poem from Medzhidov's "just published book *Funny City*."

Red Star was considerably less pleased with the reaction of *Teachers' Gazette* editors. According to *Red Star's* report, *Teachers' Gazette* made do with an internal letter addressed to the military daily and signed by a relatively low-level functionary, which vaguely promised "to be more exacting" in the future selection of poems to be published on military-patriotic themes. Showing their displeasure, *Red Star's* editors characterized the response as "insufficient and unsatisfactory" and advised that "*Teachers' Gazette* should give its blunder a correct evaluation on its own pages so that none of its readers would take [the poet's] appeal seriously or be misled as to the poem's 'merits.' "

As of mid-November 1983, *Teachers' Gazette* had studiously ignored *Red Star's* attacks. Despite the diatribes, *Teachers' Gazette* has published no readers' critiques and printed no official retractions. For the time being, it would appear that the educational establishment intends to stand its ground.

The Larger Problem of Soviet Pacifism

While this exchange between *Red Star* and *Teachers' Gazette* is unprecedented in its nature and institutional ramifications, it was preceded by and should be viewed against the background of recent warning by the military's top leadership as to the "danger of pacifist sentiments" among the Soviet populace.

Central in this regard are the repeated public attacks on declining military-patriotic fervor among Soviet youth by the Soviet Chief of the General Staff, Marshal of the Soviet Union

Nikolai Ogarkov. For example, in a major article published in the July 1981 issue of the CPSU's leading political-theoretical journal *Kommunist*, Ogarkov observed that the thinning ranks of Soviet war veterans are being increasingly outweighed by those who "have no personal experience of what war is" and who are "imbued with the idea that peace is the normal state of society." As a result, said Ogarkov, the issues of war and peace are no longer being approached from the class positions of Soviet ideology but from the purely pacifist standpoint that "any kind of peace is good and any kind of war is bad."

To underscore the seriousness of the problem, the Chief of the General Staff reiterated his concerns in a major 1982 monograph, *Always in Readiness to Defend the Motherland*, published by the Ministry of Defense publishing house *Voenizdat* and targeted at the Soviet officer corps. Verbatim, Ogarkov stated that for the postwar Soviet generation "peace is the normal state of society." As a consequence, he continued, Soviet peoples "do not sense and thus underestimate the danger of war, which has not ceased to be a grim reality of our day."

Furthermore, Ogarkov called on all party and civilian organizations to "convey to Soviet people, in a more profound and better reasoned form, the truth about the existing threat of the danger of war." Most pointedly, the Chief of the General Staff charged these organizations to "struggle against . . . the complacency, tranquility, and elements of pacifism" emerging in Soviet society. In support of Ogarkov's concern, on 30 November 1981 the major party newspaper *Pravda* mandated that the Soviet media undertake efforts to "resolutely get rid of the touches of pacifism that sometimes emerge in certain information and propaganda materials."

Subsequent pronouncements by officers directly responsible for military-patriotic indoctrination targeted "residual religiosity" among the supposedly atheistic Soviet population and U.S. "propaganda diversion" as responsible for the overall erosion in the official value system.

Thus, for example, writing in a February 1982 issue of *Agitator Armii i Flota* (*Agitator of the Army and Navy*), a political-indoctrinational journal for the rank-and-file servicemen, Major General N. Gusev vehemently attacked American propaganda for "attempting to foster ideas of nihilism, indifference to politics, nationalism and money grubbing," so as to "prevent the man wearing the uniform of a Red soldier from being totally devoted to communism."

Similarly, Major General Paiusov wrote in the March 1982 issue of *Kommunist Vooruzhenykh Sil* (*Communist of the Armed Forces*), the organ of the Armed Forces' Main Political Administration, the Party's watchdog agency in the military:

Overcoming the harmful influence of religious prejudices on the formation of moral-political and volitional qualities of Soviet troops demands special attention. Here we are speaking first of all about the struggle with ideas of abstract pacifism and religious "humanism," and unnatural "love" for one's enemies, "non-resistance to evil," the anti-patriotic spirit of sermons about the "heavenly fatherland," the sinfulness of service in the Armed Forces and so forth, which interfere with the youth's ability to conscientiously carry out its duty of defending the socialist Fatherland.

On another level, the well-known Soviet novelist Anatolii Marchenko, writing in the government daily *Izvestiia* on 28 January 1982, singled out negative attitudes of adults toward patriotism and military service and their detrimental impact on induction-age youth as the source of trouble. Specifically, according to the author, parental apathy toward international tensions and infatuation with "material trappings of well being" are initiated by the younger generation, resulting in a joint perception of military service as an unnecessary hardship and a "waste" of time.

Today's philistine, who, with zeal worthy of a better cause, instills in his over-grown child the rotten and thoroughly harmful idea that "the years of army service are wasted years," is neither illiterate nor naive. He listens to the radio, turns on the television, and, it must be supposed, looks at newspapers, if only at the headlines. He is informed

about events on the planet. But what does he care about the planet or the country's fate. He yawns idly on hearing disturbing reports from some part of the globe far from his own apartment. He wants for his offspring the same quiet life, verging on indifference toward society's concerns, joys, and sorrows. Heaven forbid that this offspring should cough once more than necessary, tense his already puny muscles, or expend a nerve cell!

Party and Military Countermeasures

Not content with merely calling attention to the mounting problem, party and military leaders have undertaken positive steps to remobilize the population and rejuvenate the indoctrination forces. To this end, stimulation of military-patriotic fervor has been the central theme of several media campaigns as well as major conferences, such as the All-Union Lecturers' Seminar of January 1982, the All-Union Conference of Primary Party Organization Secretaries of May 1982, the Nineteenth Komsomol Congress of May 1982, the Conference of Ideological Workers of the Army and Navy of October 1982, the Tallin All-Union Scientific-Practical Conference of October 1982, etc.

Throughout recent efforts Soviet spokesmen have asserted that, in addition to love for one's own country, Soviet-style "patriotism" requires "hatred for the enemy." In essence, it is said that one cannot truly love the Soviet homeland without hating the United States. For example, *Komsomol'skaia pravda* of 18 May 1982 reported the following statement by Komsomol First Secretary B. Pastukhov at the youth organization's Nineteenth Congress:

Education of patriotism is the education of a courageous soldier and defender of the Fatherland, one who is ruthless to its enemies. In the modern world, love for the socialist Fatherland is impossible without class hatred.

Even more explicitly, an officers' indoctrination article, published in a May 1982 issue of *Communist of the Armed Forces*, directed that "imperialism, headed by the United States," must be the target of "class hatred." The article

outlined five reasons why Soviet citizens and soldiers should "hate" the Western "enemy."

- We hate imperialism because it is the culprit of all wars of our era, including the two world wars. In World War II alone, more than 50 million people died, including 20 million Soviets—our grandfathers, fathers, mothers, older brothers, relatives, and loved ones.

- We hate imperialism because it is preparing a new world nuclear missile war, in the fire of which could be destroyed the great creations of human reason, and human civilization could perish.

- We hate imperialism because it dooms millions of people all over the world to hunger, suffering, and degradation and grows fabulously wealthy by the pitiless exploitation of the broad popular masses.

- We are irreconcilable to imperialism because it is a bulwark of aggression and violence, and the chief barrier on the path of the historically inevitable movement of mankind to the triumph of freedom, peace, and democracy. A vehement enemy of socialism, it increasingly attempts to undermine the bases of the new system, to deprive the peoples of the socialist countries their greatest achievements.

- We hate imperialism because bourgeois ideology morally cripples millions of people, preaches greed, chauvinism, and nationalism, and monstrously distorts our ideals and causes.

We hate it because it is a break to social progress and the enemy of the world's peoples.

While "love for the Soviet Fatherland" has always been a staple of Soviet military-patriotic indoctrination, the "hate imperialism" aspect was considerably played down during the so-called détente period of the 1970s. Doubtless, its current emphasis is partially due to the worsening East-West climate of the 1980s. Yet it is also clear that the scope and vehemence of the campaign reflects the Soviet leadership's real concern with a festering domestic problem.

IT IS TOO EARLY to project the concrete scope of the emerging pacifist sentiment or predict its probable impact on Soviet war-fighting capabilities. Only the depth of the leadership's current concern to counteract the problem is obvious. Despite this fact, there have been no indications that the indoctrination apparatus has adopted any substantive changes, which might improve its effectiveness in military-patriotic propaganda. Moreover, since the leadership is demonstrating no inclination to cease either its anti-Western "peace offensive" or its Afghanistan involvement, the two main factors fueling the problem are continuing unabated. At most, it is clear that without major changes, the potential for a significant internal challenge to the leadership's prevailing policies and military efficiency looms in the Soviet future.

Bethesda, Maryland

R air force review

AMERICA FACES THE ATOMIC AGE: 1946

DR. LLOYD J. GRAYBAR
RUTH FLINT GRAYBAR

IN JULY 1946, two atomic bombs of the Nagasaki type were tested at Bikini Atoll in the Pacific in a widely publicized military exercise known as Operation Crossroads. Representatives of the broadcast and print media were invited to attend. For all except William Laurence of the *New York Times*, this would be the first chance to witness an atomic explosion. Under the circumstances, ballyhoo was inevitable (one million words were sent back about the

first test) and belied the solemnity of the event. The first of the two bombs to be used in the two separate tests—an air drop on 1 July and an underwater explosion on the twenty-fifth—was adorned with a picture of Rita Hayworth; the filming of *Rendezvous 24*, a so-called atomic-bomb drama featuring a typically buxom Hollywood starlet, had been announced some weeks before; at least one baby (Atomic Victory Trotter) and dozens of horses were named for the atom:



Atom Buster, Cosmic Bomb, Sir Atom, to name a few. A French political cartoonist displayed considerable insight into the American penchant for hoopla when, shortly after the initial test, he drew a cartoon that depicted the heroes of Bikini—some pigs that had been among the numerous test animals studied there—receiving a ticker-tape parade on Broadway after their imagined return from the Marshall Islands test site.¹

However, the Bikini pigs were soon found to have radiation sickness, additional victims of the way of death unique to the atomic age. Many observers began to recognize that Bikini was not an occasion for levity, and much serious discussion took place about the tests among the American people and in the media. As a new phenomenon—one for which history offered no precedent—there was a wide variety of opinion about the tests and the A-bomb itself. This article, examining both polls and journalistic impressions, will discuss the spectrum of this opinion.

These tests were not the only news of 1946 that centered on the nuclear question. Two related issues were being considered. One, which would take nearly a year to resolve, involved discussions being held in Congress about the domestic control of atomic energy. The Manhattan Engineer District, which had directed wartime nuclear development, would be terminated, its functions to be taken over by a new body. Two bills outlining the nature and duties of this agency had been introduced: the May-Johnson bill in September 1945 and the McMahan bill two months later.²

The second issue was the presentation in June 1946 of an American plan to the United Nations to establish international controls on atomic energy. Named the Baruch Plan after the chief U.S. negotiator Bernard Baruch, the plan called for the establishment of a United Nations commission that would have the right to conduct inspections of nuclear facilities throughout the world. Discussions continued throughout the remainder of 1946, with various proposals and counterproposals made by the United States, by

the Soviet Union, and, on occasion, by other members of the U.N. Atomic Energy Commission. In particular, two measures dear to Mr. Baruch seemed to create controversy: waiver of the Security Council veto on questions having to do with violations of any forthcoming nuclear treaty and open inspection of the raw materials necessary for nuclear development.³

In the midst of these ongoing matters, atomic bomb tests were scheduled to take place at Bikini. The decision to hold the tests had been made late in 1945, following the announcement of rival Army Air Forces and Navy plans to conduct nuclear weapon tests on warships. The AAF proposed using only surviving Japanese warships as targets; the Navy's plan was broader and included both German and Japanese vessels but also an unspecified number (eventually almost six dozen) of U.S. ships of various types from battleship and aircraft carrier to submarine and landing craft. With some adjustments that took into account both air and ground force requirements and the recommendations of civilian consultants, the tests would be conducted as a joint exercise along lines envisioned by the Navy to be under the command of Vice Admiral William Henry Purnell Blandy, the U.S. Navy's ranking expert on the development of missiles and nuclear weapons.⁴

Originally slated for May 1946, the planned tests were criticized by several members of Congress (most conspicuously, Senators James Huffman and Scott Lucas and Representatives Jerry Voorhis and Helen Gahagan Douglas, all Democrats). The Federation of American Scientists, an organization with chapters in major universities and nuclear research centers, was also active in criticizing the upcoming tests and in mobilizing opposition to them. Both groups raised the question: could the tests be construed as a crude flexing of America's nuclear muscle to the detriment of already tense Soviet-American relations?⁵

To many opponents of the atomic tests, it seemed obvious that there was a high probability that the tests would indeed jeopardize U.S.-Soviet relations in the United Nations and else-

where and would prejudice chances for enactment of the McMahon bill whose backers were striving to ensure civilian control of America's atomic energy development. But how did the American public view these issues? In particular, how did the public perceive the power of the bomb in this first postwar year, and was there any widespread awareness that the atomic testing program seemed to work at cross-purposes with the other two nuclear questions, both of which implied restrictions on the development of atomic energy for military purposes.⁶

Some insight into these matters can be gained from polling data. On 13 February, the American Institute of Public Opinion (the Gallup Poll) released the results of two polls dealing with the forthcoming tests. One asked whether representatives of other nations should be allowed to observe the tests. The second inquired whether reports of the tests should be given to other nations. In both polls nearly two-thirds of the respondents answered negatively. Keeping what was naïvely thought of as the atomic secret was obviously the desire of these people. Only the college-educated seemed to have substantial doubts about the wisdom of keeping the secret, perhaps because, as an earlier survey had indicated, they thought it could not be kept for as long as five years, the time experts regarded as the maximum for the maintenance of America's nuclear monopoly.⁷

While Americans wanted to keep the secret, they also (some 70 percent) wished to see the United Nations prohibit the production of atomic bombs, according to the National Opinion Research Center. The large majority of that group also expressed a willingness for the United States to destroy the bombs already in its possession—if and when the United Nations found a way to stop the manufacture of A-bombs. Most Americans also seemed willing to have international inspection teams check on the observance of any forthcoming U.N. nuclear regulations, but only a small plurality (39 percent to 33 percent) of those who favored inspection were willing to see the secret jeopardized during the

inspection process. Few would have given the secret to the United Nations.⁸

These polls indicate two things: that in a general way Americans were favorable to international controls on atomic energy as a weapon but that they wished to preserve the atomic secret, an indication that many regarded the A-bomb as something extraordinary. If anyone had to have the A-bomb, it should continue to be the United States. However, advocates of both views would very likely have said that their position was the best way to preserve peace. "Those who want the secret kept are more likely to feel the existence of the bomb may tend to avert war," concluded University of Michigan opinion analysts. "Those who favor turning it over to the U.N. are more likely to feel that it has made peace harder to keep."⁹ Since the Truman administration was trying to work through the United Nations to control the atom but also was continuing to keep the bomb in its arsenal, as the plans for Operation Crossroads testified, it is not surprising that Americans were uncertain which of these courses their government was pursuing: 35 percent indicated belief that the United States was trying to work through the United Nations to promote peace; 34 percent felt that we were trying to keep ahead in developing the bomb; 18 percent said both; and 13 percent simply admitted indecision.¹⁰

The media as well as the pollsters often turned to the nuclear theme throughout 1946. Of the major stories that dealt with atomic matters, the Bikini tests were the single biggest attention getter. In the days immediately following the tests, Bikini attracted more than 20 percent of the front-page newspaper space and more than 5 percent of the editorial space.¹¹ The government itself recognized the importance of the story, doing its best to facilitate coverage of the two tests by providing a separate press ship and designating its own public information officer, Navy Captain Fitzhugh Lee.¹²

The actual tests, although the most dramatic phase of the Bikini operation, were by no means the only aspect to draw extensive coverage. Preparations for the tests continued for several months

and also received attention, much of it unfortunately overblown (such as one article that compared Admiral Blandy to Buck Rogers of science fiction fame). Other analysts were more restrained. A few endeavored to assess Crossroads in its interrelationships with the two other major developments in the nuclear field—the congressional debates and maneuverings that resulted in the Atomic Energy Act of 1946 and the U.N. discussions that ultimately failed to provide international control of atomic energy. The apparent connection between the Bikini tests and the McMahon bill came up in February 1946 when President Harry Truman named a civilian review board to report to him about the results of the tests. Many observers saw the link between this and the ongoing debate over establishing civilian control of atomic energy. “The President’s decision to set up a civilian review board as a ‘Supreme Court’ on final evaluation of the forthcoming tests of the atomic bomb against naval vessels has sharpened the issue raised by the War and Navy Departments on the terms of the bill to control and develop atomic energy, sponsored by Senator Brien McMahon of Connecticut,” argued Arthur Krock in the *New York Times*. “To the Army and Navy the President’s latest decision is a step farther in that direction.”¹³

The following month Truman decided to postpone the first of the tests from 15 May until 1 July, a date Blandy regarded as the last satisfactory one for holding the initial test. As it was, postponement was something of a gamble because weather conditions in the Marshall Islands were more variable in July; clear skies and predictable wind patterns were essential for the air drop, or Able test.¹⁴

The reason for postponement of the tests was to allow the more than 50 members of Congress who had been invited to witness the tests the time to stay in Washington to attend to needed legislative business dealing with labor matters and appropriations. However, the chance to announce a postponement, or cancellation, could have had a beneficial impact on the tense international situation. Critics of the tests certainly felt so. An

important Big Four foreign ministers meeting to discuss peace treaties for Nazi Germany’s European allies was scheduled to convene in Paris in May, and postponing the tests (the later the better, argued Secretary of State James F. Byrnes at a Cabinet meeting) might well improve the atmosphere at the beginning of the talks. Byrnes would have preferred canceling the tests, for he feared that holding them would make the United States seem like an “atomic dictator.” The Navy and War departments demurred. Secretary of the Navy James Forrestal was one of the earliest advocates of the tests, and while grudgingly acquiescing in postponement, he did not wish to see them called off.¹⁵

Opinion was fairly closely divided about postponing the exercise. Polls revealed that there was much uncertainty about this question and, surprisingly, just a small plurality in favor of holding the tests. Major elements of the population, including women and those more than fifty years old, held no objection to cancellation. The college-educated, on the other hand, wanted to see Operation Crossroads conducted, at first glance a puzzling statistic to those who would expect the educated to be more liberal and more likely to question the uses of nuclear power. Although J. Robert Oppenheimer and several other outstanding atomic scientists argued that laboratory data could provide all the information the Navy would need about the A-bomb’s effects on ships, the likeliest explanation is that the college educated simply viewed the tests—the experimental method—as a necessary way of obtaining data about the A-bomb’s effect on the Navy. Some also might have had a pessimistic reading of the international situation in mind. For example, several newspapers questioned the postponement, fearing that it might lead to a decision to call off the test program altogether. The reasoning of syndicated columnist Ernest Lindley suggests why. Lindley took alarm from the fact that several congressmen opposed holding the tests at any time. “The advocates of cancelling the tests,” insisted Lindley, “seem to be walking along the trail which nearly led us to disaster after the First

World War.” Perhaps because they reasoned this way themselves or accepted the military necessity of Operation Crossroads, World War II veterans overwhelmingly favored proceeding with the tests.¹⁶

The postponement notwithstanding, preparations for the first test went ahead throughout the spring of 1946. Vessels congregated at Pearl Harbor and other major naval installations to have war damage repaired, watertight integrity checked and restored where necessary, and instrumentation installed that would measure blast pressure, heat, radioactivity, and other phenomena of a nuclear explosion. The ships then sailed to the large lagoon of Bikini Atoll where final inspections were made and the vessels were arranged in a carefully determined anchorage. As naval spokesmen stressed, the test ships were spaced so that graded damage from maximum to slight would be obtained.¹⁷

The first of the two tests was held on 1 July, the high-flying B-29 *Dave's Dream* dropping an A-bomb of the Nagasaki type. The battleship *Nevada*, a Pearl Harbor veteran, was to be the target ship, but the bomb missed by a substantial distance, several hundred feet according to press releases but in actuality by nearly a half-mile. Although one correspondent recalls hearing that the bomb had the “ballistic characteristics of a garbage can,” senior AAF officers were surprised at the magnitude of the error, given the high quality of the bombing crew and the intensive training they had undertaken. At any event, no reason for the error was ascertained. While much of the hoped-for data could still be gathered from the array of instruments once the place of detonation was pinpointed, only five ships were sunk. Although a participant whose ship proceeded through the target array a few days after recalled that the voyage was like a “nautical trip through Hades,” initial media impressions of the test showed disappointment. One radio broadcaster, heard on a nationwide hookup, quickly noted in apparent surprise that Bikini itself was still there as were the palm trees that fringed the lagoon. Many witnesses shared his surprise. Admiral

John Hoover, a member of the Joint Chiefs evaluation board, believed that the bomb had not gone off as planned. Admiral William Parsons, the weaponeer on the Hiroshima bombing mission, felt that the Able-day bomb was less powerful than either the Hiroshima or Nagasaki A-bombs. A reporter compared the sound of the nuclear explosion to that of a “discreet belch” emanating from the far end of a bar. Radio listeners were also disappointed. One Bostonian observed of the test: “There were more explosions in that first [Red Sox] game at Fenway yesterday!” A “dud-by-dud” description, complained another Bostonian, his mind also on baseball.¹⁸

In a more ominous vein, the *Chicago Tribune* observed editorially that the test demonstrated that the perils of the atomic bomb had been exaggerated by internationalists hoping to see the bomb outlawed. “The danger now,” worried the *Baltimore Sun*, “is not that the experiment will be construed by other nations as an intolerable act of provocation, but that it will cause a ‘great sigh of relief’ both here and abroad.” Taking his cue from the atomic scientists, broadcaster Raymond Gram Swing had predicted much the same months before.¹⁹

Soon, however, more sober reports began to be noted, especially about the mounting incidence of radioactivity. Many reporters began to file stories that stressed the awesome force of the bomb, apparently in an effort to counteract the misleading impression that the first of the Bikini bombs was not that devastating and that the development of the A-bomb was to TNT as TNT had been to gunpowder, the conclusion that one witness feared would be drawn. Whether the motive of these writers was to counteract a publicity letdown, as the publication *Twohey's Analysis of Newspaper Opinion* suggests, is not clear. Some reporters, at least, seem to have been motivated by a desire to rebut the disconcerting flippancy of such comments as “the next war's not going to be so bad after all.” For example, Anne O'Hare McCormick, writing in the *New York Times*, declared:

In peacetime the atom bomb is more reverberant than it was as the final thunderbolt of war as a warning that war has found a way to end mankind before mankind has found a way to end war. Perhaps the chief usefulness of the macabre thriller on the atoll, which seems as unreal as it seems ill-timed, is to compel attention and give reality to the great debate in the United Nations on the control of atomic energy.²⁰

The second test—a subsurface one—was scheduled for 25 July. In this test the bomb was to be suspended several dozen feet beneath the ocean's surface. Although fewer reporters were on hand for this test, Bikini still rated more newspaper space than most stories of the day, which included the developing cold war and, on the domestic scene, demobilization, inflation, and strikes.²¹

Those observers who remained seem to have been much more impressed with this test—"At first we thought that Baker had 'shot the works,'" exclaimed one excited onlooker—partly because several capital ships were sunk and partly because the lethal effects of the radioactive spray that had cascaded upon the ships were soon evident. Weeks later the Navy could still refer to many of the surviving ships as "radioactive stoves." It was now argued that the sum result of the two tests demonstrated that war could no longer be considered a legitimate instrument of national policy.²²

Other journalists, however, persisted in believing that the much-heralded tests had been disappointing and felt that the public reaction to the atomic bomb now seemed to be one of apathy. William Laurence, the highly respected science reporter of the *New York Times*, declared that the average American "had expected one bomb to sink the entire Bikini fleet, kill all the animals aboard, make a hole in the bottom of the ocean, and create tidal waves that would be felt for thousands of miles." Since nothing of the sort had happened, he feared that the bomb had become just another weapon to the American people. Laurence was not alone in this belief. "It was hoped in some places," argued the *Los Angeles Times*, "that the Bikini tests would clear heads [of bomb happiness], like a strong whiff of

smelling salts. But they didn't." The *Nation* lamented that this indeed seemed to be the case, while Norman Cousins, in the *Saturday Review*, said, "Then you realize that the atomic bomb is no longer a novelty on the face of the earth, no longer a phenomenon. After four bombs, the mystery dissolves into a pattern. By this time there is almost a standardization of catastrophe."²³

Despite such forebodings (the *New Republic* to the contrary considered the atom bomb obsolete and was more worried about the use of poison gas against population centers since it did not destroy property), it is not at all clear that the Bikini tests had the consequences thoughtful journalists feared. For instance, while some might be inclined to discount the American Legion's declaration that the atomic secret should be kept, many others shared this belief. The University of Michigan Survey Research Center conducted pretest and post-test studies, asking whether the discovery of the A-bomb had made it easier to keep peace in the world and whether people were worried about the bomb. More people answered "yes" in the follow-up poll. Those who thought the United States should keep the secret actually increased after Operation Crossroads, seemingly believing, as the *Arizona Republic* stated, that the bomb was America's "ace in the hole." Therefore, considerable respect seems to have remained for the atomic bomb.²⁴

After the Bikini tests were over, the other two issues that kept nuclear energy at the forefront of the news in 1946 still had to be resolved; one soon was. The McMahon bill was enacted a day after the Baker test, and the members of the new Atomic Energy Commission were appointed in October. The law provided that no military men would serve on the commission, so in principle civilian primacy in nuclear affairs was established. Nevertheless, military participation was provided for by means of a liaison and review board, and, as we all know, civilian control did not mean that the military applications of atomic energy would be denied.²⁵

Negotiations at the United Nations continued for months. In December, hopes were raised that

an agreement might be forthcoming, but they were soon dashed. Baruch resigned as chief U.S. negotiator in January 1947, by which time the talks were at an impasse. Long before, several commentators had raised the question whether the Bikini spectacle might prejudice the success of the U.N. negotiations. I. F. Stone argued in the *Nation* that Bikini had damaged international amity by showing that "the atom bomb is part of our active war equipment and an integral part of our future military strategy." Freda Kirchwey and former Vice President Henry Wallace made similar observations as did broadcasters Raymond Gram Swing and Alexander Gabriel.²⁶ Speaking over the radio from Bikini, writer Norman Cousins said:

The real issue (at Bikini) is not whether an atomic bomb can sink a battleship, but whether the peoples of the world can prevent an atomic war. And so we have today two contrasting acts in the biggest drama of all time In a way these two acts seem to symbolize the choice before us. If we go one way, the way of the American (U.N.) proposals, we make a good beginning in the struggle for world law But if we go the other way it means that sooner or later other nations are going to have their own Bikinis.²⁷

Whether Operation Crossroads itself made the difference these critics suggested is doubtful, given the flaws of the Baruch plan and the apparent Soviet determination to develop their own nuclear arsenal.²⁸ Certainly the two highly publicized nuclear explosions made a poor backdrop for the resolution of international differences and for talks aimed at demilitarizing atomic energy. But some, like Anne O'Hare McCormick, could argue the opposite: that by reminding the world of the horrors of nuclear war, the tests would hasten the acceptance of controls. This was a theory the *Washington Post* had advanced as early as January 1946. Nevertheless, the United States and the Soviet Union were drawing farther apart, separated by ideology and by divergent interests in several areas of the world: Central Europe, the eastern Mediterranean, and the Far East. After all, perhaps the only area of agreement in both the American and

Soviet U.N. proposals was the one noted by pacifist A. J. Muste, an advocate of destroying America's nuclear stockpile. Both say to the other, he wrote, "I cannot trust you and will not take any risks, but I ask you to trust me and take the risks involved."²⁹

The nuclear issue was just one of several matters disputed by the United States and the Soviet Union. Like many other issues of the emerging cold war, it was one with which Americans were ill-prepared to deal on an intellectual level. As historian Ralph Levering has ably demonstrated, American wartime friendship for the Soviet Union did not have deep roots, and it quickly yielded to feelings of confusion and distrust. Both American leaders and the American people confronted postwar questions with uncertainty, and as the Survey Research Center concluded, thinking about the A-bomb was only imperfectly integrated into thinking about world affairs in general.³⁰

AMERICANS seemed to have moved far more swiftly toward acceptance of an internationalist stand than anyone could have anticipated at the beginning of 1946, but on the subject of the atomic bomb they remained of a divided mind. At the start of the year, Colonel Robert McCormick of the *Chicago Tribune* argued that the solution to the nuclear question was for the United States to have more and bigger atomic bombs than anyone else. There were undoubtedly others, many less conspicuously placed than McCormick, who shared this view. Nevertheless, most Americans—even so fervent an anti-Communist as Hearst columnist George Sokolsky—were prepared to pay at least lip service to the need to control this awesome weapon. Until such controls could be established on ironclad terms, they were, however, unwilling to see it dropped from the American arsenal or to see the so-called secret shared. For regardless of its merits, the fear of unilateral disarmament that worried Ernest Lindley was bound to be of concern to others. A study by sociologists Janet Besse and Harold Lasswell of

a dozen syndicated columnists reveals great uncertainty about the appropriate means of dealing with the A-bomb. The columnists, these scholars argue, were "as serious, confused, and groping as any other group of citizens."³¹ Operation Crossroads was undoubtedly of importance to the armed services, especially to the Navy in helping to establish that ships, properly equipped, could survive nuclear attack,³² but the Bikini Atoll tests were even more significant for the extended discussion they generated on the meaning of the atom bomb.³³ While this debate did not lead to the formulation of any imaginative new plans to check the development of nuclear weapons, it did show something of the profound hopes and fears, cynicism and naiveté, with which Americans confronted the nuclear era.³⁴

Much has changed since 1946: the proliferation and the magnitude of the weapons involved, the multiplication of delivery systems, the much more sophisticated insight into the hazards of radiation, most of all the fact that the United States has long since ceased to have a nuclear monopoly. Yet the debate occasioned by Operation Crossroads is instructive, for it makes clear that the questions that now trouble concerned Americans had their advent at the beginning of the atomic age.

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Notes

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3. Barton J. Bernstein, "The Quest for Security: American Foreign Policy and International Control of Atomic Energy, 1942-1946," *Journal of American History*, March 1974, pp. 1003-44; Michael Mandelbaum, *The Nuclear Question: The United States and Nuclear Weapons, 1946-1976* (Cambridge, England, and New York: Cambridge University Press, 1979), pp. 23-41.

4. Vincent Davis, *Postwar Defense Policy and the U.S. Navy, 1943-1946* (Chapel Hill: University of North Carolina Press, 1962), pp. 40-44, 255-59; Shurcliff, pp. 10-12.

5. *Congressional Record*, 79th Congress, 2d Session, pp. 624, 2127-28, 2790-92, 4023-24; Nelson, "Case Study of a Pressure Group," pp. 86-88; Alice Kimball Smith, *A Peril and a Hope: The Scientists' Movement in America, 1945-1947* (Chicago and London: University of Chicago Press, 1965), pp. 357-60; John Lewis Gaddis, *The United States and the Origins of the Cold War: 1941-1947* (New York and London: Columbia University Press, 1972), pp. 282-315. Many cler-

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8. Cantril and Strunk, p. 24.

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10. *Ibid.*

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14. Bernstein, "Quest for Security," p. 1038; Gregg Herken, *The Winning Weapon: The Atomic Bomb in the Cold War, 1945-1950* (New York: Knopf, 1980), pp. 175-76; Memorandum for President Truman from Forrestal, Forrestal Diaries, March 21, 1946, p. 942, Mudd Library, Princeton University; Patterson and Forrestal to Truman, April 6, 1946, Papers of Harry Truman, Official File, Truman Library; *Washington Post*, March 24, 1946, p. 1; "Weather and the Atomic Bomb Test at Bikini," *Bulletin of the American Meteorological Society*, May 1946, pp. 247-48.

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16. Cantril and Strunk, p. 24; Twohey Associates, *Newspaper Opinion*, March 30, p. 5, April 6, 1946, p. 5, April 20, p. 7, June 1, p. 5; Department of State, "Daily Summary of Opinion Development," March 25, 1946, p. 2, March 26, p. 2, Record Group 59, General Records of the Department of State, Box 11, National Archives Building; Lindley in *Atlanta Constitution*, April 4, 1946, p. 9; *Chicago Tribune*, March 25, p. 2; *San Francisco Examiner*, March 23, p. 1, March 24, p. 1; transcript of radio broadcast, March 25, 1946, Box 29, Papers of Raymond Gram Swing, Library of Congress.

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19. *Chicago Tribune*, July 3, 1946, p. 12; *Baltimore Sun* paraphrased in Department of State, "Daily Summary of Opinion Developments," July 2, 1946, General Records, Box 11; transcript of broadcast, February 1, 1946, Swing Papers, Box 29.

20. Unnamed newspaperman quoted in Lawrence Wittner, *Rebels against War: The American Peace Movement, 1941-1960* (New York and London: Columbia University Press, 1969), p. 167; Twohey Associates, *Newspaper Opinion*, July 6, p. 4; McCormick in *New York Times*, July 1, p. 30, July 2, p. 18; *Washington Post*, July 2, p. 8;

Louisville Courier-Journal, July 2, p. 6; *Los Angeles Times*, July 4, I, p. 1; *Arizona Republic*, city edition, July 7, p. 12; "A for Able," *Commonweal*, July 26, 1946, pp. 348-49.

21. Twohey Associates, *Newspaper Opinion*, July 27, p. 7; Shurcliff, pp. 36, 145-72; *Washington Post*, July 5, 1946, p. 3. According to Shurcliff, 75 media representatives were present at this test; 114 had attended Test Able.

22. *Los Angeles Times*, July 26, 1946, II, p. 4; August 6, II, p. 4; Bernet Nover in *Washington Post*, July 27, p. 7; *Nation*, August 17, 1946, p. 170; S. D. Kirkpatrick, "A-Bomb Tests as Viewed by the Editor," *Chemical Engineering*, August 1946, pp. 94-96, 125-26.

23. *New York Times*, August 4, 1946, p. 3; *Nation*, July 6, 1946, p. 2, and August 17, p. 170; *Los Angeles Times*, August 6, II, p. 4; *Arizona Republic*, city edition, August 6, p. 12; *Saturday Review of Literature*, August 10, 1946, pp. 16-18. Prior to the test Norman Cousins had argued, "It may be that we have forgotten too much since Hiroshima. . . ." "The \$200,000,000 Reminder," *Saturday Review of Literature*, June 29, 1946, pp. 20, 37.

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26. John W. Spanier and Joseph L. Noguee, *The Politics of Disarmament: A Study in Soviet-American Gamesmanship* (New York: Praeger, 1962), pp. 52-88; *Nation*, July 6, 1946, p. 2, and September 14, p. 281; Freda Kirchwey, "Roots of Suspicion," *Nation*, August 31, 1946, pp. 228-29; Henry Wallace, "The Path to Peace with Russia," *New Republic*, September 30, 1946, pp. 401-05; Lee DuBridge, "What about the Bikini Tests?" *Bulletin of the Atomic Scientists*, May 15, 1946, pp. 7, 16; DuBridge, letter to the editor, *New York Times*, May 5, 1946, IV, p. 8; *ibid.*, September 22, 1946, II, p. 5; Gaddis, p. 269; transcripts of radio broadcasts, April 5 and June 28, 1946, Swing Papers, Box 30.

27. "General Reaction to the U.S. Plan for Atomic Energy Control: A Survey of Radio Opinion," June 16, 1946, pp. 138-39, Box 64, Papers of Bernard Baruch, Mudd Library, Princeton University.

28. Arnold Kramish, *Atomic Energy in the Soviet Union* (Stanford, California: Stanford University Press, 1959), pp. 77-96. Media hopes for agreement on an atom-control plan plummeted in July of 1946, largely because of Soviet behavior at the United Nations. Distrust of Russia had been increasing sharply even before. Hopes again rose in late 1946 but soon fell. Articulate opinion blamed Russia for the expected failure to reach agreement. See Department of State, "Current American Attitudes toward Russia," June 12, 1946; Department of State, "U.S. Opinion of Russia in World Affairs," January 9, 1947, pp. 2-3; Department of State, "Monthly Survey of American Opinion on International Affairs," March 1947, pp. 5-6, all in General Records, Boxes 11 and 45. Hope, nevertheless, was not lost. See Joseph and Stewart Alsop, *Boston Globe*, January 6, 1947, p. 10.

29. Twohey Associates, *Newspaper Opinion*, June 1, p. 5, July 20, p. 6; M. Rubinstein, "Science and Atomic Policy," *New Times*, March 15, 1946, p. 10, and January 9, 1947, p. 2; *New York Times*, July 4, 1946, pp. 4, 6; Stewart Alsop in *Atlanta Constitution*, July 1, p. 8; *Los Angeles Times*, July 12, II, p. 4; Dorothy Thompson in *Boston Globe*, July 5, p. 10; *Louisville Courier-Journal*, June 19, p. 6; *Washington Post*, January 25, p. 8; Muste, letter to the editor, July 2, p. 8; July 17, p. 8; Lindley, August 3, p. 7; Wittner, p. 169.

30. Walter Lippman in *Minneapolis Morning Tribune*, January 3, 1947, p. 6; Levering, *American Opinion and Russian Alliance*, pp. 207-09; Alonzo L. Hamby, *Beyond the New Deal: Harry S. Truman and American Liberalism* (New York and London: Columbia University Press, 1973), pp. 87-119; Survey Research Center, "American Opinion on the Atomic Bomb," p. 57.

31. Janet Besse and Harold Lasswell, "Our Columnists on the A-Bomb," *World Politics*, October 1950, pp. 72-87; Warren I. Cohen, *The Chinese Connection: Roger S. Greene, Thomas W. Lamont, George E. Sokolsky, and American-East Asian Relations* (New York: Columbia University Press, 1978), pp. 71-90, 286-91; Colonel Robert McCormick in *Chicago Tribune*, January 6, 1946, I, p. 20. For elaboration of the appeasement analogy, see Les K. Adler and Thomas C. Paterson, "Red Fascism: The Merger of Nazi Germany and Soviet Russia in the American Image of Totalitarianism, 1930's-1950's," *American Historical Review*, April 1970, pp. 1046-64.

32. The Bikini tests helped the Navy by demonstrating that fleets had not become obsolete. Prior to the tests, Walter Lippmann had even asked Secretary of the Navy Forrestal, "Will not the Bikini tests, if successful, expose the Navy to an involuntary suicide?" Modifications in ship design also began to be made in light of Bikini data to minimize the disastrous effects of radioactive spray and fallout. Graybar, "Bikini Revisited," pp. 122-23, and Admiral William H. P.

Blandy, "Bikini: Guidepost of the Future," *Sea Power: Magazine of the Navy League of the United States*, December 1946, pp. 7-9. Lippmann's interview with Forrestal may be found in the Forrestal Diaries, June 6, 1946, p. 1097, Princeton University.

33. In addition to the *Bulletin of the Atomic Scientists* and the work by Alice Kimbail Smith already cited, primary source material from the various chapters of the FAS testifies to the extensive controversy the nuclear issues of 1946 engendered. This material is located, ironically, on the approximate site of Fermi's Stagg Field pile, in the collections of the Regenstein Library, University of Chicago.

34. There had been a flurry of criticism over the use of the A-bomb in the immediate aftermath of World War II, but it had come largely from a few disparate groups and individuals, rarely from the mainstream, and had been muffled by the celebration of victory. See Michael J. Yavenditti, "The American People and the Use of Atomic Bombs on Japan: The 1940s," *Historian*, February 1974, pp. 224-47.

QUALITY OF AIR FORCE FAMILY LIFE

myths and realities

DR. GARY LEE BOWEN

MOST of us have our own views of Air Force family life. For some, this view is the sum product of a long and broad history of professional and personal experience with Air Force families. For others, the view is more parochial and sometimes limited to personal experiences in the Air Force. Unfortunately, the breadth of one's view is not necessarily the product of time in the Air Force. Often junior members and their families are more sensitive to and aware of the situation and needs of Air Force families than are senior members and their families. One thing is certain, however: whatever the basis and extent of one's views about Air Force family life, everyone has an opinion.

Over the past several years I have had the opportunity and privilege of meeting and establishing friendships with Air Force families and leaders all over the world. In the process it was my good fortune to gain many firsthand accounts of life in the Air Force. Whether the

comments were received during a formal briefing report or in the course of an informal discussion over dinner, I have found Air Force families and leaders astute in their observations and candid and articulate in their remarks about Air Force family life. It bears repeating, however, that the basis for these observations varies; often two people will view the same situation in very different ways.

During my association with the Air Force, I participated in two large-scale surveys of Air Force family life. The first survey, *Families in Blue* (1980), dealt with the problems, gratifications, and needs of Air Force families in the continental United States (CONUS) and Europe in the fall of 1979. The information for the second study, *Families in Blue: Phase II* (1981), is an extension of the first survey, adding information on Pacific Air Forces (PACAF) families to the existing data base. At present, information is available from a random sample of 1862

married persons (931 couples) and 161 single parents in the Air Force.¹

When the available data were summarized in briefings and reports, an important conclusion was reached: many of the survey findings on Air Force families are not consistent with the observations that Air Force leaders and families have of Air Force family life. Since the purpose of research is to arrive at valid and reliable knowledge, this article discusses ten common misconceptions about Air Force family life. It is not possible to document how many Air Force individuals give credence to these myths, but they surfaced often enough during the research to merit discussing them here. The assumption is made that to understand the realities of Air Force family life, it is first essential to recognize the unrealities.

Myth Number 1: Many Air Force marriages are experiencing difficulty.

The Air Force family is indeed a resilient institution. Regardless of base or location, most Air Force marriages are doing well. More than four out of five Air Force couples are in their first marriages, and the majority report high marital adjustment, positive communication patterns, and satisfactory sexual relations.

The marital experiences of Air Force couples do vary, however, by rank and their stage in the family life cycle. Overall, marital quality is highest for couples in the mid- to senior-enlisted ranks (E-4 to E-9) and for those in the junior-officer ranks (O-1 to O-3). On the other hand, it is lowest for men in the junior-enlisted ranks (E-1 to E-3) and for wives of senior officers (O-4 to O-6). Differences in the marital quality of Air Force couples are also apparent across the family life cycle. In general, husbands and wives with adolescent children experience more marital dissatisfaction than childless couples and those with younger children.

One difficulty that Air Force marriages commonly experience is inadequate companionship. Of the dimensions of the marital relationship investigated—adjustment, communication,

sexual relations, and companionship—Air Force husbands and wives were least satisfied with their marital companionship. Still, more than three-fifths of Air Force couples report satisfactory companionship in their marriages.

The problem with companionship for many couples is the lack of time they have together. As a result of long hours, frequent extra duty, and TDY assignments, many Air Force couples have less time together than they would like to have. This is particularly true for civilian wives of Air Force members. While it is often argued that it is not the quantity but the quality of time that couples have together that is important, some quantity is necessary to promote quality.

Dissatisfaction with marital companionship varies by the family life cycle. Husbands and wives with adolescent children were twice as likely to report problems with companionship in marriage than those in other stages of the family life cycle. Since these spouses are in the more senior ranks of the Air Force, it is likely that the additional responsibilities and pressures that parallel rank promotions curtail the amount of time these spouses can spend with one another. This situation probably accounts for the relatively low satisfaction that these couples report concerning companionship in their marriages.

The greater difficulty that Air Force couples have with companionship in their marriage is highlighted for one primary reason—satisfaction with companionship is a vital dimension of the quality and stability of today's marriages. As the barriers protecting marriages have lessened and become more permeable (obligations toward the marital bond, religious constraints toward divorce, family and community pressures to remain married, etc.), the internal dynamics of marriages have become even more important to the vitality of the marriage relationship.

Given the decreasing barriers to marital dissolution and the importance of internal dynamics in relationships today, marital companionship takes on new meaning in contemporary marriages. While the facts clearly support the vital-

ity of marriage in the Air Force today, any promotion of companionship in marriage should lead to an even higher level of marital functioning among these couples.

Myth Number 2: Marital difficulties are endemic to marriage between Air Force husbands and Asian wives.

Given the number of American service personnel in the Far East, it is not surprising that a number of spouses are Asian-born. Since the normal and expected adjustments of marriage are compounded by blending the values of differing cultures, it is often assumed that these marriages experience much more difficulty than U.S.-wife marriages.

This assumption, however, is not supported by our survey data. The marital quality experienced by husbands and wives in Asian-wife marriages in PACAF is quite similar to other Air Force marriages in PACAF. This is true whether the comparison is made concerning satisfaction with marital communication, satisfaction with marital companionship, satisfaction with marital sexuality, or satisfaction with the overall marital relationship.²

It must be remembered, though, that all these Asian-wife families were residing in PACAF at the time of the survey. The real test for these marriages may come when these Asian wives move from their own cultural surroundings to those of their husbands. Of course, the success of this transition will largely depend on the wife's cultural orientation, her preparations, her ethnic identity and family loyalty, her personality, the sensitivity and supportiveness of her husband to the adjustment process, and the family's ability to establish a viable support system.

In addition, although there are no differences in the marital quality per se of Asian-wife marriages and U.S.-wife marriages, there are differences worthy of note. First, Asian wives express greater relative dependency on their U.S. husbands compared to other Air Force wives. This finding is most clearly seen when we consider the satisfaction that Asian wives experience with

the time they have together with their Air Force husbands. Despite the finding that Asian wives spend considerably more time with their husbands than U.S.-born wives, they are especially vocal in desiring even more time with their spouses. Since the Asian wives in the survey were all residing in PACAF at the time of the study and were therefore in relative proximity to their cultural heritage, the need for more companionship and time with their husbands may be compounded upon return to the United States.

Second, when Asian-wife couples experience difficulties in their marriages, these difficulties tend to be more severe than for other Air Force couples. In other words, Asian-wife marriages tend to be of either high quality or low quality but not much in between. While the percentage experiencing high-quality marriages is similar to that of other Air Force couples, the percentage in low-quality marriages is somewhat higher than among other Air Force couples. Marriages between Air Force men and U.S. wives tend to be spread more evenly along the continuum of high to low quality.

Furthermore, compared to U.S.-wife marriages, Asian-wife marriages show more potential vulnerability to marital dissatisfaction and instability. The findings most clearly supporting this assertion come from data concerning the commitment of Asian wives to the marital relationship. While Asian wives are not more prone than U.S. wives to consider a separation or divorce, nearly one-quarter of Asian wives regularly question the wisdom of their marital decision. This figure is considerably higher compared to U.S. wives and husbands as well as to Asian-wife husbands. Moreover, although both husbands and wives in Asian-wife marriages are committed to making their marriage a success, husbands, as a group, report greater commitment. These findings may reflect the difficulties encountered by Asian wives when attempting to adopt new values, behaviors, and attitudes while still in a familiar geographic location.

Myth Number 3: *Air Force men and women are very traditional in their sex-role values and preferences.*

In the last decade or two, there have been profound changes in the notions about which activities and roles are appropriate for men and women. Increasingly, the shift is toward greater sex-role equality and flexibility. This results in behavior that seems most appropriate at the time, regardless of traditional expectations, duties, rights, and responsibilities.

The Air Force community has not been immune to the trend toward less traditional, egalitarian sex roles. In an increasing number of marriages, especially those in the junior-enlisted and officer ranks, the partners are questioning traditional roles and expectations. Today, 28 percent of Air Force couples are nontraditional in their sex-role preferences. Another 40 percent are transitional; that is, either the husband or wife is nontraditional but not both. In fewer than one-third of Air Force marriages both husbands and wives are traditional in their sex-role preferences.

Changes in sex-role preferences can be seen most clearly in the role of the wife in the Air Force. In contrast to the role that has been expected of them by military tradition, many Air Force wives are, for instance, less willing than in the past to subordinate their individual needs and desires for the "good of the service" and the needs for their spouses' military careers. Not only is the dual-military marriage becoming more commonplace but ever-increasing percentages of civilian wives of Air Force members are seeking employment outside the home.³ In fact, civilian-wife employment is now the model pattern in the Air Force, and only 28 percent of Air Force families today fit the traditional pattern of military husband, dependent homemaker wife, and children.⁴ Although many of the wives are working for financial reasons, the supplementary motivation of greater independence and influence in the family plays an important part in determining their decisions to work.

Myth Number 4: *Most parents feel that the Air Force is a good environment in which to rear children.*

It has often been said that children are our most valuable resource. This is especially true for the Air Force. Not only are the children of military members more likely than their non-military peers to become members of the Air Force, they are also more likely to emerge in leadership and career positions. Clearly, any investment that the Air Force makes on behalf of the children of Air Force members is an investment in its own future.

Despite the strong tendency of Air Force members to marry and have children, Air Force parents vary a great deal in their attitudes toward the Air Force as providing a good environment for rearing children. In fact, fewer than half of Air Force husbands, wives, and single parents see it as a good environment. Most feel that the transient and disruptive nature of the Air Force lifestyle does not provide a stable and secure environment for children to mature in. Such feelings are not only likely to make parenting more difficult but may actually have a marked effect on the retention decisions of Air Force men and women.

Myth Number 5: *Parent-child relations in Air Force families are a major source of stress and strain.*

Despite the pressures and problems connected with parenthood, the rewards and satisfactions of rearing children are many. Unlike most roles, however, the parent role is seldom given up. While the majority of parent-child difficulties are not serious, stress from these relationships may seriously impair family functioning. When this happens, the job productivity and commitment of the member parent or parents can easily be jeopardized.

Although it is often assumed that parent-child relations in Air Force families are a source of strain and stress, this does not appear to be the case. Nearly three-quarters of Air Force husbands and wives and the majority of single par-

ents in the Air Force are satisfied with the relationship they have with their children. Moreover, four out of five Air Force husbands and wives feel that their children have had a positive effect on their marital relationship, and almost all would still have children if given the choice to reconsider.

Few Air Force parents are actually dissatisfied with their parent-child relations. Of those who are dissatisfied, there is a slight tendency for mothers and fathers of older children to report poorer parent-child relationships. It is likely that these parents are having difficulty dealing with the normal development transition of the teen years.

Despite the greater tendency of single parents to be concerned with their parent-child relationships than married men and women, the majority feel quite capable as parents. More than half feel they can be just as effective rearing children as can two parents, and few feel that a two-parent household is intrinsically better. This finding leads one to believe that the greater concern of single parents toward their parent-child relationships may be more of a result of discrepancy between the parent role and self-expectations than anything else.

Myth Number 6: Family separations are good for families.

It is often assumed by Air Force leaders and by family members themselves that family separations caused by unaccompanied tours, TDYs, and so forth are good for families. This assumption is usually premised on the belief that separations cause family members to become more independent from one another, providing each with the necessary time to pursue individual interests and self-discovery. In other words, separation is equated with more independence and individual time for family members which, in turn, is equated with stronger family ties.

While it is true that family separations can be beneficial to some families, the Air Force data suggest this is not the general case. For most families, separations place a great deal of strain

on families, particularly those with employed spouses, child-care limitations, and limited resources. More than half of Air Force husbands and single parents and approximately one-third of Air Force member wives, for instance, report family difficulty during TDY separations. When a husband, wife, or parent is temporarily gone, this creates additional responsibilities for the remaining family members, often on short notice. Although some families adjust easily to this situation, most do not.

Family strains caused by TDY assignments vary, however, by rank and command area. Comparatively speaking, junior officers and members in PACAF report TDY strains less often. On the other hand, the greatest strains with TDY are among junior-enlisted personnel and among members in the continental United States. It may be that members overseas see TDY assignments as a relief from the isolation encountered overseas.

Myth Number 7: Single parents make poor adjustments to Air Force life.

Single parents are often viewed as a problem by Air Force leaders. For the majority of single parents in the survey, however, there appear to be few major problems. Although the adaptive capacity of single parents can vary according to their previous life experiences, personal strengths, and social supports, four out of five have their lives in order, show a high level of personal adjustment, and are committed to the mission of their command. These ratios are as high or higher than those of married Air Force members. The one in five experiencing difficulty is most often in the first year transition to single parenthood or in the lowest ranks. There is no evidence to suggest, however, that single parents do not go on to adjust to the demands of military life.⁵

The biggest problems for single parents are isolation and loneliness, especially the latter. In fact, single parents (62 percent) report feelings of loneliness twice as often as Air Force husbands (30 percent) and somewhat more frequently than Air Force wives (46 percent). Given this

finding, it is not surprising that the most common difficulty that single parents mention is lack of adult companionship and support. It is likely that the single parent in the Air Force feels like a "fifth wheel," neither single nor married but in transition.

Still, most Air Force single parents are coping well. To classify them as a problem population may jeopardize the commitments of a highly committed percentage of the force.

Myth Number 8: *The Air Force environment is a close-knit community of people who care for each other.*

Contrary to the image portrayed by some and my own initial expectation, there is an unusually heavy emphasis on family independence among both married and single-parent families. This is particularly the case for Air Force husbands. Although the Air Force environment is rich in acquaintances, neighbors, and work associates, the majority of Air Force families do not feel genuinely close to the people in their Air Force community. Moreover, they are quite hesitant to call on them as a resource in times of stress and crisis. In fact, given a major personal or family problem, most Air Force families say they would contact no one; they would solve the problem themselves. Instead of the Air Force's being a community of families, it appears to be more a collection of families in a common community, much like their civilian counterparts.

The most viable source of social support for both single and married Air Force families is their own parents. Husbands, wives, and single parents not only feel closer to their parents than to other sources of support but are also more likely to turn to them for support under stress. The problem, of course, is that parents are often too geographically inaccessible to offer tangible assistance.

While Air Force families have stronger ties to parents than to other sources of social support, relationships with neighbors and work asso-

ciates are their weakest lines of support. Less than 10 percent of Air Force husbands, wives, and single parents feel close to their neighbors or work associates; even fewer are likely to consult these support sources in times of personal or family crisis. It may be that the high membership turnover and heterogeneity in Air Force communities are responsible for the lack of involvement that Air Force families have with their neighbors and work associates.

Compared to neighbors and work associates, friends are a more important source of social support for Air Force families. Still, Air Force families are less likely to feel close to friends and are more reluctant to call on them than on parents in times of personal and family need. Compared to Air Force husbands and wives, however, single parents are more likely to have close friends and consult them during stressful times. It may be that single parents seek more contact and support from friends because they do not have a spouse to turn to.

Overall, this information suggests that the majority of Air Force families rely primarily on themselves and not on the support of others. The strong sense of independence among Air Force families usually comes as a surprise to Air Force leaders. In fact, most begin immediately to qualify the data by accounts of story after story in which Air Force families have aided one another in times of crisis. While the data do not deny the occurrence of this kind of assistance, they do point out the relative isolation of many Air Force families and their reluctance to turn to one another in times of difficulty. This relational isolation can leave families vulnerable to stress.

Myth Number 9: *Family stress is more common overseas than in CONUS.*

Despite the potential strains that might accompany an overseas tour, the overall family stress levels are not found to be any higher overseas than in CONUS. Moreover, families overseas in PACAF are as likely to be satisfied with their family life as those overseas in USAFE.

These comparisons hold constant for both married couples and single parents and whether the analysis is made on the husband-wife relationship, the parent-child relationship, the connectedness that Air Force families feel to the Air Force community, or the satisfaction that members and their families have with the quality of Air Force life.

Overall, these findings suggest that Air Force families make the necessary adjustments regardless of command area location. One cannot conclude, however, that there is a uniformity of experience between command areas. The similarity between satisfactions within command areas may be more a result of adjusting expectations to experience than actual similarity of experience. Whatever is behind these similarities in family-life satisfaction between command areas, however, it is likely that the Air Force base itself serves as an equalizer, providing a common core of activities for Air Force families regardless of their location.

Myth Number 10: *Family interests are not relevant to the accomplishment of the Air Force mission.*

Despite the fact that Air Force leadership has realized the relationship between family factors and job factors for a long time, support for Air Force families has been slow to develop. Leaders have often emphasized mission concerns to the exclusion of family concerns, as in the phrase, "If the Air Force had wanted you to have a wife, they would have issued you one." It is now realized, of course, that without family support the Air Force mission can be hampered. The link between family well-being, job morale, productivity, and mission readiness is increasingly being understood.

This fact was clearly supported in the *Families in Blue* reports. Among Air Force men, other than treatment by superiors, the second most important predictor of high job morale was spouse support. In other words, if a wife supports her husband's Air Force career, there is strong likelihood that his morale will be high.

Among Air Force women, however, spouse support was a less influential predictor of job morale. On the whole, member women receive comparatively little support from their husbands for their Air Force jobs, especially those women who experience frequent TDYs, long hours, and extra duty. As a consequence, Air Force women are often more dependent on their social network system, particularly other Air Force women, for support than their Air Force husbands. In making the decision of whether to remain in the Air Force, however, spouse support was the strongest predictor of this decision for both husbands and wives. Clearly, the importance of family life to job morale, career commitments, and, consequently, mission readiness is undeniable.

Given the link between family variables and job commitments, the Air Force is increasingly directing energy and support toward improving Air Force family life. The *Families in Blue* reports and the establishment and evaluation of family support centers are notable examples of Air Force commitment to its families. However, services and programs directed toward Air Force families must continue to compete for scarce resources. In times of financial austerity, management by objectives, and program accountability, it becomes increasingly important to quantify the success of work on behalf of Air Force families. Otherwise, an attitude may develop that recognizes yet negates the traditional importance assigned to the Air Force family and its inextricable link to the Air Force mission.

FAMILIES are a vital part of the mission support system on which the Air Force depends. They can assist Air Force missions by supporting members, encouraging them through difficult periods, and complementing their responsibilities with the relaxation and comfort of a ready support group. On the other hand, families that feel misunderstood, abused, or neglected can strain the commitments of members and put pressures on them to find other more attractive alternatives.

Given this situation, it is imperative that Air Force leaders and service providers be sensitive and responsive to the needs of Air Force families. This requires an understanding of Air Force family life based on fact rather than assumption, real needs instead of assumed needs.

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Notes

1. Dennis K. Orthner, *Families in Blue* (Greensboro, North Carolina: Family Development Press, 1980); Dennis K. Orthner and Gary

L. Bowen, *Families in Blue: Phase II* (Greensboro, North Carolina: Family Development Press, 1982).

2. Compared to other Air Force marriages in PACAF, Asian-wife marriages are more common in the enlisted ranks, especially in the grades E-4 to E-9. Since marital quality is highest for couples in the mid- to senior-enlisted ranks, this may serve to inflate the reported quality of Asian-wife marriages and make comparative analysis more tenuous.

3. Richard Carr, Dennis K. Orthner, and Richard J. Brown III, "Living and Family Patterns in the Air Force," *Air University Review*, January-February 1980, pp. 75-86; Allyson Sherman Grossman, "The Employment Situation for Military Wives," *Monthly Labor Review*, February 1981, pp. 60-64.

4. Carr, Orthner, and Brown, p. 75.

5. In a worldwide study of Air Force single-member sponsors and military couples with dependent children, it was found that single members were requested to go TDY less often, had more loss time, required more response time for contingencies, and, in summary, were having an impact on readiness (Study of Impact of Personnel Issues on Air Force Mission Effectiveness, January 1982). Thus single parenthood probably requires adjustments from both the Air Force and the single parent.

The invasion of the family by industry, the mass media, and the agencies of socialized parenthood has subtly altered the quality of the parent-child connection. It has created an ideal of perfect parenthood while destroying parents' confidence in their ability to perform the most elementary functions of childrearing.

Christopher Lasch
Culture of Narcissism, pp. 291-92

All marriages between Party members had to be approved by a committee appointed for the purpose, and—though the principle was never clearly stated—permission was always refused if the couple concerned gave the impression of being physically attracted to one another. The only recognized purpose of marriage was to beget children for the service of the Party.

George Orwell
1984, p. 57

... the two-parent family in which the father works and the mother stays home taking care of the children is no longer "typical." Not only are more couples getting divorced and more children living in one-parent homes, but more wives are working. An estimated 47 percent of all married women held jobs in 1977 as compared to 40 percent in 1970. Also, couples tend to be having fewer children, and many couples are opting not to have children at all.

America Wants to Know
Compiled by George Gallup, p. 541

R in my opinion

THE WARRIOR AND THE PACHYDERM

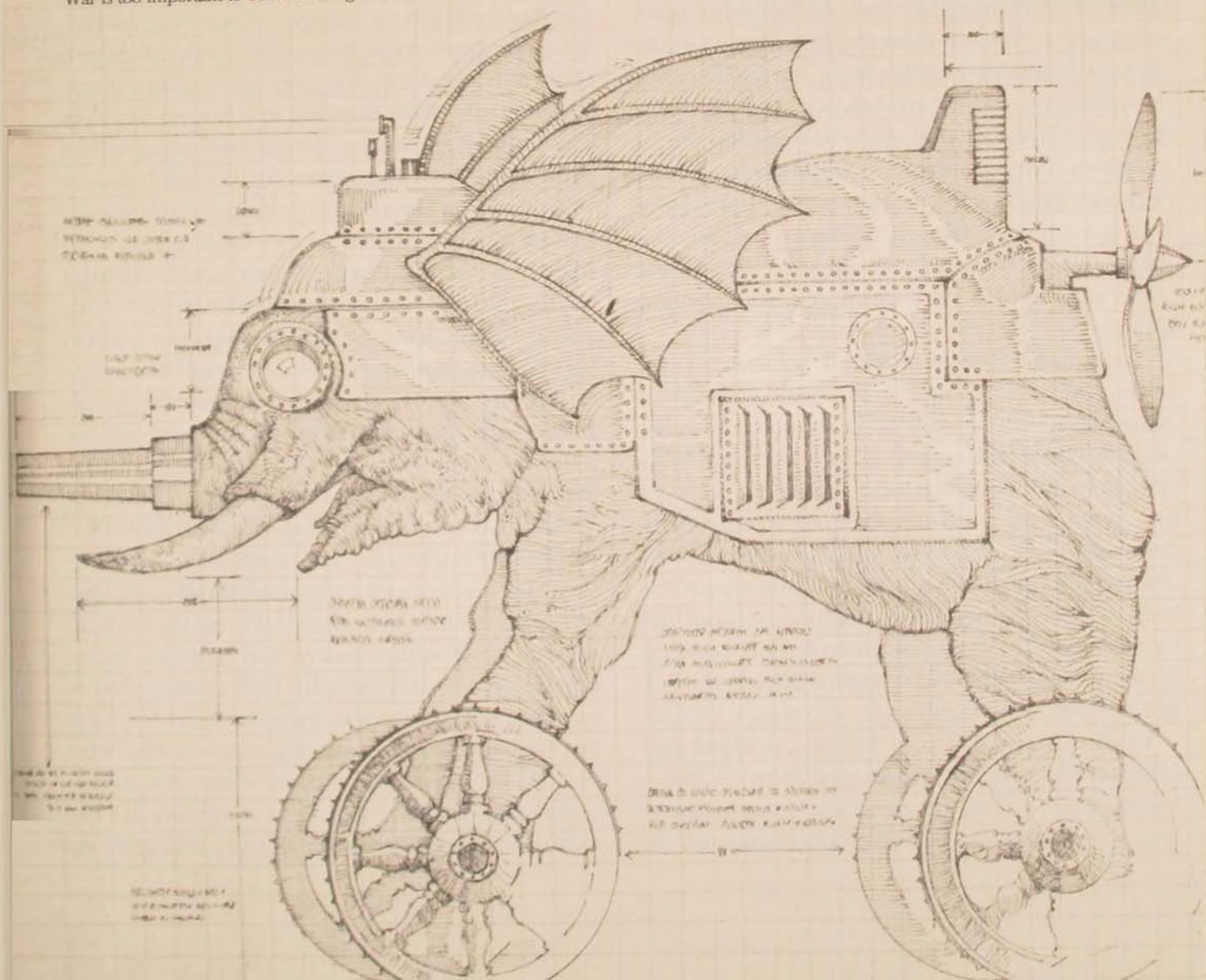
MAJOR DAVID W. KEITH

Generals cannot be entrusted with anything—not even with war.

Georges Clemenceau*

*Perhaps Clemenceau is more often credited for having phrased it as "War is too important to be left to the generals."

HOW many times have you heard or read this or similar statements in recent years? And how many times have you cringed at the thought of some fresh-faced whiz kid systems analyst, government or corporate, telling you how to do your business, complex or not? Quality versus



quantity. Military reform movement. Chemical, biological, and nuclear weapons. Rules of engagement and the laws of armed conflict. Second echelons and Leninist-Marxist ideologies. Ecosystems and natural resource beds. And the list goes on and on—almost ad nauseum.

There is no question that war today is complicated. But complicated warfare is not a particularly new idea. Alfred Thayer Mahan commented in the nineteenth century that he who seeks one best approach to war is destined for disappointment. So what can we do to defend ourselves better? Too often military officers, especially Air Force officers, respond by becoming technical experts in a specialized field rather than grappling with broader issues. Consequently, we open the door to those same analysts we quite often despise for their gnat-like questions. In the analysts' lack of battlefield technical skills, we find sufficient comfort to allow us to ignore the fact that their innate intelligence often combines with sound analysis skills to spawn questions which are quite uncomfortable for most career officers, even if the answers to these questions are not so easily produced. Rather than open ourselves to questioning our professional foundations, we find it easier to lash out at those "poor unenlightened simpletons." If only they knew all that we know. Then they would be credible. Then they could see that we have all the answers. But, alas. . . .

Now, into the midst of all this blissful complacency, the Chief of Staff has had the audacity to burst our apathetic bubbles by asking us to study, of all things, the art of war. Through Project Warrior, General Lew Allen challenged everyone connected with the Air Force to become serious students of how to fly, fight, and, by the way, win. Technical skill alone will not hack it anymore, he indicated, because modern war is complex; it is interrelated. Because it is interrelated, technical expertise confined to one specialized field is simply not enough.

I have always felt that I was a professional officer: about 2000 flying hours; four years as a Stan/Eval type and a couple more as an instructor; I was even shot at in Southeast Asia. So

naturally, I became rather concerned about the possibility that maybe I was missing the boat on this professionalism thing. I thought and thought, but I still wasn't quite sure I realized just what it was the Chief was asking me to do. Day and night I searched. Then, one evening as I drifted off in the direction of forty winks, I felt myself floating over a scene in some strange place. Below me was a small group of men and a large grey animal. My curiosity was certainly piqued. My dream, which was similar to those wise fables I tell my daughters, took a singular turn.

ONCE upon a time in a country far away (or was that long ago in a galaxy far, far away?—no matter) there were three very senior military men who happened to stumble upon a strange grey Thing during a distant campaign. The first, an army general by trade, examined the Thing and at once gasped: "What a great opportunity. This is as big as a house, has skin like the finest armor, and a built-in cannon. The only thing missing is wheels, though I can see the posts where the axles were obviously mounted."

The general turned to the noble warrior on his left, an admiral by trade, and said, "I think I shall call this Thing a 'fighting machine.' With it I'll rule the heartland." (It seems the general was also an amateur geopolitician.) "My forces will be invincible! Alexander, eat your heart out. Logistician, figure out how to get wheels on my machine and hitch a team to it right away. World conquest awaits."

All the while the admiral, still well to the left of the army general, had been silent. But the pressure was so heavy now, he was very anxious to speak. "Can't you see that Thing isn't a land warfare machine? How could anyone be so narrow-minded? Why, any fool can see that it was designed for shallow-water naval warfare. Look at the streamlined shape of the hull and the fore-mounted snorkel. Shiver me timbers, with a machine like that, not a castle moat in the world could hold me out. Logistician, get this

vessel down to the river for sea trials. Let's choke a chokepoint!"

Now, in the meantime, the youngest of the three, a strapping chap who was a general in the avian and balloon corps, landed between the general to the right and the admiral to the left from his apparently superior vantage point on high. "I can see it all," he began. "This isn't a land machine or a sea machine. It obviously was designed by a retired combat veteran bombardier. Look at the wings near the front, and that protuberance is obviously a prop. What a bomb load a battlebird like that could haul. We'd be the terror of all the world's battlefields. Logistician, fit this bomber with rails and general-purpose bombs, and let's get to it. Somewhere there's a decommissioned battle galleon just waiting to be sunk!" (It seems our aviator had slept through most of his aerodynamics lessons.)

Now you can imagine the ruckus that followed: First, the army and the navy ganged up on the upstart aviator. Then, the aviator and the admiral against the general. Then everyone for himself. Meanwhile, the logistician was at each. Not that the Thing was taking this whole hoorah-rah lightly. All of a sudden it let out a bellow that would wake a zombie. They all stopped in their tracks, though no one knew just how to take the horrible sound.

"Did you hear *that*?" the general asked. (He had assumed the leadership role by now, being the senior service and all.)

"Can't be an alert horn way out here," answered the aviator.

"Nor general quarters," added the admiral.

"Well, it sounded like it came from the Thing," returned the logistician. "I think we ought to check it out."

Meanwhile, the Thing moved and bellowed again and caught everyone's attention.

"My gawd," yelled the army general. "It's alive. My land war machine is alive. It won't need wheels after all. Now it can go anywhere. Rape, pillage, and plunder; here I come."

"Hold on just a second, haybreath," retorted the admiral, "you're right, the thing is alive, but

I still say it's an underwater, moat-crossing siege breaker."

"And I think you're both nuts," countered the still unenlightened aviator. "That's a born heavy bomber if I've ever seen one."

Within a split second the battle was on again, with everyone at everyone else's throats.

"Hold it just a blinking minute!" screamed the logistician, almost swallowing his pipe. "I have heard just about enough of this childish balderdash. We're making fools of ourselves. Let's just calm down and talk this whole thing over."

"First, you, general. Switch places with the aviator, and you, aviator, with the admiral. Now, try to look at this situation through each other's bomb, gun, or torpedo sight."

"We have each been seeing the world through our own point of view. Kind of reminds me of the parable of the three blind men and the elephant (but then that's another story and probably a different dream). Here's the way I see it. It seems to me that first we need to get on the same wavelength and then figure out why we came to this out-of-the-way wherever-we-are. There must be some purpose, some objectives, so to speak, that will help us determine how best to use this Thing. Why is it that we're here to begin with? Anyone have any ideas?"

"Well," entered the general. "We are here to win the war the best way we can?"

"Yeah," added the aviator. "But don't forget why we started fighting. Remember? We were called up because of the invasion. We had to repulse the invaders and restore our borders. And maybe add a new market or two for the chariot and abacus industries."

Then it was the admiral's turn. "Remember, too, that we wouldn't have been in this mess to begin with if the council had let us keep up-to-date. Why, with these old weapons and poorly trained troops, it's a wonder we weren't attacked sooner!"

"Now we're beginning to get on track," the logistician picked up. "From my perspective that's exactly why we're here. But also from my

perspective we want to end the war quickly before we run out of what few resources the council did provide us. (Aren't councils all alike?) Okay, we're together on why we're here. Now we need to figure out how the Thing can best serve our needs. It would seem to me that the first thing we need to do is agree to look for a way we can all get the most from it. We've got to work together, not against one another. Right?"

"I don't know!" snapped the general. "The army is obviously more important since everyone who is anyone knows that you can't win a war without occupying the enemy's territory. And, of course, a little terror to keep the civilians in line never hurts. So I think I should have first crack at the Thing. And if the R&D bucks don't work out in this project, I can always shift them to that new mobile catapult for the Rapid Deployment Force."

Almost simultaneously the aviator and admiral erupted. "You! The most important? Ha! Without our support and responsiveness to bail you out of jams and get you where you're going, where would you be? You'd still be thumbing your way to the campaign."

"Okay. Okay. Oh—kay!" answered the general. "So we're all important. Let's figure out how to use the Thing and get going. I've got battle plans awaiting. We've decided why we're here. It seems that the logistician has some good ideas. Let's let him go on."

"All right," said the logistician. "We agree that our purpose is to prevent attacks on the motherland, protect our borders, fight when called, and end the war as quickly as we can. That would seem to mean that we should figure out how we can best use the Thing to achieve those objectives."

Suddenly the air was shattered by an earsplitting bellow that put the earlier ones to shame. In the wink of an eye the Thing, which had been still for so long, charged at the small group. They dived out of harm's way just in time to watch the grey hulk trundle past and stop at another clump of grass about 50 meters away.

"By the powers of evil, what a monster,"

gasped the general. "The Thing certainly has power. But before we can use it, we must learn how to control it. With that size, it could easily crush our troops. Of course, maybe it'll crush a bunch of the opposition also. And even my giants aren't strong enough to hold the Thing back. And that bellow certainly rules out surprise attack. But on the other hand, it could make my army sound like legions. With this one machine, I can overwhelm, shock, and deceive the enemy. Now doesn't that make sense for the army?"

This time the admiral and the aviator did have to concede a point to the general.

Crawling out of his sheltering ditch, the logistician reentered the discussion. "Okay, let's assume that we can figure out how to control this beast. And maybe we can even figure out how to keep it quiet during night sneak attacks. We're still not out of the woods. I have been noticing how much the Thing has been eating while we've been here. As a supplier, I can guarantee that, regardless of its virtues, we must limit the Thing's area of operations to those theaters where forage is plentiful. Otherwise, our food trains will get so long that our enemies will completely bypass our forces and attack only lightly defended supply wagons. And we can't feed the Thing just anything. Some forage may make it sick. Then the maintainers will really have their hands full. A sick Thing will be more of a hindrance than no Thing at all. It certainly won't do us much good when the fighting starts. Besides, for what this Thing may cost to operate, and the problems controlling it, we might be better off using more cheap chariots instead."

"No," responded the general. "I agree we could have some problems, but this machine is just what I need: power, mobility, and shock value. I know we can solve the problems. We will need to design saddles, but that shouldn't be a major problem. I'll get my staff cracking on the tactics. With our focus on objectives, I can figure out the best employment strategy. And yes, logistician, I'll consider your comments on forage. We must keep these Things healthy so

we can use them. If only we could figure out how to control them."

Just then a young man wandered into view. "So there you are, Jumbo, you naughty beast. Why did you wander away? Now come over here right now, else I'll have to get the two-by-fours out. And I hope you haven't been bothering these gentlemen."

The 5000-pound elephant waddled over to the boy and rolled over onto its back like a little puppy.

"He loves to be scratched on his belly," the boy said to the startled group. "My name is Hannibal, and Jumbo here is my pet elephant."

JUST then I heard a clanging bell ringing, and I woke up as the general was saying something about a direct commission into his newly formed elephant corps. As I stumbled through my morning rituals, I realized that there were some points to be gleaned from my dream. First, the main reason we get paid in the military is to protect our way of life. Unfortunately, sometimes that means fighting a war. Often, in trying to do our own jobs in the Air Force, we forget there are other services that have some valuable experiences of their own. Sometimes, in our zeal to do our own job the best we can, we lose sight of the fact that maybe someone else could do it even better.

Also, I realized that, no matter how much fun firebreathing is, without a team effort, bombs will never arrive on target. Without the intelligence guys, we don't know where the bad guys are. Without the commanders, there's no one to

make a decision about when, where, and how to attack those bad guys. Without controllers, we won't know where the good guys are so that we don't kill them by accident. Without trainers, we won't know what to do when the time comes or how to do it. Without suppliers, there won't even be any bombs to drop. And without maintainers, no one to load them or fix the planes when they break. Medics, feeders, recreators, tinkers, tailors, soldiers, and spies. The list goes on and on. The combat crews get the glory and more than their share of the bullet holes, but the team wins the game.

What is the Air Force's Project Warrior? Merely an attempt to get all of us, and not just the blue suiters, to realize that the guy who fixes the cleats, in his own way, is just as important to the Super Bowl championship as the winning quarterback who puts them on. Officer or enlisted, we each need to see our own role in winning the wars we hope never to fight but must always be ready for. We need to realize that only an appropriate blend of weapons and tactics, logistics and command and control will see us through to victory. The key is in each of us. The question is, "Will we be ready when the time comes?" We must be. There are no prizes for second place.

Or put another way. We need to remember a few points. "The bomber is only as good as the bombardier." "Organized fingers make a fist, and the brain leads that fist to a knockout." And above all else, "Feed an elephant spoiled hay and you won't have any trouble finding him, but he won't be on the battlefield."

Hq USAF

THE ENDANGERED SPECIES

SENIOR MASTER SERGEANT KEITH L. MOORE
UTAH AIR NATIONAL GUARD

I'M ONE of those creatures P. T. Barnum made famous when he declared, "There's a sucker born every minute." My biggest problem is that I'm a believer. I believe everyone. I'm optimistic to the extreme. I expect everyone to be completely honest with me. Of course, I fall prey to snake-oil salesmen, used-car dealers, and politicians. However, I'm not unique. You can still find a sucker or two around if you look for them.

I can't remember when I wasn't a sucker. At twelve years of age I put on my first uniform. Pearl Harbor was bombed on my eleventh birthday, and I took it rather personally. A year later, when I was old enough, I joined the Boy Scouts. I stood, with my arm to the square, and solemnly promised, "On my honor I will do my best to do my duty to God and my country. . . ." Perhaps I took that oath a little too seriously. A kid must be a sucker to be in the Boy Scouts. Surely a man shouldn't be held responsible for childhood promises.

Three years later, as a junior in high school, I joined the ROTC. Anyone who would take ROTC had to be a sucker. Those killed in action during World War II were being returned home for burial. There I was, one of the Honor Guard, firing the salute, listening while taps was played, and watching as the flag was folded and presented to the next of kin. All able-bodied men were still at war. Just a few high-school kids and a few old veterans from World War I were left to welcome home the dead. Yeah, there I was, with a lump in my throat and tears in my eyes, the sucker. They were my heroes, and someone had to care about them.

During my senior year, I joined a newly formed Air National Guard unit, which allowed me to wear the same uniform as those who had fought and died for freedom. The war was over

by then, though, and anyone who joined the guard, of course, had to be a sucker. I was proud to be serving with war veterans. I enjoyed summer camp so much that year that I went regular. Only a sucker would do a thing like that because only bums joined the service in peacetime.

Four years later I hung up my uniform, and for six long months I drifted around in civvies, waiting for the local guard unit to come home from the Korean conflict. Finally they were released, and I could become a sucker again.

Since the early '50s, I've been a weekend warrior, a guard technician. Only a sucker would put up with all that stuff for that length of time, but only the suckers went to Vietnam while the others sat it out in Canada. Only a real sucker would volunteer for ten-day active-duty tours in a war zone, flying supplies over and rows of long metal casket containers back home, with the same tearful, lump-in-the-throat routine as in high school.

Yes, I'm one of those suckers, one of those leeches, one of those double-dippers who—with both wife and self working full-time—has never grossed \$30,000 a year. I've really had it made, though, for I've been privileged to serve my country. I've been to enough foreign countries to appreciate how great it is to live in the United States. I've been able to buy a home, raise my family, and worship the way I choose. No one has ever fired a shot at me (that I know of), and I haven't had to shoot at anyone else either. Maybe—just maybe—if I had, I'd feel a bit different.

After more than thirty-five years' service, I still get tears in my eyes and a lump in my throat when our flag comes into view. I'm still a sucker for parades and heroes. I can't even get through a verse of "America, the Beautiful" without

choking up. In spite of dull TDYs, long "Sun down-Gear up" flights, BX prices higher than those downtown, and rebuilding thirty-year-old airplanes over and over again because of what is called "austerity programs," I'm still a sucker.

Barnum's saying is fast becoming as obsolete as the B-17. I'm afraid that suckers are no longer being born at their original rate. I wish they were. They may even be going out of style. If there were more of them, I'd feel a lot more comfortable and secure about the world my grandchildren are going to inherit. There seem to be too many people thinking only in terms of self. "What's in it for me?" they ask.

What this country needs is a few more suckers like Henry "Hap" Arnold, William Mitchell, James H. "Jimmy" Doolittle, and Ira C. Eaker. We need more suckers who will wear a few stripes and accept the increased demands and sacrifices without quitting. We need their spouses who will also sacrifice, support, and follow them, thus becoming suckers in their own right.

The Air Force needs crew chiefs who will live intimately with every system and peculiarity of their "bird." Suckers who feel a deep sense of pride and accomplishment watching that "bird" take off into a cold streaked dawn and then pace and worry until it delivers its pilot home safe again. We need officers who are actually suckers enough to care about "the mission," the welfare of the troops, and then their own personal welfare, in that order. We need leaders everywhere who know and perform their jobs as thoroughly as they expect their followers to know and perform theirs. We need civilians, in air logistics centers, who won't settle for "close-enough-for-government" work. We need quality assurance folks who demand contract excellence from contractors and vendors. We especially need patriotism, unselfishness, and self-discipline. It's cer-

tainly a tall order, isn't it? We need them just the same.

I HOPE I'm wrong, but it looks as though the suckers are fast going the way of the dodo bird. Soon this endangered species is going to be extinct, killed off by indifference, selfishness, and cynicism. It's hard to remain a dedicated sucker when, all around you, the major interests are self-promotion, avoiding responsibility, and getting rich. It's difficult to reconcile oneself to twelve-hour shifts, working outside in all kinds of weather, and a life of fatigue uniforms and grease, when there are fat cats living a country-club existence, with the weekends off, and getting twice the pay. Even a sucker can't feed his family on job satisfaction and patriotism for long. Isn't it ironic that the sucker is always the one called on to forgo a cost-of-living raise so as to set the example for the rest of the nation?

So far, the suckers have held the line. They've met the challenges, sacrificed for the mission, and hung in there. Will there be enough suckers tomorrow to continue on?

Before long, this sucker will have joined the ranks of those who have served their time and faded quietly into the shadows. Specters in forgotten uniform styles, "Pinks," "HBTs," "ODs," and "Suntans." Ghostly squadrons in Spads, Jugs, Sabers, and Thuds, waiting, watching, to see if the torch they proudly bore will burn on.

Long live the sucker. God forgive us all if we allow them to become extinct. Maybe this endangered species will survive and prosper. With all my heart, I pray that it will!

*151st Air Refueling Group
Salt Lake City, Utah*

Sergeant Moore's article received Honorable Mention in the annual Ira C. Eaker Essay Competition.

R fire/counter fire

ANALYSIS BY HYPERBOLE: A RESPONSE

WILLIAM S. LIND

FOR someone who objects to exacerbating tensions and adding heat to a debate, Colonel Alan Gropman does an admirable job of both.* Unfortunately, his tone is more righteous than his facts can support.

Gropman makes a number of assertions about what the Pentagon thinks and believes. One way to test these assertions is to compare them with what it does. He asserts:

- "All the uniformed leaders and nearly all the ranking civilians I know put matters in the same priority" as the military reformers: people first, strategy and tactics second, and hardware third. In fact, at the first sign that defense spending would have to be reduced this year, these uniformed leaders and ranking civilians cut out the whole military pay increase. The service chiefs may have said they would rather cut procurement, but they gave Congress no list of procurement cuts.

- "Regarding ideas, all the services put officers at least equal to their best in their respective doctrine and strategy offices . . ." What do we mean by "best?" The services train program managers very carefully for their jobs, but what training do they provide for tacticians and strategists? How much military history and theory is taught in our schools? Where is the identified corps of strategists that is a counterpart to the corps of managers? What are the career

rewards for new ideas about tactics and strategy that match those for successful program management?

- "Lind cites a quotation from a military reform briefing—'weapons that don't work or can't be bought in adequate quantity will bring down even the best people and the best ideas'—which would suggest that the Defense Department leadership thinks otherwise." The Senate, by a 91-5 margin, passed an amendment to the FY 1984 Defense Authorization bill, establishing an independent director of operational testing and evaluation in the Pentagon. The purpose of independent operational testing is to get weapons that work. The Defense Department leadership opposed the amendment. The Defense Department leadership routinely requests fewer weapons than it says it needs. The Navy requests 15 big carriers and 100 attack submarines but says it needs 24 carriers and about 140 submarines. The Air Force is building toward 40 wings of tactical aircraft by 1989 but says it needs more.

- "There is only one way to define quality and that is tactically, and I know no ranking officers who do not think of it in that way." Then why have we bought so many weapons of demonstrably poor tactical quality, like the AIM-7 series missiles, which destroy surprise and are so easily outmaneuvered; the Maverick, which commits the pilot to a suicidally vulnerable 15 seconds or more of wings-level delivery; and (compared to the F-16) the F-15?

I could point out a number of other inaccura-

*Colonel Alan L. Gropman, "Analysis by Hyperbole," *Air University Review*, September-October 1983, pp. 89-91.

cies and red herrings in Gropman's article—e.g., if “technological superiority has most often provided the margin for victory,” I would be working for the Reichstag, not the Senate—but it is more useful to look at two of his basic, underlying errors.

The first is expressed when he says, “The M-1 tank comes in response to the size and numbers of Soviet tanks. The big carrier comes from the need for the United States to be able to project real power around the globe. The F-15 comes from the need to defeat large numbers of enemy aircraft threatening us and our allies.” These rationales don't hold up—if I am worried about the large number of enemy aircraft, I am not going to buy F-15s when I can buy twice the number of better F-16s for the same price—but the key point is that they are exactly that: rationales. We are not buying these weapons for military reasons, even though the defense establishment wraps them in military rationales. We are buying them because the defense establishment includes powerful bureaucratic empires built around some individual examples, like the big carrier, and around complex technology generally. That establishment is chock-full of people who know a lot about technology but little about combat; it has an incestuous relationship with defense contractors, who make higher profit margins from complex than from

simple systems; and it emphasizes weapons it invested bureaucratic prestige in early in their development, like the F-15. The bottom line of most of our defense decisions, especially hardware decisions, is not military analysis but intra-institutional bureaucratic politics.

Colonel Gropman's second basic error comes when he argues in favor of “better technology” and suggests that the reformers oppose it. The point of my original article was that the issue is *not* whether we want that which is “better” and that which is “quality” but how to *define* “better” and “quality” in militarily useful ways. The reformers do not propose returning to M-1 rifles or P-51s or battleships. Examples of advanced technology (though relatively simple) weapons we support include the F-16, the Sidewinder family of air-to-air missiles, and the 30-mm cannon on the A-10 with its depleted uranium ammunition. What we oppose is the trend toward increasing technological complexity with its attendant costs of fewer numbers, more maintenance time, lower availability rates, fewer training opportunities, and less total force capability. Technology can be used to our advantage or to our disadvantage. The debate over weapons between the reformers and the establishment is about how to use technology, not about technology itself.

Alexandria, Virginia

WINNOWING FACT FROM OPINION*

COLONEL ALAN L. GROPMAN

It is better to know nothing than to know what ain't so.

Josh Billings

*The author gratefully acknowledges the research assistance of Staff Sergeant John Simpson.

WILLIAM S. LIND'S response here to my disagreement with his original article is more stale wine in the same old bottles. Most disconcerting is his “matter-of-fact” style woven throughout both the first piece and his answer to my retort. Many of his “facts” are simply

opinions, and many of these are not grounded at all in solid research.

One example, which I will dwell on at length, speaks volumes, demonstrating Lind's superficial understanding of military history. Lind objects to my comment that "technological superiority has often provided the margin for victory." He argues, conversely, that if my statement were true, he would "be working for the Reichstag, not the Senate." German technological superiority during World War II is a myth. There were, of course, singular German technological successes (e.g., the Me 262 jet interceptor), but the weight of technology was on the Allied side and it contributed to our victory.

The Germans believed in the aerial bombing theories of Giulio Douhet yet failed to develop an adequate, let alone superior, bombsight, and Germany failed here with outstanding optical facilities. In addition to the fact that Germany had no bombsight equal to the American Norden, all attempts by Germany to build a heavy bomber were tragic farces. (One notes also the German failure to produce an atomic bomb.) The Germans, furthermore, failed to see the utility of the British Chain Home radar system until it helped defeat them in the Battle of Britain. Moreover, although the Germans believed the United Kingdom to be their key enemy in the late thirties through mid-1941, they failed to produce forces capable of conquering an island seapower. Furthermore, German tanks and artillery were often inferior to those used by their opponents, especially in 1940 when the Germans achieved their greatest triumph.

The truth is this: Germany was defeated by technology in large part, and by logistics in the main, and the latter is affected greatly by the former. Certainly the British and American operational research departments were successful in defeating every piece of Germany's wizardry during the war except the V-2 rocket. The relatively light load (2000 pounds and less) of the V-2 and its wild inaccuracy reduced the need to develop a countermeasure. One needs to look no

farther than the Normandy invasion to gain a full appreciation of the depth of Allied technological superiority. One explains the German victories (except for the significant defeat in the Battle of Britain from 1939 through the autumn of 1941) by superior German land-fighting doctrine (especially armored doctrine); troop cohesion, leadership, and training; and tactical (as opposed to strategic) genius—certainly not technology. It was not that Germany did not have brilliant scientists and technologists, but rather that the Nazi regime between 1933 and 1945 was so inept and corrupt that it could not effectively use its many resources.

Similarly, Lind is unable to separate fact from opinion regarding the F-15 and F-16. He writes, matter-of-factly, that the F-16 is the better airplane. One asks: better how? The F-15 is an all-weather airplane that climbs faster to a higher altitude, is faster straight and level, has the greater range, carries the larger payload, and is more adaptable because of its greater capacity. The F-15, furthermore, has a slightly higher in-commission rate.

Lind's implication that the F-15 is of poor tactical quality does not square with the views of Air Force fighter pilots. The F-15 has a superior radar/avionics suite that enables it to have twice the detection range (four times the detection volume) of the F-16. Perhaps more to the point is the fact that these two airplanes do not perform the same mission. For all-weather interception the F-15 is superior, but for close-in air-to-air combat the F-16 is better (although the F-16 is being used today more and more as an air-to-ground fighter). The F-15 will, over time and with the advent of superior standoff weapons both air-to-air and air-to-ground, probably prove more useful to the Air Force because of the flexibility that its size and internal space give it.

Lind's argument that he can buy twice as many F-16s for the money as F-15s is inaccurate: an F-16 costs more than 70 percent the price of an F-15. More significant, he fails to deal with the questions of finding, training, and paying

the extra pilots and mechanics to fly and fix all these extra aircraft. Where, furthermore, is the ramp space to store them, the shelters to protect them, and especially, in Europe, the airspace to train the pilots?

Regarding the rest of Lind's retort, my remarks are essentially a repeat of my first answer. He argues that if the chiefs really cared about their people, they would have offered the Congress systems to be cut and then applied the money saved to pay raises. Lind knows better. To offer any system because it had a relatively low priority would mean simply the loss of the system; the saving would not be used to give the military a pay raise. The chiefs are not in a bargaining position. Regarding the qualities of military people serving as strategists, I would offer the differential promotion rates for those in strategy-formulating positions to counter Lind's opinion that the services put weaker people in these positions. On DOD opposition to the so-called "independent" director of operational testing and evaluation, I would note that the office proposed in the legislation would be within the Office of the Secretary of Defense, *under* the Secretary—so much for independence. There is such an office now in the Under Secretary of Defense office for Research and Engineering. DOD opposed the legislation because it found the new office to be duplicative in some senses and to divide the operational testing and evaluating process in others. Ultimately, they believed, such a new office would fragment an already difficult job.

The services are criticized by Lind because they request fewer weapons than they say they need. The needs, however, are expressed in their respective planning force documents, which are

fiscally unconstrained evaluations of the forces required to defeat the threat with a reasonable assurance of success. When the services begin to build their programs, however, they are given strict financial guidelines in which to schedule their requirements against their resources; and there is never enough money.

Finally, nobody wants complexity—everybody wants simplicity—but the way to achieve *simplicity with effectiveness* is through technology. Everybody opposes increasing technological complexity if it costs more and produces fewer numbers that are also less effective (Lind's straw man). But given the fiscal and manpower constraints facing the United States, the relentless pursuit for technology to multiply effectiveness is essential. In the near future, standoff weapons will allow our forces to kill more tanks safely than in the past. The long-range radar of the F-15 allows it to assess enemy formations at great ranges and employ ordnance (like the long-range, all-aspect, supersonic AIM-7) beyond visual range and in all weather conditions. Ask a fighter pilot how important it is to get the first tallyho and the first kill.

Lind's criticism is that of one who has not participated in the hurly-burly of developing a force structure, who has never been confronted with choosing a system when faced with the inevitable compromises with which a democracy must contend. It is much easier to criticize the results of this process than to devise a better approach. After all, Lind and his criticism are a part of the process. We need critics like Bill Lind to keep us on our toes by constantly challenging our choices and forcing us to rethink our decisions.

Hq USAF

R commentary

To encourage reflection and debate on articles appearing in the *Review*, the Editor welcomes replies offering timely, cogent comment to be presented in this department from time to time. Although content will tend to affect length and format of responses, they should be kept as brief as possible, ideally within a maximum 500 words. The *Review* reserves the prerogative to edit or reject all submissions and to extend to the author the opportunity to respond.

ON DEFECTIVE LEADERSHIP

Major Robert J. Holub

THE article "Defective Leadership: America's Greatest Peril" is one of the most powerful I have seen published in an Air Force periodical.* I would like to thank Lieutenant Colonel G. E. Secrist for summing up so completely all my own frustrations with our current military leadership.

The defect he labeled "Obsession with Image Enhancement," or, as I like to call it, the looking-good syndrome, struck particularly close to home. It was a tragic bit of irony that this article appeared at the same time that high-ranking U.S. officers had to defend their role in the Beirut massacre of Marines. Phrases like "absolutely no defense," "no way it could have been stopped," and "no way we could have predicted this type of attack"—all have filled the press. They offer little hope that we will learn any hard lessons from this tragic event.

From personal experience, I have seen build-

ings painted and then destroyed, fences taken down and put up three different times, miles of curbs sandblasted, and signs repainted for aesthetic reasons. All of these actions were in the name of base beautification in a command that had publicly lamented shortfalls in wartime stocks of munitions and spare parts. In a choice between several more pallet loads of ammunition and "looking good," it was obvious what had won.

Thousands of copies of AF Regulation 35-10, *Dress and Personal Appearance of Air Force Personnel*, have been printed and distributed to Air Force personnel. I would like to see equal attention given to works such as Colonel Secrist's article. Copies should be sent to every officer in the Air Force. To quote from the article, "A leadership crisis of substantial magnitude has placed the United States of America in great peril." I could not agree more.

Langley AFB, Virginia

*Lieutenant Colonel G. E. Secrist, USAF (Ret), "Defective Leadership: America's Greatest Peril," *Air University Review*, September-October 1983, pp. 12-19.

Major Holub is Military Airlift Command advisor, Detachment 6, Hq Air Weather Service (MAC).

MORE ON DEFECTIVE LEADERSHIP

Staff Sergeant Dan DeRooy

IN response to the article by Lieutenant Colonel G. E. Secrist, "Defective Leadership: America's Greatest Peril" (September-October 1983), I would like to add a few remarks concerning the enlisted force.

In the past much of our rhetoric has emphasized that the "enlisted force is the backbone of the military service." But upon taking a close look at reality, we find that this backbone is, in many cases, in need of repair. For one thing, enlisted leadership has evolved in an environment where many decisions are made with a focus toward the betterment of one's career instead of the accomplishment of the mission. This phenomenon is similar to the officer-related careerism described in "Defective Leadership." Secondly, the enlisted Weighted Airman Promotion System (WAPS) does not give extra points for those people who have attained a college education. Instead, this system recognizes time in grade (TIG) and time in service (TIS) with extra points.

Today, an increasing number of people are entering the Air Force enlisted force with more than just the required high-school education. Additionally, many individuals are earning college degrees while in the service, either through the Community College of the Air Force (CCAF) program or one of the other educational programs available. Yet, there is no promotion-related recognition (other than upon initial enlistment) given to an individual who has earned college credits. This means that an enlisted person who has a college education cannot favorably compete with others who are given extra points under WAPS for lengthy periods in grade and in service.

I do not think this situation is serving the best interests of the Air Force. It tends to force those enlisted people with a degree to reconsider their

military career. College-educated personnel are aware of the higher pay and increased recognition that are given by some civilian companies for a college degree. Since the Air Force does not adequately recognize enlisted personnel for their educational achievements, they may tend to feel that they would be better off in civilian life.

By encouraging college-educated enlisted personnel to leave and failing to give adequate recognition to those who stay in the service, the current promotion system is producing primarily career-(not mission-)oriented leaders/decision-makers who have only a modicum of formal higher education to go along with their extended time in grade and years of service.

Because of this situation, I believe it is time for the Air Force to rework its WAPS. Although I cannot lay out a new system in such a short piece as this, I can briefly describe some of its salient characteristics. For one thing, the new system should be designed with the total-person concept in mind. Recognition should be given for college academic achievement and annual aerobic testing. Also, greater emphasis should be placed on high WAPS scores in themselves. Extra points for time in grade and time in service should be reduced. The attainment of extra points on a WAPS test for TIG and TIS without acknowledging college education does the Air Force an injustice by not recognizing those intelligent, probably more progressive and productive, individuals who will (in the long run) be an intrinsic asset to the Air Force.

Beale AFB, California

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REALISM AND IDEALISM IN SOUTHERN AFRICA

Dr. David R. Mets

DR. Valentine J. Belfiglio's article, "The Soviet Offensive in Southern Africa" (July-August 1983), strikes me as offering very bad advice to the United States. He would have us cooperate with the South African government in opposition to presumed Soviet inroads in the region even to the point of deploying peacetime military forces to that country. The advice is unsound for two reasons. First, his estimate of the importance of South Africa is exaggerated. Second, he grossly underestimates the difficulties his proposals would generate both domestically and in other regions of Africa—in fact, in the entire Third World.

Belfiglio offers up the good naval bases and airfields in South Africa as being assets to American national security. He further says that the Cape of Good Hope is vital because it is near the oil line of communications from the Persian Gulf to Europe and America. That notion does not stand up to careful analysis. It is unlikely that the Soviets would cut off the oil at the Cape when it would be much cheaper and safer for them to do it at the head of the Persian Gulf or at its outlet. By striking at the source of the oil flow, the Soviets could do twice the damage—they would simultaneously stop the flow of oil to the West and Japan—with less than half the effort. Thus, the questions become: Airfields on the way to where? Naval bases on the way to where? Moreover, Belfiglio overlooks the negative impact of his proposal in that U.S. support of South Africa might offend black African states to the point where they halt the flow of strategic materials from Africa itself. Nigeria is now one of America's chief oil suppliers, and her government has avowed that it will cut off oil to the United States were we to support South Africa. Some of the other sub-Saharan states possess mineral deposits that rival those of

South Africa in importance—Zaire, for example.

In my opinion, Dr. Belfiglio also overestimates the lasting effects of Soviet activities in sub-Saharan Africa. After nearly four decades of frustration with foreign aid programs, Americans should know better than anybody else that gratitude on the part of the recipient is seldom very profound and never very persistent. The prevailing attitude seems to be: What have you done for me lately? The Soviets are already experiencing some of this. Third World states seem to know that when guns are needed for a revolution, they are more readily available from the Soviets than from Americans. But after the revolution has been won, then butter becomes more important than guns, and butter is more easily secured from the United States. Not only must the dictators of black Africa have the security forces to sustain themselves in power but also they must deliver on their earlier promises that decolonization would bring their supporters to the economic promised land. Many of the leaders have discovered that the economic aid necessary to develop their economies is much more readily obtained from the United States and Europe than from the Soviet Union. Thus, though the Soviets and Cubans certainly did provide vital aid to the winners in the Angolan struggle, lately the Angolan government has been cozying up to the United States in hopes of winning economic help from us. Thus, we see the spectacle of Cuban troops standing guard over Gulf oil refineries on Angolan territory. The foreign exchange provided by those refineries is simply too vital for the government to risk in the name of ideology.

It seems to me that Dr. Belfiglio's figures are open to question on various grounds. First, he says that 51 percent of South Africa's exports go to EEC and that 55 percent of her imports come from Europe as though that should be significant to the American decision-maker. Stated in those terms, the figures seem large, but they really are an unimportant fraction of the total trade of the Common Market and still less important as a factor in U.S. overseas trade. It is

true that some minerals received from South Africa are quite important, but many of them could be obtained elsewhere at a somewhat higher price. In any event, a power that took control of South Africa would still have to find markets for her goods. This being so, the United States need not pay any price at all or run any risks to maintain access to South African resources. Belfiglio also asserts that 25 percent of U.S. oil needs to come around the Cape of Good Hope, but that seems impossible since we import but a quarter of our total consumption and very large portions of that quarter come from Venezuela, Nigeria, and Mexico.

Some years ago, George Kennan, in *Cloud of Danger*, asserted that only Japan and Western Europe were regions of vital interest for the United States. The only other area possibly worth a fight would be the Middle East. As for the rest of the world, he argued that they will never love us, we cannot solve their problems, and all we can really hope for is their respect. It appears to me that this is still a valid analysis, at least where southern Africa is concerned. The loss of South Africa, were there any real chance of that happening, might be inconvenient, but I doubt that it would be a "major setback." Furthermore, such a loss might not be permanent. Moreover, in the economic sense, some of the countries of sub-Saharan Africa are economic basket cases. Their loss to the U.S.S.R. might even constitute a net loss for the Soviets and a gain economically for the United States. For example, some believe that fully a quarter of the Cuban gross national product is provided by Soviet aid. Without the Cuban drain, that money might well have been spent on Soviet military forces and other things more dangerous to us than the presence of the Cuban mercenaries in Angola and Ethiopia. Afghanistan is costing the Russians dearly, and they cannot feed their own people as well as they desire. It seems to me that we ought not assume that every Soviet presence in the Third World is a gain for them and a loss for us anymore than our ten-year presence in South Vietnam was a loss for the U.S.S.R.

The weakest point in Dr. Belfiglio's article is the ease with which he dismisses the domestic difficulties his proposed policy would generate. Even if no other group in the United States objected to it, there would probably be strong opposition to the policy among American blacks. Though they constitute only about a tenth of the electorate, they are a swing group that no political candidate can ignore. On top of that, the majority of American voters are registered as Democrats, and insofar as they are motivated by ideology, that factor would certainly operate strongly against Belfiglio's program—in my opinion so strongly that it would be well beyond the bounds of practical politics.

His notion that Americans could "persuade South African officials gradually to initiate majority rule," presumably to quiet ideological concerns of U.S. citizens, seems unfounded. While white South Africans are but a 20-percent minority in their own country, they are a hard lot. They are further hardened by examples of blood and mayhem that have followed the coming of majority rule in Zimbabwe—and things there are not getting any better. Many of their people were among the mercenaries in Zaire who witnessed the numerous massacres that took place there in the process of decolonization. To build a policy on the expectation that white South Africans will ever willingly make meaningful reforms in the area of civil rights is unwise. They look upon the granting of majority rule as suicidal for whites, and on matters of personal survival no man is likely to compromise.

Vietnam taught us that U.S. policy cannot succeed without majority backing or at least majority consent. This means that U.S. decision-makers should reject any idea of cooperating with South Africa for any purpose if it entails the deployment of forces to the area or even faintly implies condoning apartheid.

Niceville, Florida

Lieutenant Colonel David R. Mets, USAF (Ret), (USNA; Ph.D., University of Denver) is Professor of History and International Relations, Troy State University, Florida Region.

REALITY AND FICTION IN SOUTHERN AFRICA

Dr. Valentine J. Belfiglio

I AM pleased that Dr. Mets took the time to pen his thoughtful critique of my article, "The Soviet Offensive in Southern Africa." However, upon reflection, I see little in his comments to dissuade me from the views I expressed.

Professor Mets doubts that the Cape sea route is important to Europe and America because "it is unlikely that the Soviets would cut off the oil at the Cape when it would be much cheaper and safer for them to do it at the head of the Persian Gulf or at its outlet." Should we now sit back and relax, safe in the knowledge that the Soviets would never interdict oil shipments along the Cape route because Mets says so? I think not. A document published by the Organization of the Joint Chiefs of Staff (JCS), entitled *United States Military Posture for FY 1983*, clearly points out that the African continent "is circumscribed by vital sea lines of communications." According to this document: "In 1980, about 50 percent of the Arabian Gulf oil shipments passed around the Cape of Good Hope; hostile forces anywhere on the African periphery could threaten the Western oil lifeline." (p. 8) The Cape route will continue to remain vital to the Western world for the remainder of this century for the transport of both oil and crucial strategic materials.

Another problem I find with the Mets critique is an indication that he may not have read my article closely enough. For example, he asserts that "Belfiglio overlooks the negative impact of his proposal in that U.S. support of South Africa might offend black African states to the point where they halt the flow of strategic materials from Africa itself." In fact, I specifically address this matter in the article on page 85.

Mets misreads my article a second time when he asserts that I overemphasize "the lasting effects of Soviet activities in sub-Saharan Africa." No one can be certain what the lasting effects of Soviet activities in sub-Saharan Africa will be.

My major concern is that current Soviet adventurism "in southern Africa poses a clear and present danger to the national interests of the United States in that part of the world." (p. 84) The JCS document already cited supports this contention. It points out that:

The rapid expansion of Soviet influence in Africa during the past decade constitutes the second general threat to US and Western interests in the region. Marxist regimes in Angola and Mozambique depend heavily on support by the Soviets or their surrogates, and in turn provide footholds from which the Soviet Bloc may attempt to deny military access and resources critical to the West. (pp. 8-9)

In September 1982, the Subcommittee on Security and Terrorism of the Judiciary Committee of the United States Senate conducted a thorough investigation of the Soviet threat. The subcommittee report, entitled "Soviet, East German and Cuban Involvement in Fomenting Terrorism in Southern Africa," noted that available evidence showed that the Soviets continue to support terrorism "under the guise of aiding struggles for national liberation." (p. 28) Furthermore, the report supports my position, not that of Mets, with regard to the strategic importance of Africa, noting the significance both of southern Africa's proximity to "the strategic sea routes around Africa" and Africa's "growing importance as a source of critical minerals." (p. 1)

Where strategic minerals are concerned, Dr. Mets does admit that "some minerals that are received from South Africa are quite important." However, he believes that "many of them could be obtained elsewhere at a somewhat higher price." Mets implies, but he does not openly admit, that other strategic minerals could not easily be obtained elsewhere. A report to the U.S. Senate Committee on Foreign Relations, entitled "U.S. Minerals Dependence on South Africa" and dated October 1982, argues that "The Western industrial world depends

heavily on South Africa for chrome, manganese, vanadium, and platinum." This report also asserts:

The United States is almost completely dependent on imports of chromium, manganese and platinum, either in the form of ore or ferroalloys. It is particularly dependent on South Africa for imports of chrome and ferrochrome and platinum. . . . South Africa has a highly sophisticated minerals processing industry, particularly when compared to developing country minerals producers such as Zambia and Zaire. For a variety of reasons, the U.S. capacity to process various ores is decreasing. . . . As our capacity to process ore deteriorates, our ability to shift from South African sources of processed minerals to other developing country sources of unprocessed ore will correspondingly decrease. (pp. 2-26)

In the area of trade statistics, Dr. Mets asserts that my figures for trade between South Africa and Europe and America, which are based on data supplied by the U.S. Department of Commerce, "are open to question on various grounds." But he offers no recognized source for challenging these figures. He then claims that "a power that took control of South Africa would still have to find markets for her goods." Mets fails to demonstrate conclusively why the United States could not be excluded from a list of market nations. Then he makes a very curious statement: "The loss of South Africa, were there any real chance of that happening, might be incon-

venient, but I doubt that it would be a 'major setback.' " This premise conflicts with the findings of U.S. congressional committees which allude to "the economic and strategic importance of southern Africa to the United States and the free world."

In one other major respect, Mets seems to have misunderstood my position, although I believe it is clearly stated in my article. He states: "The weakest point in Dr. Belfiglio's article is the ease with which he dismisses the domestic difficulties his proposed policy would generate. Even if no other group in the United States objected to it, there would probably be strong opposition to the policy among American blacks." Yet on page 85 of my article I state: "closer South African-American relations would antagonize many Afro-Americans."

Finally, Professor Mets doubts that the United States and its allies can "persuade South African officials gradually to initiate majority rule." I remain unshaken by this unsupported opinion.

While I am flattered that Dr. Mets took the time to prepare his response to my article, I do not believe that he has seriously challenged the basic ideas and conclusions it contains.

Denton, Texas

Dr. Belfiglio is Associate Professor of Government at Texas Woman's University.



books,
images, and
ideas

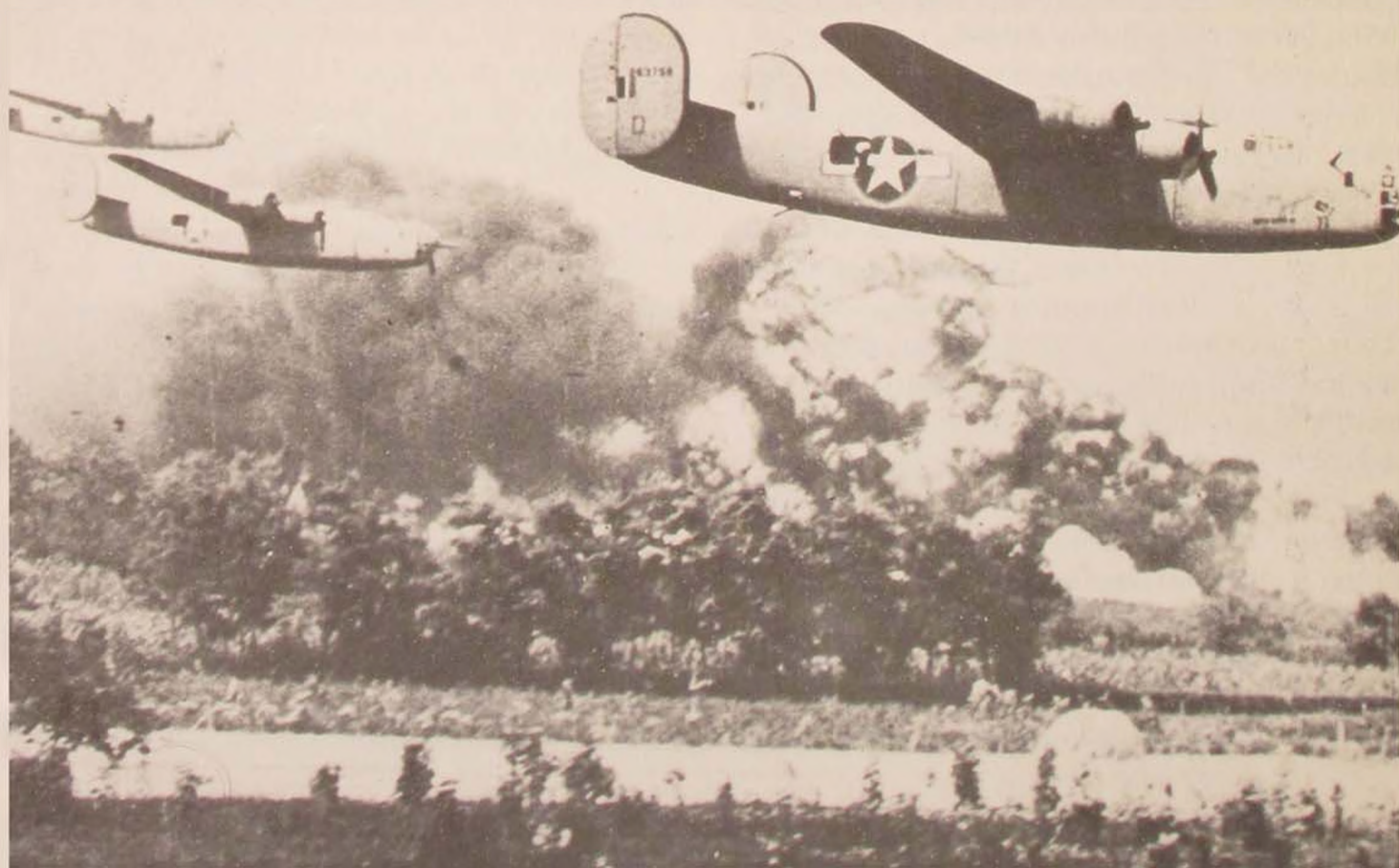
AIR STRATEGIES OF THE PAST AND FUTURE

DR. PERRY D. JAMIESON

FOR the last two generations, students of military affairs have argued about the effectiveness of strategic bombing with the same zeal that Reformation theologians debated the nature of the sacraments. Professor Lee Kennett deserves

considerable credit for avoiding polemics and writing a scholarly survey history of strategic bombing.† For some, *A History of Strategic Bombing* will provide a brief introduction to this controversial subject, and for others it will

†Lee Kennett, *A History of Strategic Bombing* (New York: Charles Scribner's Sons, 1982, \$15.95), 222 pages.



serve as a reminder of the troubling issues associated with the air offensive. Professor Kennett's book is so concise and clear that some readers will fail to appreciate its accomplishments, a readable overview of an extraordinarily complex subject.

The technological revolution of the late nineteenth century made it possible for manufacturers to improve weapons more rapidly than diplomats could secure arms control agreements. Between the two Hague conferences of 1899 and 1907, aviation technology made greater progress than arms negotiations. Kennett believes that although air power might have been banned in its infancy, "what helped save it was the argument that actually it represented 'progress' in warfare, a means to bring speed and precision to military operations and thus make wars less bloody." (p. 179)

Air strategy developed differently from one country to another, influenced by the economic and social histories of individual nations. Kennett emphasizes geography, and no doubt the close borders of the major European powers were an important factor in military planning. The German attack on London in 1917 marked a sharp turn in British strategic thinking, leaving the English with a deep concern for the safety of that great city. The French were wary of any strategy based on urban attacks, since the proximity of their cities to Germany rendered them vulnerable to reprisals. French planners thus turned their attention to a *points sensibles* strategy that concentrated on military targets in the enemy's production and supply network. Geography also influenced the air operations of World War I, and this experience in turn shaped postwar policy.

Early in the interwar period, diplomats tried to establish restrictions on air warfare. The Washington Naval Conference of 1921 and 1922 offered them a poor model because the formulas used to limit capital ships could not be applied to airplanes. The Hague Draft Rules of 1923 included a set of "Rules of Aerial Warfare," but these were vague at crucial points; it seemed very

likely that governments would claim the exigencies of war and violate the aerial rules when it suited their purposes. The growing fear and distrust across interwar Europe prevented any viable agreement on air power. The fundamental dilemma was older than the Old Testament: a man believed he could trust himself, but not his neighbor, with destructive weapons.

Kennett's survey of the air forces and combat doctrines of the major powers in the 1930s reveals how air strategy differed from country to country, yet the decade also had unifying themes. The dominant one was the problem of air defense, which no nation solved. Technology improved offensive air power, while complacency and economics retarded air defense; in 1939, Europe went to war with much anti-aircraft materiel that dated from World War I.

One difficulty in writing a history of strategic bombing is the obligation to retell the familiar story of the World War II air war. Kennett meets this challenge with a thoughtfully written survey. His account of the Battle of Britain assesses the importance of the belated German planning, inaccurate German intelligence, British resolve and courage, and the German decision to shift resources to Operation Barbarossa. Kennett summarizes clearly the high points of the European air war: the difficulties of the Allied mobilization; improvements in German air defenses between 1939 and 1943; the controversy over nighttime versus daylight bombing; the build-up of Allied air power in the Mediterranean; the introduction of the P-51B Mustang with auxiliary gas tanks; increasing American participation in the war and the general growth of Allied strength; improvements in Allied electronics, including the development of more sophisticated spoofing and jamming techniques; and the advances of the ground troops that destroyed the Luftwaffe's early-warning radar system. Kennett's treatment of the Pacific theater focuses on the competition in American planning between precision and incendiary bombing, and the eventual adoption of Major General Curtis E. LeMay's strategy of massive nighttime fire

raids on Japanese cities. The Tokyo raid of March 1945 and the others that followed created the "climate" in which "the ultimate air weapon of the war made its debut." (p. 176)

Professor Kennett ends his survey with an evaluation of World War II strategic bombing. Ethics aside, he concludes that

- area bombing produced disappointing results,
- American precision bombing was successful, and
- British bombing produced more widespread, but less critical, damage than American bombing.

Perhaps the greatest single difficulty in measuring the success of strategic bombing lies in intelligence, in the ability to evaluate the value and capacities of targets before—as well as after—they are attacked.

The intelligence problem surfaces several times in Kennett's narrative. If it appeared that strategic bombing in Europe in 1943 and 1944 was not gaining the results some expected of it, the state of the German economy and mobilization must be taken into account. Germany was not fully mobilized for war in 1939. "When Allied bombers began serious efforts to apply the brakes to German production in 1943," Kennett observes, "Albert Speer was just moving it into high gear. Well into 1944, his efforts effectively counteracted theirs." (p. 184)

KENNETT'S book is traditional military history. Carl Jacobsen's and Donald Snow's works fall into the more amorphous category of contemporary military policy and strategy. Research in these subjects is hindered by certain difficulties encountered in all efforts to understand the recent past. Works on contemporary topics nearly always are dated by the

time of publication. There is also the challenge of putting developments into their larger context, when only half that context—the preceding events—are known and when these events are so recent that their significance is difficult to evaluate. What place will Soviet intervention in Afghanistan hold in the history of the Cold War? No one writing in 1982 could be certain. In addition to these general problems, military topics present their own obstacles. The researcher enters a labyrinth of complex strategies and high-technology weapons. Research on some topics will produce more information than an author can evaluate in a lifetime; in other fields, the researcher encounters security constraints on Western documents and even greater restrictions on Soviet sources.

Professor Jacobsen is more interested in broad issues of foreign and military policy than in military strategy.† He begins *The Nuclear Era* with an assessment of the origins of the Cold War and concludes that there were more similarities than differences in American and Soviet approaches to foreign policy. Jacobsen believes that "both Moscow and Washington were wont to follow the behavioral patterns of their imperial predecessors." (p. 19) At the end of World War II, the United States was much stronger than the Soviet Union, and the Soviets tried to compensate for this by deceptive policies. The United States overreacted, and the Cold War followed. Both nations pursued chauvinistic foreign and military policies, and the remorseless power of their weapons put the world in unimaginable danger. This explanation of the Cold War sets the tone for most of the rest of Jacobsen's book.

The Nuclear Era is a series of brief essays which, while often irritating in their assumptions, touch on some ideas that are worth further consideration. The author develops a trouble-

†Carl G. Jacobsen, *The Nuclear Era: Its History; Its Implications* (Cambridge, Massachusetts: Oelgeschlager, Gunn & Hain; Nottingham, England: Spokesman, 1982, \$20.00), 130 pages.

some argument that, by the early 1980s, much of the third world no longer believed that the United States was the moral superior of the Soviet Union. He accepts the contention, widely voiced since the early 1970s, that the economic positions of both America and Russia, relative to the rest of the world, are in sharp decline. Jacobsen scores his strongest points in a chapter on the spread of nuclear weapons. Raising the specter of a horizontal proliferation that may extend to terrorist groups and irresponsible national leaders, he points out, "The Idi Amin of the 1970s had not enjoyed access to nuclear arms; a successor of the late 1980s and the 1990s might well." (p. 104)

The fundamental weakness of *The Nuclear Era* is that it is grounded in such strong assumptions about the course of the Cold War and the nature of the arms race that it will alienate many readers before they reach its more sophisticated arguments. I doubt that the book will have much influence on the military policy debates of the 1980s. Liberals will find little in the book that is new, and conservatives will dismiss it as revisionist claptrap.

Professor Snow's book on American nuclear strategy will attract a wider audience than Jacobsen's work. Snow tries to envision what American nuclear strategy will be like in the years ahead, and *The Nuclear Future* begins with an overview of how our present strategy has evolved.† It first considers the Eisenhower administration's doctrine of massive retaliation, a strategy which was undermined when the introduction of intercontinental ballistic missiles (ICBMs) and fission-fusion bombs made it seem likely that, if this strategy were carried out, the United States—as well as the U.S.S.R.—would be devastated. Massive retaliation was replaced by mutual assured destruction, a strategy which Snow contends was rendered suspect

by the Soviet strategic buildup of the 1970s. A debate followed between proponents of mutual assured destruction and advocates of some variation of a limited nuclear options strategy. The latter in turn had their critics, some of whom believed that "planning for the use of nuclear weapons in a broader range of situations increases the number and kinds of circumstances in which the weapons are used and hence potentially lowers the nuclear threshold." (p. 17) There is an ominous uncertainty about how the Soviets would react to the execution of a limited nuclear options strategy. Would the use of atomic weapons remain tactical and controlled, or become the doorway to Armageddon? Snow ends his survey of the development of nuclear planning with a consideration of the countervailing strategy embodied in the Carter administration's Presidential Directive 59, which drew together three strands of thinking from the nuclear policy debates of the 1970s: selected options, assured destruction, and essential equivalence.

Professor Snow concludes, from his survey of American nuclear planning from the 1950s through the early 1980s, that successive administrations have developed nuclear strategy without directly recognizing how technological changes have altered, and are altering, the nature of deterrence. Two significant changes in the nuclear arena since the early Cold War years are the introduction of multiple warheads and the increasing vulnerability of land-based ICBMs. During the 1970s, multiple independently targetable reentry vehicles (MIRVs) and dramatic increases in missile accuracy raised the issue of the vulnerability of America's ICBM fields. Professor Snow reviews the many arguments for and against MX procurement, but he is less interested in whether MX deployment is a "good" or "bad" idea than he is in the problem

†Donald M. Snow, *The Nuclear Future; Toward a Strategy of Uncertainty* (University, Alabama: University of Alabama Press, 1983, \$25.00 cloth, \$12.95 paper), 189 pages.

of ICBM vulnerability and the uncertainty it will add to future strategic planning. Land-based missiles, as presently deployed, are becoming increasingly vulnerable and eventually will pass from the scene. Snow expects that this process will be presaged by a growing awareness of the possibilities of ballistic missile defense (BMD).

In Snow's estimation, the Reagan administration has headed for an MX deployment along lines that will promote interest in BMD and probably will encourage sentiment for amending or abrogating the 1972 Anti-Ballistic Missile (ABM) Treaty. The University of Alabama Press published *The Nuclear Future* before President Reagan's March 1983 speech on future technology weapons, an address that strengthened Snow's predictions. Professor Snow displays considerable enthusiasm for a layered BMD system, while acknowledging its technological difficulties and the arms control issues it would introduce. He reviews the primary questions raised during the 1960s debate over ABM—its technical effectiveness, cost, and implications for deterrence (would ABM be destabilizing?)—and anticipates that these same issues, particularly effectiveness, will be revived in a second ABM debate.

Complexity and uncertainty are the central themes of *The Nuclear Future*. Snow contends that MIRVed missiles, ICBM vulnerability, laser and charged-particle beam weapons research,

and BMD studies have brought and will bring increasing uncertainty to nuclear planning. He develops a sound, if generalized, argument from past experience that uncertainties and unforeseen complications often have interfered with the timing and execution of military operations and that untried weapons rarely have performed in war precisely as expected. There will be broad agreement with Snow's contention that MIRVs and increased missile accuracy already have enlarged the uncertainties of strategic planning, and future technological breakthroughs will probably create further complexities.

If these propositions are valid, how are American leaders to make sound military policy in the future? Snow urges that they "accept and make the best of the very real uncertainties involved in predicting the outcome of employing nuclear weapons as the central reality for strategy." (p. 158) He advocates increasing the difficulties of Soviet planners by diversifying American forces beyond the current triad and using arms control to manage the transition from the present strategy to one that recognizes, and in fact is based on, the element of uncertainty. The history of weapons technology supports Snow's thesis, and even those who disagree with his prescription will have to contend with the unsettling possibility that his diagnosis is accurate.

Peterson AFB, Colorado



SMALL WARS AND LARGE LESSONS

*battle history
and historical awareness*

DR. JOHN F. GUILMARTIN, JR.

ABOUT forty-three years ago, a reinforced divisional task force of the Imperial Japanese Army (IJA) entered combat against Soviet forces in one of the most utterly forsaken spots on the face of the earth, the Khalkin Gol

Valley of Outer Mongolia. In a scenario that seems more credible today in light of the assorted small wars of the early 1980s, Japanese forces of the semi-independent Kwantung Army occupying the puppet state of Manchukuo initiated operations against local Soviet forces in retaliation for incursions against the border claimed by the Japanese.

The Soviet riposte was effective—embarrassingly so to the Japanese—and hostilities quickly escalated from company to regimental level. With summer approaching, the Kwantung Army resolved to teach the Soviets a lesson and struck across the Khalkin Gol River, hastily bringing up its air arm in support.

Secure in its stereotyped characterization of the Soviet soldier as “submissive, docile, and prone to blind obedience,” the Japanese moved with serene confidence against an enemy who possessed a marked qualitative superiority in mechanized and armored equipment and, at least potentially, a vast quantitative advantage in virtually every category of materiel across the board. While aware of the Soviet advantages, the IJA placed great stock in the sound training, physical toughness, intelligence, and initiative of its soldiers and junior officers in particular. Nor—let it be carefully noted—were these presumed areas of Japanese superiority illusory; they were very real, indeed. As the U.S. Army and Marine Corps were shortly to discover, the Japanese infantryman was tough, smart, astonishingly determined and resourceful, and, at least at battalion level and below, exceedingly well led.

Particularly in night fighting, Japanese Army planners were convinced that the superiority of the individual Japanese soldier and of Japanese thinking would inevitably tell. Such beliefs, well founded and firmly held, are the stuff of high morale and combat effectiveness; they can also, if clung to too tenaciously at too high a level, point the way down the short, sure path to disaster.

The Japanese, after initial success, met with a debacle at the hands of superior Soviet forces under General Georgi K. Zhukov, which were

brought up more quickly and in greater numbers than the Japanese had thought possible. The Japanese force, reinforced by an additional infantry division and backed by some fifteen air regiments, was driven back against the village of Nomonhan, whence the incident got its name. It was preserved there from rout or destruction when the advancing Red Army halted at the claimed Soviet border. Meanwhile, the Japanese Army Air Force (JAAF) had won the massive air battle that swirled overhead, decimating the Red Air Force, though with virtually no effect on the outcome of ground operations.

The initial Japanese incursion in force was in June. By late August, the Red Army's victorious tankers and mechanized troops had halted their pursuit. By mid-September, patrol activity had ceased, and the tubes of Zhukov's conquering artillery fell silent. The Red Air Force, its ranks thinned by the Great Purge of 1938 and the JAAF alike, licked its wounds and considered its professional deficiencies. Consummation of the Nazi-Soviet nonaggression pact of 23 August 1939 shifted international concerns and perceptions, a shift soon reinforced by the German invasion of Poland, and the brief, vicious war flickered from the screen of world consciousness.

WHAT lesson can be drawn from this far-off war by today's Western military professional? It would be difficult to imagine an area more remote from our concerns than the Khalkin Gol, lying halfway between Lake Baikal and the Yalu River. Similarly, it would be hard to imagine a military institutional outlook further removed from present Western sensibilities than that of the Japanese Army of the 1930s. In an important sense, though, this remoteness can be turned to advantage; identifying with neither Soviet nor Japanese, we can, at least potentially, be more objective in our analysis.

Dr. Edward J. Drea, of the U.S. Army Combat Studies Institute at Fort Leavenworth, Kansas, gives us the opportunity to take full advantage of this factor with his study of ground combat at

Nomonhan.† Combined with earlier study of the aerial component of the struggle,¹ Dr. Drea's work presents relevant data on morale, motivation, and leadership. It also sustains some powerful conclusions about the way in which appreciation of those factors can bear on military planning. Some disturbing hypotheses emerge.

Drea, a student of Japanese history and culture with a strong professional interest in tactical matters and the psychological aspects of combat, approaches his subject on three levels. First, he presents an effective, encapsulated overview of the Nomonhan incident, setting the stage for his analysis. Second, he effectively broadens our understanding of the dynamics of battle. Finally, he places his tactical analysis within the context of Japanese Army doctrine and carefully examines the lessons that were drawn from the Manchurian conflict. That he has chosen infantry combat as his subject should not deter those primarily interested in other aspects of armed conflict. Arguably, here in the crucible of small-unit dynamics under fire, the psychological issues common to all forms of combat are thrown into the sharpest relief. Looking closely at this most significant exposure of the Imperial Japanese Army to combat prior to its entry into the war against the United States, Drea seeks to deduce how the Japanese Army shaped its doctrine in light of hard-won experience, a matter of general concern to students of the art of war.

His chosen method is the intensive, in-depth study of a small unit in a manner reminiscent of the late S. L. A. Marshall. As the focal point of his effort, Drea selected a unit large enough to have played a significant and sustained operational role in the events in question yet small

enough to be grasped and understood in human terms. Exploiting a previously unused repository of unit war diaries in the Imperial Japanese Army Archives, he chose the 2nd Battalion, 28th Infantry Regiment, a unit heavily engaged at Nomonhan as the flank guard of its parent division. Under intense pressure for an extended period, it was not totally the prisoner of forces beyond its control. Circumstances dictated that the 2/28th give its utmost but permitted it to do so in its own way and over a period of time sufficiently long for operational strengths and weaknesses to reveal themselves and for patterns of leadership and response to emerge. The results are fascinating.

The saga of the 2/28th carries lessons that merit our serious consideration, the more so as the cultural distance between subject and reader permits dispassionate reflection on causes and effects.

Drea's account of the battalion's near-destruction in two months of intense and nearly continuous combat against superior Soviet forces forms the core of the study. The impressively complete notes, Japanese and English bibliography, and appendixes are a major scholarly achievement in themselves. The sharp analysis of Japanese pre-World War II infantry doctrine (and the IJA was an infantry army) should be mandatory reading for those seriously interested in Japanese participation in World War II.

Drea's rationale for conducting his study at the battalion level is powerful; his reasons for choosing this particular battalion are convincing. The preliminary chapters, setting the historical stage, describing weaponry and organizational structures, and analyzing the Japanese theory and practice of leadership, Japanese standards of training, and Japanese ideas con-

†Edward J. Drea, *Nomonhan, Japanese-Soviet Tactical Combat, 1939*, Leavenworth Papers No. 2 (Fort Leavenworth, Kansas: Combat Studies Institute, 1981), xi + 114 pages; bibliography and 3 appendixes; available from the Combat Studies Institute, U.S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027.

cerning the strengths and weaknesses of the Soviet enemy, are well done. The battle narrative is gripping; it is difficult not to feel a powerful empathy for the 882 officers and men thrown into an attack against superior armored and mechanized forces, with utterly inadequate artillery and antitank support, fighting first for their objectives and then for survival, displaying remarkable loyalty, tenacity, and initiative in the process.

Lessons abound, both positive and negative: The troop performance extracted by selfless junior officers who led by example is awesome. Conversely, the heavy price paid for inadequate logistical planning, in terms of troop suffering and, ultimately, defeat, speaks with at least equal eloquence. Finally, and most important, the stereotyped characterization of the Soviet soldier held by the IJA proved almost unshakeable, even in the face of repeated and costly failures of attempts to capitalize on superior Japanese aggressiveness, initiative, and flexibility. Indeed, it seems that the very reality of defeat solidified institutional memory of those occasions when things went as they should have.

Japanese troops *were* better at night, and the essential irrelevance of their excellence at this very difficult form of combat to the outcome of Nomonhan was somehow missed. Missed, too, was the significance of the manifest Soviet superiority in combined arms operations at regimental level and above. As late as the Battle of Okinawa in the summer of 1945, midlevel Japanese commanders and staff officers were pleading with their superiors for permission to launch an all-out night attack, convinced that if they could thus engage the American forces, the tables would be turned. On this occasion, as on others in the Pacific, the request was granted; the result was a bloodbath.²

The inadequacy of Japanese antitank weaponry at Nomonhan (the 2nd Battalion, 28th Infantry Regiment's four 37-mm antitank guns quickly ran out of ammunition and accomplished little) was masked, in professional appreciation, by an understandable pride in the forti-

tude and skill that enabled men to attack and destroy tanks on an open, grassy plain with hand-thrown bottles of flaming gasoline. One of the most remarkable episodes in Drea's account involves the commander of the unit's machine-gun company. Faced with a Soviet tank penetration of the battalion perimeter and lacking anything better, he led a handful of men in a bayonet charge, samurai sword swinging—and the tanks withdrew in apparent astonishment.

This sort of thing can be addictive. The Japanese forces went to war against the United States in 1941 not only with the serious deficiencies in materiel apparent at Nomonhan but with doctrinal flaws that made them worse.

The JAAF also achieved a truly remarkable record of success against the Red Air Force above the Nomonhan Plateau. The hard-pressed Japanese fighter squadrons, outnumbered by as many as 5 to 1 by the end of the campaign, compiled an enviable kill ratio in the neighborhood of 2½ to 1. They did so by capitalizing on a high level of individual flying experience and the superb maneuverability of the lightly built Nakajima-type 97 fighter. But by late August, their resources were exhausted, both logistically and in terms of human endurance; they still held air superiority, but disaster was not far away.³

While the Japanese Army Air Force, apparently as a result of Manchurian experience, released a fighter specification that broke with tradition by emphasizing speed and firepower as opposed to pure maneuverability (it resulted in the Ki-44 Tojo, probably the best Japanese fighter of the midwar period), there is no real evidence that the JAAF ever really faced up to its logistical inadequacies and the inherent brittleness of near total operational dependence on a small cadre of highly experienced fighter pilots. The price was paid in New Guinea in 1943 and early 1944, when the JAAF proved hopelessly inadequate to the task of maintaining complex, high-performance aircraft (notably the Kawasaki Ki-61 Tony with its liquid-cooled engine) under primitive jungle conditions, and the USAAF swiftly chewed up its remaining expe-

rienced cadres in a blistering battle of attrition.

In both instances the lesson is clear: for the planner, justifiable pride in individual skill and valor not only is not enough, it can be positively dangerous. The kind of one-for-one superiority demonstrated so convincingly at Nomonhan by Japanese infantry soldiers and their officers and Japanese fighter pilots alike is, at least potentially, the most dangerous of narcotics.

For today's free-world military planner and commander, the implications are apparent: the operational character of combat changes as the scale of combat increases, often drastically so. Nomonhan is an excellent example; if one looks at company- and platoon-level actions (particularly if one does so selectively, as Japanese Army analysts no doubt did), one forms one picture; if one looks at combined arms operations at brigade level and above, one forms quite another.

We should be cautious, therefore, in drawing too many encouraging conclusions from the performance of Gurkhas, Royal Marine Commandos, and Scots Guards in the South Atlantic War, where operations, however skillfully conducted, never rose above brigade level. A similar

cautionary note applies to our own successes on Grenada. Similarly, F-15 air-to-air kill ratios over Bekáa Valley, while a legitimate source of pride to builder and flyer alike,⁴ tell us very little about what to expect from entire F-15 fighter wings fully committed in a broader conflict, flying from bases under air and ground attack, pressed to the limits of their logistical support.

WE LEAVE other similar examples to the reader's imagination. Drea and the Combat Studies Institute have done an excellent service in documenting an unusually clear example of the critical interrelationships among tactical excellence, selective perception, and doctrinal self-deception. That Drea has combined this with a culturally and psychologically sensitive and thoroughly documented analysis of the dynamics of small-unit performance under fire marks him as a scholar of exceptional promise from whom students of the art of war will hope to hear more.

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Notes

1. Eiichiro Sekigawa, "The Undeclared Air War," *Air Enthusiast*, in three installments, vol. 4, nos. 5, 6, and 7 (May, June, and July 1973).

2. James Belote and William Belote, *Typhoon of Steel, The Battle for Okinawa* (New York, 1970), p. 219.

3. Sekigawa, pp. 28-29.

4. For example, the first two sentences in Jess Gorkin, "What We've

Learned from the Israeli Air Force," *Parade* (October 16, 1983), pp. 50-53: "Who Are the World's Best Fighter Pilots? Many military experts will tell you it's a toss-up between the American and Israeli combat airmen." Nowhere in this popularized (and therefore surely officially sanctioned) treatment in the Sunday newspaper magazine supplement are air operations above individual aircraft and element level—the United States and Israeli forte—even mentioned.

Kronstadt 1917-1921: The Fate of a Soviet Democracy by Israel Getzler. New York: Cambridge University Press, 1983, 296 pages, \$44.50.

Perhaps the most decisive event of the year 1917 was the February (March, New Style) Revolution in Russia, for it was in February that the tsarist autocracy was overthrown. This event, in turn, set the stage for what is called the October Revolution, the assumption of power by the Bolsheviks. In February and again in October, political organs flashed the slogan: "All Power to the Soviets." And because of the events of October and the ensuing Bolshevik consolidation of power, we have come to associate the word *soviet* with the Communist Party of the Soviet Union. Yet things were not always that way. *Kronstadt 1917-1921* puts the word *soviet* back into its original revolutionary context and chronicles the bastardization of the soviets into rubber stamps of the Communist Party.

Kronstadt, a naval fortress and base in the Gulf of Finland, played a pivotal role in the Russian Revolutions of 1917. It was at the forefront of the February Revolution as its sailors led soldiers and workers to a speedy and relatively bloodless victory over their former masters. The Kronstaders took the slogan "All Power to the Soviets" to heart and established a pluralistic council in which several parties participated. The council (a "soviet" in Russian) and public meetings in Anchor Square became the focal points of what may have been the most enlightened democracy Russia has ever known. Distrustful of attempts by the provisional government in Petrograd to consolidate power, the Kronstaders jealously guarded their autonomy. In July—and again in October—Kronstadt's forces (neatly co-opted by the Bolsheviks) marched on Petrograd in crusades they thought would transform all of Russia into a Kronstadt-model democracy of soviets. Thus they became the shock troops behind the Bolshevik rise to power. But the honeymoon was relatively short-lived, for, by 1921, Kronstadt became disillusioned with bolshevism.

Kronstadt's "problem" was its belief in democracy and the slogan "All Power to the Soviets." Kronstadt began to recognize "democratic-centralism" and "the dictatorship of the proletariat" as euphemisms for the dictatorship of the Bolshevik Party, and this put Kronstadt and the Communist Party squarely and irrevocably at odds. The tsarist autocracy had been replaced by a party "commissarocracy"; the slogan "All Power to the Soviets" by the slogan "There can be no soviet power without the Communist Party." Kronstadt broke with the central government on 1 March 1921. Blocked, naïvely clinging to the hope that truth would triumph, and adamantly refusing White Russian assistance, the Kronstaders fought under the slogan: "All Power to Soviets and Not to Parties." Kronstadt held out until 17-18 March, and then the Kronstadt experiment with soviet democracy quietly ended.

Israel Getzler's treatment of the Kronstadt affair is the best objective description available of a relatively little known

but very important chapter in Soviet history. The work is heavily footnoted—perhaps *too* heavily, since many of Getzler's statements could be accepted standing alone—from almost exclusively primary source materials. His descriptions of persons and events are vivid and relevant to understanding the significance of the Kronstadt affair. In short, *Kronstadt 1917-1921* is interesting, readable, and well researched. At the same time, these very strengths lead to two criticisms.

Getzler's stated purpose was to concentrate on the "golden age" of soviet power and democracy in Kronstadt from March 1917 through July 1918. This he did very well, but his book suffers from an identity crisis in that the title and a significant portion of the text deal with the last two years of Kronstadt's experiment as well. Unfortunately, Getzler tells just enough of that story to whet one's appetite. Thus the last portion of the book—the third Kronstadt revolution, the climax of the whole affair—contrasts poorly with the highly detailed descriptions of Kronstadt's first year. Getzler's rationale is that others have covered this period. Nevertheless, the closing portions of the work become almost anticlimactic, detracting from the overall impact of the book. What we need is *one* good book to tell the *whole* Kronstadt story. Getzler held out that promise but fell short.

The other criticism, the cost of the book, is beyond Getzler's control. With his style and attention to detail, Getzler has created a book that could appeal to a fairly wide audience. Yet the book's cost will significantly reduce that audience. A large number of nonspecialists would enjoy and profit from reading *Kronstadt*, but one cannot suggest in good conscience that they buy a copy. That is unfortunate because *Kronstadt 1917-1921* is very well done.

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A History of Cambodia by David P. Chandler. Boulder, Colorado: Westview Press, 1983, 237 pages, \$25.00.

Once upon a time far far away, a pastoral little kingdom basked in peace and plenty. Nothing much happened for 2000 years. Then, communists from across the mountains and bombers from beyond the seas wrecked the kingdom's tranquillity. It did not live happily ever after.

Cambodia was a different place. Professor David Chandler's short but incisive history, the first scholarly survey of Kampuchea's past published in any Western language since Adhémar Leclère's *Histoire du Cambodge* (1914), describes the travail of a conservative people regularly racked by revolution. In place of coherence and continuity, Kampuchea's turbulent memories offer only a confusion of competing past.

Han Chinese chroniclers first noticed Southeast Asia's Mon-Khmer principalities just as ideas leaking from India

Indianized their peoples. Jayavarman II (enthroned 802) transformed the clutter of Khmer states into a mighty Hindu empire, one which overspread and subdued much of the peninsula. Jayavarman VII (enthroned 1181) recreated the Angkorean empire as a Buddhist realm. As Buddhism's distrust of all worldly pretension eroded Angkor's power, Thai-Lao peoples compressed and punctured Kambujadesa's collapsing frontiers. From the midfifteenth century, when the Siamese sacked Angkor, until the 1860s, when French protectors replanted the kingdom's mobile monarchy at Phnom Penh, Kambujadesa imploded. Only the advent of the French prevented Chakkri Siam and Nguyen Vietnam from dismembering Kampuchea's corpse. Through the next eight decades the Third French Republic's *mission civilisatrice* did, however, gut Cambodia's soul. Japanese co-prosperity terminated France's Indochinese imperium, but it was not until the mid-1950s that the Fourth Republic quit trying to reconquer what France had already lost. Cambodia emerged from a 400-year nightmare bitter, exhausted, vulnerable, and xenophobic. America's brief Indochinese adventure twinkled quickly by, prolonging Indochina's agonies just long enough to intensify Cambodia's paranoia and revivify Vietnam's ferocious irredentism. In 1975 Kampuchea went mad.

Chandler's crisp but critical text weaves together the best current scholarship to fabricate an enlightened understanding of, and an empathy for, Kampuchea's desperation. His treatment of the country's medieval dark age is particularly illuminating: given the paucity of sources through which a historian can plumb the centuries following Angkor's fall, Chandler's synthesis must be considered definitive. The only chapter to raise a skeptic's hackles is the last, a 20-page glimpse of Cambodia's most recent four decades. The period is not Chandler's specialty; some of the sources he cites for it provoke doubt. For example, the fact that in 1961, a Viet secretary-general of the Khmer communist movement published an article detailing how the Viet Minh exported and controlled Cambodia's communist *apparat* during the French War should cause one to question tendentious retroactive affirmations that Khmer communism was always Khmer in origin and character. Yet with or without the last chapter—which does have points to commend it—the book shows why Cambodia was cocked to go berserk. It is too bad that *A History of Cambodia* was not in print before the Cambodian quagmire tempted the United States to risk stepping in.

Dr. Robert L. Kerby
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With Shield and Sword: American Military Affairs, Colonial Times to the Present by Warren W. Hassler, Jr. Ames: Iowa State University Press, 462 pages, \$29.50.

Professor Warren Hassler has set himself a commendable and ambitious task: to provide an integrated survey of American military affairs, including policy, operations, and analysis of the leadership of military men and politicians. The narrative sweeps along from King William's War (1689-97) to President Carter's military policy. It is at its best when

dealing with operational matters, particularly those of the army. The analysis of American military leadership is generally favorable: President Wilson fares least well among the political leaders, General Henry Halleck among the military.

In a survey of almost three hundred years of American military affairs, there is bound to be dissatisfaction with material either included or excluded by the author. One is struck, for example, by the lack of attention given to America's most recent wars. The space allocated to a topic is not the only criterion for judging the ability with which it is handled, but often it is a reasonable one. Here, for example, more attention is given to the Spanish-American War than to the wars in Korea and Southeast Asia combined. The Southeast Asian war is covered in only three pages, totally inadequate in light of its length, intensity, and significance. Those interested in air power also will be disappointed. The strategic air campaign in Europe during World War II is allotted only one page of text. The Doolittle raid on Japan is given almost as much attention, and there is more discussion of Custer's Indian campaigns than of the entire World War II air war. Most of the maps are small and lacking in topographical detail. The index is incomplete. I noted that the following individuals mentioned in the text were not included in the index: Generals Hugh Scott, Carl Spaatz, Ira Eaker, Claire Chennault, and Earle Partridge. Controversial subjects are often ignored; for example, the army-navy controversy in the 1920s and 1930s over Pacific strategy. Similarly, the World War II issues of a Central Pacific versus a Southwest Pacific strategy and the oil-versus-transportation air strategy (preceding the invasion of Europe) are not raised.

Hassler does not set out to break new ground in this survey, but the text, together with the sources cited in the endnotes and bibliography, is a useful introduction to American military affairs.

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Taps for a Jim Crow Army: Letters from Black Soldiers in World War II edited by Phillip McGuire. Santa Barbara, California: ABC-CLIO, 1983, 278 pages, \$22.50.

Over the past ten years, historians have made tremendous gains in their coverage of the black military experience. There have been excellent general studies and specific monographs followed by collections of source documents. In *Taps for a Jim Crow Army*, Phillip McGuire continues this trend by bringing together letters that black soldiers and airmen wrote during World War II to the War Department, the black press, the President, the National Association for the Advancement of Colored People—almost anyone who would listen to their particular situation. What the letters describe is not very complimentary to the military because they detail the racial problems that blacks experienced as they served their nation during time of war. Discrimination was prevalent, and often that discrimination could be repressive, abusive, and humiliating. Professor McGuire places these letters into a well-thought-out structure with a fine introduction and conclusion.

Generally, letters of complaint or protest represent extreme cases and will emphasize the negative; and McGuire's collection certainly does. Yet primary sources are available, and there are ample secondary ones to demonstrate that the problems described did indeed exist. When writing the letters, the soldiers and airmen often started by proclaiming their loyalty to the United States. Then they stated, rather plaintively, that something had happened to them because white individuals or the "institution" was not willing to accept their color as equal: "I was given the old 'run-around'" (p. 9), "treat us like soldiers not animals" (p. 11), "we are being treated like dogs" (p. 84), and "we are practically imprisoned." (p. 118) Along with each comment was a list of specific grievances. One obvious question that arises is how many of the complaints also applied to white soldiers. Understandably, some did, but again there are other sources to prove that often blacks were mistreated simply because of their race. Unfortunately, Professor McGuire makes no attempt to evaluate the accuracy of the accusations, some of which appear to be exaggerated.

But there is another side of service by black soldiers during World War II that is missing from *Taps for a Jim Crow Army*. Mary Frances Berry and John W. Blassingame discuss their sources for *Long Memory: The Black Experience in America* and write that the "sources presented the Afro-American's history in its most concrete, most complex, and most human terms: pain, joy, love and hate." In other words, they consider a full spectrum of human emotions—the positive along with the negative. Professor McGuire presents only the pain and hate but not the joy and love. The segregated military life of World War II was not pleasant, and blacks who did not have problems tended not to write letters of complaint. Yet just as the documentary evidence supports McGuire's areas of concern, other evidence also reveals that there were bases and posts where good human relations did take place, where people did get along, and where leadership was responsive to the needs of the military personnel under them. Obviously, this side of military life does not appear in *Taps for a Jim Crow Army*.

The military has moved far since the World War II days, ably portrayed in Phillip McGuire's *Taps for a Jim Crow Army*, not only in terms of the better utilization of blacks and other minority personnel but also in understanding the total makeup of a human relations climate. Nevertheless, service personnel can read this book with profit, for it gives a clear idea of the pain and suffering caused by the thoughtless actions that strong command action and modern social action programs aim to eliminate.

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Strategic Nuclear Force Requirements and Issues by George J. Seiler. Maxwell AFB, Alabama: Air University Press, 1983, 176 pages, available through GPO.

This ambitious and ambitiously titled work is one of the first volumes sponsored by and carrying the imprint of the new Center for Aerospace Doctrine, Research, and Education (CADRE). In general, it is a very positive start by a clearly bright, perceptive young USAF captain, George J.

Seiler. Captain Seiler has done a great deal of research on his subject, and his technical and methodological command of complex and arcane material is impressive.

Seiler divides his study into five "volumes" (which are really chapters). The first deals with the various methodologies by which comparisons of strategic forces are made, including static measures and dynamic comparisons based on various war-fighting and developmental scenarios. The chapter is thorough and exceedingly complex, to the point that only the truly dedicated will complete it with ease.

The second volume discusses the triad and is, in my judgment, the book's strongest chapter. In defending the continuing efficacy of a three-pronged strategic force, Seiler is quite persuasive, particularly when he compares a triadic structure with various monadic (one force element) and dyadic (two force) configurations on both effectiveness and cost bases. He makes a particularly interesting point in arguing for level and constant funding for all three triad legs as the best means to ensure that there is always an invulnerable dyadic force available as a deterrent.

The quality of the volume decreased somewhat in the last three volumes. The third chapter deals with modernizing the ICBM leg of the triad. The chapter is only ten pages long and covers its subject matter in a much more cursory manner than one had come to expect from previous chapters. The need for a hard-target-capable MX is taken as a virtual given, with objections dismissed in one paragraph about the "political scientists" who "write prolifically about the destabilization that would occur if the United States deployed a prompt hard target kill weapon such as the MX." (p. 91) As one who has written on the subject, I think the objections are more substantial and warrant more thorough refutation than is offered. Moreover, consigning survivability as only the fifth most important criterion for judging a new missile strikes me as debatable.

If volume three is too brief, volume four, on the need for the manned bomber, is too long (54 pages) for a book of this length. The analysis goes little beyond standard institutional justifications for the penetrating bomber, and a twenty-page history of postwar Air Force bombers detracts from its analytical focus. The final volume looks at "other strategic issues," including ballistic missile defense, arms control negotiations, and Robert S. McNamara's familiar "how much is enough?" In his fewer than ten total pages, Seiler clearly cannot and does not treat any of these topics in enough detail to shed much light.

As this overview attempts to show, Captain Seiler's study is somewhat uneven. The first half (volumes 1 and 2) is very good, and the defender of the triad will find some very useful material here. The second half, however, would have been improved by cutting down drastically on the manned bomber advocacy and redistributing that effort to the ICBM and other issues.

Dr. Donald M. Snow
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Strategy for Defeat: The Luftwaffe 1933-1945 by Williamson Murray. Maxwell Air Force Base, Alabama: Air University Press, 1983, 365 pages, \$9.50.

The air war during the Second World War was just as much a war of attrition as was the trench combat during World War I. German forces in both wars were worn down by constant pressure, their reserves used up, their industrial potential exhausted, and their morale diminished. In both wars they fought harder and longer than their resources warranted. The Luftwaffe did not turn out to be the definitive strategic weapon that the air theorists had expected; rather, it became one more important branch of the total armed forces of Germany, like the submarine fleet or the panzer divisions. These are the major themes of this important and thoughtful book. With many graphs and numerous statistics, Dr. Williamson Murray gives the clearest explanation of why the Luftwaffe was defeated. Forced to fight almost constantly from the spring of 1940 on, the Luftwaffe was never a match for its stronger enemies.

All the familiar reasons for the defeat of the Luftwaffe are cited: the low level of production, slowness in introducing more advanced equipment, the robbing of the Training and Transport Commands, the reduction of flying training, the bombing offensive mentality of the Germans, and the tactical misuse of the Luftwaffe. Yet again and again Murray hammers home his major premise that it was the attrition war that brought the Luftwaffe down. Fighting first on one, then two, and later three and four fronts, the Luftwaffe was never equal to its tasks. Murray attributes much of the blame for the Luftwaffe's failure on the flawed strategic concepts of the German military, political, and economic leaders, especially in the crucial time of 1940-41. Had they mobilized their resources including those of occupied Europe more carefully and had they had a better strategic concept of the type of war they were in, then possibly they could have won. Fortunately, they did not draw the proper conclusions from the events of 1939 and 1940, and largely because of their "overweening pride and arrogance after the early victories," the German leadership doomed the Luftwaffe and Germany to defeat.

There are few surprises and little sensationalism in this solidly crafted book. Murray is too careful a historian for that. He has deftly tapped the best and most recent works on the subject along with some very interesting new archival materials, especially on Ultra and the air war, and has woven them into a tightly organized, highly readable text. This does not mean that professional historians will not take exception to some of his views, but overall *Strategy for Defeat* is an important contribution to our understanding of the Second World War. Professional airmen will be fascinated by the interdependence of strategy, tactics, and technology and how baffling it can be. Another area Murray opens up that should be studied in greater detail is that of noncombat losses. A comparative study of the accident rates of Germany and the Western powers would clarify some of the generalizations that have been made based on training procedures. Murray also has some important observations about how the Luftwaffe kept men fighting against overwhelming odds. Excellent middle-level leadership and unit cohesion seem to be the answer. It is a lesson that may have escaped us in the recent past.

Dr. Edward Homze
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From Muskets to Missiles: Politics and Professionalism in the Chinese Army, 1945-1981 by Harlan W. Jencks. Boulder, Colorado: Westview Press, 1982, 322 pages, \$25.00.

In spite of their roots in guerrilla and revolutionary protracted warfare, the Chinese armed forces have long sought to be "modern." But becoming modern involves far more than producing weapons and equipment based on advanced technology. For the Chinese People's Liberation Army (PLA), the technological, human, and managerial aspects of modernization resulted in a series of political disputes that have combined to leave the current defense establishment in a condition in which it can make only uneven responses to the demands of modern warfare. The crux of the problem has never been whether the PLA should be technologically modern. Rather, the problems faced by the Chinese armed forces have been intimately related to issues arising over the pace of modernization, the cost of modernization and the burden it places on the civil sector of the economy, and the professional military ethic within which this modernization would occur. Thus questions of ideology became enmeshed in disputes over resource allocation within a desperately poor country. Harlan Jencks has done a superb job of untangling the issues involved and tracing the twists and turns of the wide spectrum of conflicts that reflect the multifaceted problem of military modernization.

Jencks has done more than update our information on the role of the PLA in Chinese politics and its progress toward building a more modernized force structure. He anchors his study on the concept of "professionalism" as it was developed by Samuel P. Huntington and seeks to establish a comparative base for his work through an analysis of Soviet and Chinese responses to the task of modernizing their armed forces and professionalizing their officer corps within a Marxist-Leninist ideological prism. The responses have been different not only because of the particular historical circumstances that surround the origin of the two armed forces but also because the political leaderships of China and the U.S.S.R. had distinctly different views of the role of their armed forces in society and the political system. Different though the Chinese response was, the technological imperative and the demands it makes on leadership, doctrine, strategy, tactics, and the management of a complex force structure created a continuing pressure from within the defense establishment for a professional officer corps: "Not a 'pure' professionalism to be sure, but one closer to Clausewitz than Mao Tse-tung." (p. 30)

Even though Jencks has taken the analysis of the Chinese armed forces a major step forward by casting them in a comparative framework, he has performed yet another valuable service to the reader by devoting a chapter to an examination of "Maoism." For those unfamiliar with the manner in which Mao's extensive writings are used within Chinese policy debates and to condemn defeated adversaries, the polemics of the debates and charges are confusing at best. The chapter presents an analysis of Maoism with particular emphasis on the role it has played in the debates over defense modernization, the role of the armed forces in society, the development of doctrine and strategy, and the way in which Mao's past views have been distorted to serve political ends.

Harlan Jencks has written a book about the Chinese military establishment that deserves to be read by anyone with a serious interest in China or the complex issues involved in the modernization of armed forces. No doubt his own background as a professional soldier was of major importance in providing him with the insights that make this work so useful.

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The Non-Nuclear Defense of Cities: The High Frontier
Space-based Defense against ICBM Attack by General
Daniel O. Graham. Cambridge, Massachusetts: Abt
Associates, 1983, \$25.00.

Lieutenant General Daniel Graham, USA (Ret), has never had the reputation of being one to run from controversy. Indeed, he has often been the center of it. Back in the early and mid-1970s, when it was fashionable to view the Soviet Union through the rose-colored glasses of détente, Graham (then Director of the Defense Intelligence Agency) was one of the very brave but few who tried to shake the U.S. policy establishment into a more realistic appraisal of the Soviet Union and its arms program; former USAF Major General George Keegan was another. Later, in an *Air Force* magazine article (August 1977), Graham—by then retired from the Army—decried the eclipse of U.S. strategic thought. He charged that there had been no formulation of basic U.S. national strategy since the Truman years. Since that time, and especially with the McNamara domination of defense policies, military strategists have gradually been replaced by program managers, action officers, systems analysts, and cost-effectiveness accounting techniques which, according to Graham, brought strategic thought to a dead end.

As if to answer his own criticism, General Graham now proposes in this book a change in our national strategy which will rid us of the highly uncertain mutual assured destruction (MAD) strategy and replace it with "Assured Survival." His "bold approach" argues for a "technological end run" around the seemingly unnegotiable Soviet arms buildup by shifting the competition to an arena in which the United States can exceed and dominate—the operational theater of space. Using off-the-shelf technology, Graham claims that the United States can, within five to six years, deploy ground-based and space-based systems that will destroy any confidence the Soviets might have in a first strike against our deterrent forces. Within another ten years, a second-generation space defense system and other measures could effectively challenge a significant percentage of the Soviet ballistic missile threat. Effective civil defense is urged as another critical layer in Graham's strategic defense strategy.

To establish the necessity for this new approach, Graham pleads with the reader not to have any illusions about current or future Soviet militarization of space. He also discusses his "High Frontier" system survivability, treaty ramifications, economic impact on U.S. industry, and alliance considerations. The opportunity is there, says Graham; all

we need is the national commitment to seize the extraterrestrial "high ground" and be as "bold and resourceful as our forefathers."

General Graham's vision and enthusiasm apparently had the desired effect on at least one key policymaker. On 23 March 1983, President Reagan announced that he was "directing a comprehensive and intensive effort" to counter the Soviet missile threat by "proceeding boldly" with new technologies that can reduce the Soviet incentive for attack.

Far be it from me to question our Commander in Chief, but General Graham's book is fair game. Despite its appeal and foresight, it simply is not the cogent and well-written clarion call that one expects. True, there are enough new concepts and proposals to keep scientists, strategists, and policymakers busy for decades. Unfortunately, the book reads like it was put together by a committee. How else can one explain the numerous redundancies? Whether intended or not, the curious (and unnecessary) format more resembles that of a military operations plan than a book (complete with "Annexes" for several chapters, parts A, B, and C for another, and appendixes at the end). The book carries a 1983 copyright, yet it does not mention some of the key changes in U.S. space policies that occurred as recently as 1982 (such as the establishment of Space Command). Even the friendly and semi-convincing reader should find the book full of assertions, overstatements, and troubling simplicities. For instance, Graham dismisses the "Swarmjet" point defense system designed to protect our missile silos against incoming ICBMs as merely "dynamic hardening," not an ABM weapon subject to treaty limitations. There is also too little discussion of Soviet reaction to space weapons orbiting over their sovereign territory (which raises the interesting question as to whether territorial sovereignty extends infinitely into space), the fact that his new strategy will not defend against bombers and cruise missiles, and the instability that is bound to occur as the United States embarks to even step one of "High Frontier," which is the "dynamic hardening" of our ICBM silos.

Despite the obvious limitations and occasional twisted logic, General Graham's arguments have accomplished a rare and enviable feat: they have focused national attention on a problem and suggested a means to solve it. The President himself has taken notice and committed his administration to the serious pursuit of a new national strategy based on strategic defense (unfairly labeled as his "Star Wars" plan). In the process, the President has also opened a national debate which, if it can rise above most of the inevitable Democrat versus Republican polemics, promises to be a healthy, introspective analysis of our national (not just military) strategy—its weaknesses, strengths, and future parameters. General Graham's bold new approach does not promise a foolproof defense of the country, but it does propose a strategy that perhaps—just perhaps—can move us away from the depressing and ever-expanding offensive arsenal of MAD and toward a "defense that defends." General Graham has been right too many times in the past for us not to believe that he has something to say and is on the right track once again.

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Air Superiority in World War II and Korea, USAF Warrior Studies, by Richard H. Kohn and Joseph P. Harahan, general editors. Washington: Office of Air Force History, United States Air Force, 1983, 116 pages, \$4.75.

This oral history interview with General James Ferguson, General Robert M. Lee, General William Momyer, and Lieutenant General Elwood R. Quesada focuses on air superiority in the context of the development of U.S. air power. An excellent introductory chapter sets the stage and includes the participants' biographical sketches. Discussion commences with the pre-World War II era and provides first-person accounts of the exciting ideas that eventually became doctrine for our modern air force. The first-person descriptions of such events as the 1933 March Field maneuvers and the 1936 Muroc Lake maneuvers and their doctrinal extrapolations to the great air campaigns of World War II are interesting and instructive. And World War II literally comes alive with the participants' personal experiences and their observations of other great leaders. Most striking is their ready admission that necessity and experience sparked an evolution that yielded approved doctrine. They went with what worked, and anything else was superfluous and irrelevant.

Doctrinal battles associated with an independent Air Force after the war produced some lively discussions among the participants, but those talks pale in comparison to their treatment of Korea and Vietnam. Although Vietnam was not on the agenda, its discussion was inevitable. Their analysis of recent conflicts revalidated doctrinal truths, and more World War II examples reinforced the case.

The dialogue among the four participants is as valuable as their solo commentaries. Although interviewing a foursome may have induced some mutual restraint, it certainly broadened the scope and enlivened the discussions. Any difficulty in following the dialogue should be ascribed to readers' deficiencies in detailed historical knowledge rather than to omissions by the editors or the four generals. The Office of Air Force History has produced an interesting and enlightening work that adds flavor and substance to a subject that is often discussed and less frequently understood.

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Brothers: Black Soldiers in the Nam by Stanley Goff and Robert Sanders with Clark Smith. Novato, California: Presidio Press, 1982, 224 pages, \$14.95.

This is a highly instructive piece of oral history, in spite of the title and a silly, shrill foreword by Clark Smith, who did the interviewing and, presumably, the editing of the text. We learn, in what purports to be the tape-recorded reminiscences of two black privates, what it was like to have served in Vietnam in the Army, just after the 1968 Tet offensive. Stanley Goff was a genuine war hero, receiving the Distinguished Service Cross; Robert Sanders, in Air Cavalry, got the Air Medal for some twenty-five combat assaults. Those who command black troops or who are interested in the war from the perspective of those far down the line will be

particularly interested in what these representative blacks have to say about training, leadership, and rumors.

The foreword rings the charges on white racism and black political consciousness-raising, though Goff and Sanders have little to say about either subject as such. Smith makes misleading or incorrect assertions: white America put blacks in the field to get them killed; for the entire war "at least half" of all infantrymen in Vietnam were black; blacks in infantry units who "walked point" or carried the M-60 machine guns were chosen primarily to increase black casualties. We are told that "American tactics called for use of infantrymen as decoys." No wonder a blurb quotes Ishmael Reed as saying the book "made me so mad I had to go out and take a walk."

Those who stay seated and read what happened to Goff and Sanders will be impressed with how effectively the Army trained its recruits. Goff and Sanders admired black and white officers who looked tough and stayed in superb physical condition. Spit-and-polish played a significant role. The use of black sergeants just back from Vietnam was the right way to instruct black recruits (a far cry from the use of white Southerners to train black recruits during World War II.) Sanders in particular felt a sense of group identity in Vietnam which he had never experienced while growing up and seems not to have experienced since. "We were close," he declares, "without being 'funny'. I mean like gays. We were so close it was unreal." (p. 60)

Goff performed heroically on 25 August 1968, killing because he had been trained that way, not cracking in a moment of extreme danger, and using his M-60 with devastating results. The remainder of his tour was spent playing the bugle at a base far to the rear. Returning to the United States, he was assigned to play football. He is appreciative of how hard white officers worked to make sure he received the Distinguished Service Cross and not some lesser medal. Sanders tells of rumors at the Fort Lewis induction center. "Word was going around," he states, "that blacks were being drafted for genocidal purposes. Just to get rid of us—to eliminate the black male. And we believed it." (p. 11)

Oral history is never, in printed form, just as one speaks. Information about a topic may come up in a variety of places, and needs to be combined; and who wants to read distracting "uhs" or slips-of-the-tongue? But this account is so extensively corrected that often we have no sense of how Goff and Sanders actually speak. (See Susan Allen's "Resisting the Editorial Ego: Editing Oral History" in the 1982 *Oral History Review*.) The text includes editorial interpolations by Smith, though no footnote admits as much. "Of course, a common word then was 'gook'" is but one example. (p. 22) The man who says "I did excellent in music" would not say "we were expendable." It is also too bad that Smith chopped up the stories of two friends with such dissimilar careers. We get a chapter on Goff, then a chapter on Sanders.

In spite of such complaints, I believe the reminiscences of Goff and Sanders to be essentially correct. Their lack of reflection on the meaning of the war, their service experience, and even their blackness reminds us that the war is not to be comprehended through the creative intuition of the novelist or journalist. It should also be seen through the less artistic, less profound, but nevertheless terribly real and true

experiences of such soldiers as Goff and Sanders. Their fuller accounts compare favorably with the 31 oral histories in Al Santoli, *Everything We Had* (1981).

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The Kamikazes by Edwin P. Hoyt. New York: Arbor House, 1983, 333 pages, \$16.50.

This is an interesting, well-written book about one of the most fascinating aspects of World War II: the use of suicide as an accepted military tactic. Self-sacrifice in military history is not uncommon. Military men have frequently faced odds that make their continued resistance seem like suicide. On the other hand, the deliberate use of soldiers who have been trained for suicide missions as a military tactic is not common at all. What would drive a military establishment to use such tactics? Why would a culture allow it to happen? Why would men carry out such missions?

Edwin Hoyt attempts to answer these questions, and the answers are the essence of the book. To understand why the Japanese turned to suicide tactics, the author explains some of the influences of the Japanese culture: the sense of duty to the society, the long tradition of success in war, and the absence of foreign occupation. The greater part of *The Kamikazes*, however, is concerned with pilot attrition. (The Japanese never had any problem with aircraft availability. Even during the latter months of the war, aircraft production was about 2000 per month.) The skilled pilots had all been lost by 1944, and the Japanese drastically reduced the time allocated for pilot training to make up for the losses. By mid-1944, they were caught in a vicious circle: they could produce pilots faster by cutting training time, and the Americans could shoot the pilots down faster because they were not well trained. Confronted with what seemed to be unlim-

ited American resources, the Japanese concluded that the only solution to their problem was the suicide tactic. After all, a pilot did not need a great deal of skill to make a single flight into the deck of an aircraft carrier. How did the kamikaze pilots feel about being a suicide bomb? Many volunteered, and those who did not put aside their reservations and did their job. Hoyt does a good job of portraying the final thoughts and actions of the kamikazes, treating the subject with care and dignity.

Were the results worth the sacrifice? Obviously, they did not affect the outcome of the war. Nor did the suicide missions demoralize the American fleet and bomber crews to the point where they could no longer perform the mission—a tribute to the American crews, who had always been underrated by the Japanese. On the other hand, the losses to kamikaze attacks were heavy. During the battle for the Philippines, the Japanese lost 1198 suicide pilots. The American Navy reported that 16 ships had been sunk and 86 damaged—more than had been sunk or damaged in the whole Pacific up to that point. (pp. 151-52) The cost to Americans was not only in loss of ships and planes, but the suicide pilots undoubtedly encouraged the ground forces to fight even more fanatically. That the militaristic faction in Japan was willing to continue the war even after the dropping of the atomic bomb gives some insight into the reception an invading force would have had. Japan and her combatants were fortunate indeed that the emperor realized the futility of further struggle.

There are some interesting sidelights in the book: how Allied demands for unconditional surrender weakened any possible peace movement; philosophical differences between the Army and Navy concerning kamikaze policy; and popular support for the kamikazes. Overall, I found the book interesting and informative.

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The Air University Review Awards Committee has selected "American Strategic Nuclear Modernization and the Soviet Succession Struggle," by Dr. Jonathan R. Adelman, as the outstanding article in the November-December 1983 issue of the *Review*.

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