



AIR  
UNIVERSITY

# review

JULY-AUGUST 1976





*The Professional Journal of the United States Air Force*



## from the editor's aerie

Almost inevitably an anniversary entails both a looking back toward antecedents and a looking forward with a new resolve. Certainly, in the instance of the Nation's Bicentennial, this is true, and here we nod respectfully in both directions.

For the lead article in our Bicentennial issue, Major Barry M. Meuse considers the evolving role of the United States in world affairs. The author suggests that the dominant influence of the U.S. in the latter years of the Bicentennial era is no longer appropriate but that the U.S. will continue to be a major force on the international scene for many years to come.

In "The Air Role in the War between the States," Captain Daniel T. Davis reminds us that operational antecedents for the Air Force stretch back more than 100 years. Coincidentally, in a historical piece by another Davis, Chaplain (Lieutenant Colonel) Edwin S. Davis discusses the role of religion in the leadership of General George Washington.

In a somewhat related vein, Lieutenant Colonel Wayne Goodson projects the "Spirit of '76" to our present Air Force. Over and above the nostalgic preoccupation with the moral values of the Bicentennial, Goodson sees a reaction from the cynicism of the Watergate era and a swing back to more traditional, patriotic virtues.

Major General Richard E. Merklung gives us a modern version of "... for want of a nail the shoe was lost; ... ." (from Benjamin Franklin's *Poor Richard's Almanac*, incidentally). Here General Merklung, the Air Force Director of Aerospace Safety, makes a persuasive case for prior development of failure-free aircraft systems and points out that the life-cycle cost of a weapon system makes a re-evaluation of design priorities overdue.

It is particularly gratifying in our Bicentennial year to find bright, young junior officers like Second Lieutenant Katie Cutler and First Lieutenant Stephen M. Millett exploring areas of concern undreamed of by the Fathers of our Nation.

With the entry of women in all three service academies, we are pleased to publish an article by Lt. Cutler on an aspect of male-female relationship in the military that had not occurred to our largely male editorial staff. In "Women's Language: A New Bend in the Double Bind," she discusses subtle linguistic nuances that derive from stereotyped female roles and communication snares that must be avoided before a woman can be comfortable in a position of authority.

Lt. Millett contributes to our professional background in "The Air Force, the Courts, and the Controversial Bombing of Cambodia," by examining recent attempts to use federal courts to supersede the executive branch of government in the conduct of hostilities.

Offering something for the physical side of the "whole man" concept, Major Bruce S. Harger takes a critical look at the Air Force Aerobics Program, currently conducted at the unit level. Harger presents convincing argument that the exercise testing program must be medically administered before it will achieve the cardiovascular fitness foreseen by Dr. Kenneth Cooper.

All these authors are appearing in *Air University Review* for the first time. In addition articles from repeat or regular contributors such as Donald Clark, Major Dennis Stiles, Major John Terino, and Herman Wolk should appeal to a wide diversity of reader interests.



# AIR UNIVERSITY **Review**

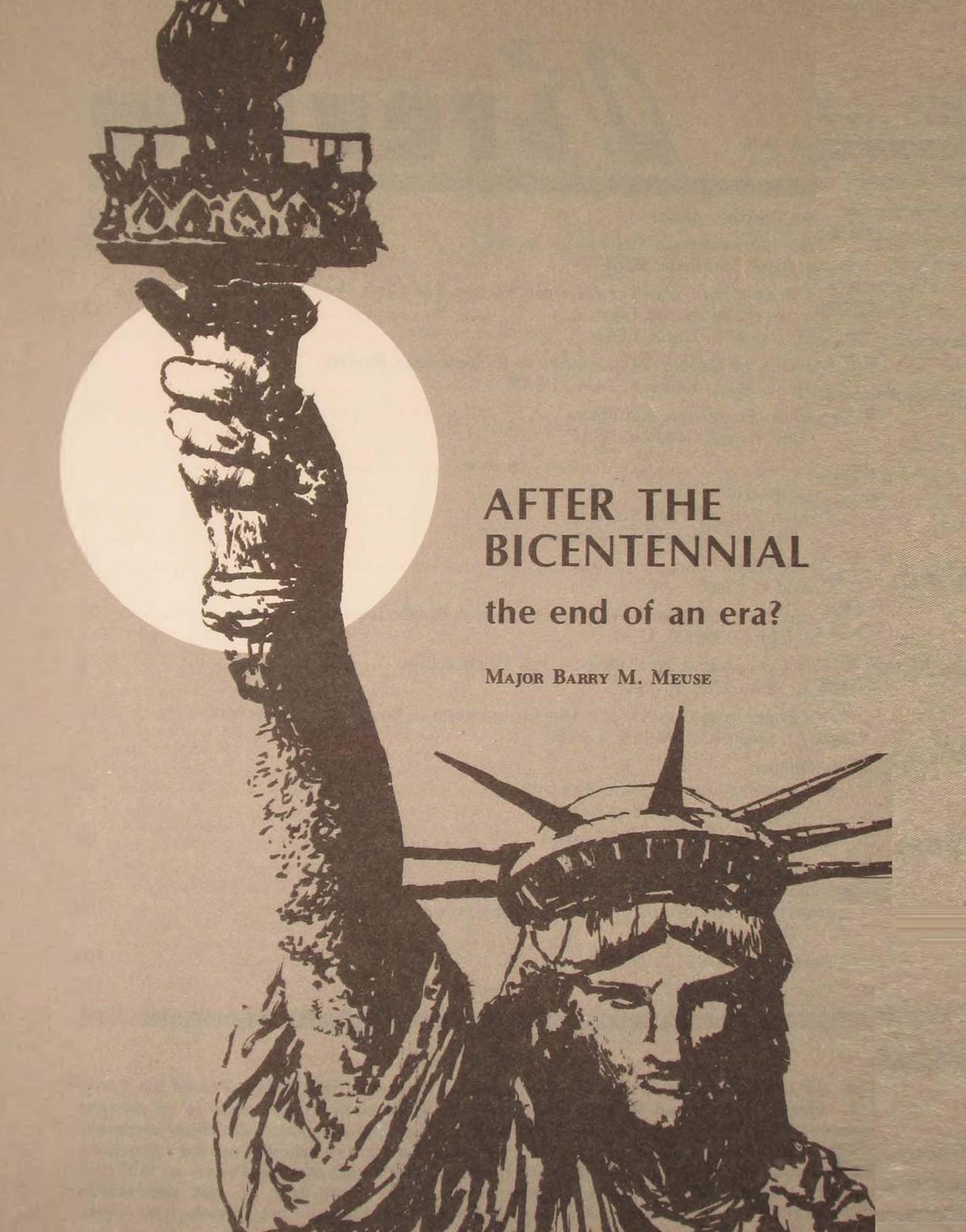
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FROM THE EDITOR'S AERIE .....	Facing Page
AFTER THE BICENTENNIAL: THE END OF AN ERA? .....	2
Maj. Barry M. Meuse, USAF	
THE AIR ROLE IN THE WAR BETWEEN THE STATES: THE CIVIL WAR BALLOON ACTIVITIES OF PROFESSOR LOWE .....	13
Capt. Daniel T. Davis, USAF	
THE RELIGION OF GEORGE WASHINGTON: A BICENTENNIAL REPORT .....	30
Chap. (Lt. Col.) Edwin S. Davis, USAF	
LEARNING TO FLY IN THE AIR FORCE .....	35
Lt. Col. Wayne Goodson, USAF	
★ ★ ★	
Air Force Review	
SEEKING FAILURE-FREE SYSTEMS .....	41
Maj. Gen. Richard E. Merklng, USAF	
WHAT'S AN MBFR? .....	51
Donald L. Clark	
BASING THE NEW AIR FORCE WEAPON SYSTEMS: A POTENTIAL FOR PROBLEMS .....	65
Maj. John G. Terino, USAF	
WOMEN'S LANGUAGE: A NEW BEND IN THE DOUBLE BIND .....	73
2d Lt. Katie Cutler, USAF	
THE AIR FORCE, THE COURTS, AND THE CONTROVERSIAL BOMBING OF CAMBODIA .....	80
1st Lt. Stephen M. Millett, USAF	
In My Opinion	
SOVEREIGNTY AND THE NEW VIOLENCE .....	89
Maj. Dennis W. Stiles, USAF	
AEROBICS REVISITED AND RENEWED .....	96
Maj. Bruce S. Harger, USAF	
Books and Ideas	
STRATEGIC DETERRENCE: THE FRAGILE BALANCE .....	102
Herman S. Wolk	
POTPOURRI .....	108
THE CONTRIBUTORS .....	111

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## ATTENTION

The *Air University Review* is the professional journal of the United States Air Force and serves as an open forum for exploratory discussion. Its purpose is to present innovative thinking and stimulate dialogue concerning Air Force doctrine, strategy, tactics, and related national defense matters. The *Review* should not be construed as representing policies of the Department of Defense, the Air Force, or Air University. Rather, the contents reflect the authors' ideas and do not necessarily bear official sanction. Thoughtful and informed contributions are always welcomed.

A stylized, high-contrast illustration of the Statue of Liberty. The image is rendered in dark brown or black ink on a light beige background. The central focus is the statue's right arm, raised high and holding the torch. The hand is detailed with individual fingers. Above the hand is the ornate crown of the torch. To the right of the arm, a large, solid white circle is partially visible, serving as a backdrop for the hand and torch. Below the arm, the top of the statue's head is shown, featuring the iconic crown with seven spikes. The face of the statue is partially visible, looking slightly to the right. The overall style is graphic and minimalist, emphasizing the silhouette and form of the monument.

**AFTER THE  
BICENTENNIAL**  
the end of an era?

MAJOR BARRY M. MEUSE

*The free peoples of the world look to us for support in maintaining their freedoms. If we falter in our leadership, we may endanger the peace of the world—and we shall surely endanger the welfare of our own nation.*

HARRY S. TRUMAN  
12 March 1949

THERE was a time when the influence of the United States in the world was unquestioned. Following World War II, the military and industrial power of the U.S. was unmatched anywhere in the world, and the Western world entered an era of American supremacy. In those early postwar years, the U.S. was the undisputed leader of the free world, and its foreign policies reflected that reality.

Today, as Americans celebrate the 200th anniversary of the founding of the republic, it is appropriate that we examine the *current* state of U.S. influence in the world. It is appropriate even though the focus of many Americans is inward. The social splintering brought about by U.S. involvement in the Vietnam war, the tragedy of Watergate, double-digit inflation, and the worst recession since 1929 understandably has drawn the attention of many Americans to domestic issues.

Unfortunately, however, there have been dramatic changes in the international environment that may affect Americans as certainly and as directly as their most pressing domestic problems. Some observers feel that if present national and international trends continue, the end of the American era may be at hand. The purpose of this article is to examine that possibility and

reassess America's position in the international environment.

## The State of Democracy

*Democracy is like a rising tide; it only recoils to come back with greater force, and soon one sees that for all its fluctuations it is always gaining ground.*

ALEXIS DE TOCQUEVILLE, 1833



Democracy in America has developed its own meaning; traditionally it has been the “land of liberty,” the last bastion of equality and freedom. Indeed, many have come to consider democracy and the American way of life synonymous. We have cried over it, sung over it, and gone to war over it. After the frontier was conquered, making the world “safe for democracy” became an American ideal.

What has become of the “rising tide” of democracy of which Tocqueville wrote in 1833? Was he an accurate prophet? Clearly, the trend in recent years has not been favorable.

### *international democracy*

First, let us look at the new nations. Between 1960 and 1975, 55 newly independent

nations were admitted to the United Nations. Of those 55, only three were democracies (West Germany, Jamaica, and Trinidad and Tobago).<sup>1</sup>

Second, the number of established democracies has also declined in recent years. Robert Dahl has categorized the democratization of nation-states according to the degree of political participation and opposition permitted within each one. By application of his criteria of ten variables,<sup>2</sup> only 29 nations qualified as democracies in 1969. Since Dahl's work appeared, four of those 29 nations have fallen from democracy. On the affirmative side, one nation, Greece, restored constitutional government in July 1974 (although its future is not certain).<sup>3</sup> That leaves a current total of 26 democratic nations out of 158 total nation-states.

In short, while the number of democracies has changed only slightly, there has been a veritable explosion of new nations, almost all of which are ruled by other than democratic means. In 1959 one-third of all the nations in the world were democracies; by 1975 this fraction had shrunk to less than 20 percent.

While there is a definable trend of declining numbers of democratic nations in the world, there is also a rising concern for the quality of internal democracy.

#### *accommodation to socialism*

One phenomenon affecting established democracies has been their accommodation to socialism—specifically, governmental control of the economy.

One of the core characteristics of democracy is freedom of choice. As a consequence of their system of choice making, the American people have opted for more social programs in recent years. In so doing, they have turned over to the government increasing control of resources and programs. For some, this is an adverse trend.

C. Jackson Grayson, Jr., Chairman of the Phase II Price Commission, has summed up the economic aspect of this problem in very straightforward language: "Our economic system is steadily shifting from a private enterprise, free-market economy to one that is centrally directed and under public control."<sup>4</sup>

Further, it is estimated that the federal government accounts for one-third of the gross national product (GNP). However, current trends indicate that federal control of the American economy will climb from its 33 percent level today to reach 50 percent by the end of the decade.<sup>5</sup> If that happens, former Budget Director Roy L. Ash has made it clear that the U.S. ". . . may be irreversibly on the road toward a controlled economy."<sup>6</sup>

The consequences of the world's foremost democracy's moving more and more toward a controlled economy and welfare dependency have implications which go far beyond rhetoric and ideology. As government spending grows in relation to the total economy, taxes must be raised to pay for the programs. As taxes go higher and higher, the motivation for people to produce decreases. As production goes down, the argument goes, so eventually will consumption (since there will be fewer goods and services available). In Mr. Ash's view, when federal spending hits 50 percent of the nation's GNP, the U.S. standard of living would steadily decline.<sup>7</sup> For a nation whose power largely depends on a strong economy, this prospect makes increasing government control a major factor affecting U.S. power and influence.

#### *voting*

Other factors indicate that democracy is again "recoiling" in America, to use Tocqueville's word. In a land where voting provides a periodic and systematic check on

elected officials, the trend is toward lesser participation. In the last election (1974), only a third of all eligible American voters actually cast ballots. This continues a downward trend for off-year elections. Voter turnout in 1974 was the lowest since World War II—not only in percentages, but in total votes cast.<sup>8</sup>

The irony is that although Americans seem to be opting for increasing government control and social programs, fewer Americans seem to be actually involved in making their “choices” known in the traditional manner. The “choice” not to participate has placed more responsibility in the hands of fewer people.

### STRATEGIC PARITY IN A MULTIPOLAR WORLD

*Rivalry is inherent in an international system that functions without global consensus.*

ZBIGNIEW BRZEZINSKI



The deterioration of America's military superiority is the second reason frequently given for the decline of U.S. influence in the world. As recently as ten years ago, the United States had overwhelming superiority in nuclear bombers, missiles, and total nuclear payload. Starting in 1965, however, Soviet deployments of strategic missiles

began to increase substantially. The U.S.S.R. has since surpassed the United States in the number of deployed land-based intercontinental ballistic missiles (ICBM's) and in the number of submarine-launched ballistic missiles (SLBM's).<sup>10</sup> (See Table 1.)

Table 1  
U.S.—U.S.S.R. military balance 1965 and 1975

	1965		1975	
	U.S.	U.S.S.R.	U.S.	U.S.S.R.
<i>Delivery systems (number)</i>				
ICBM's	854	230	1054	1587
SLBM's	496	96	656	750
Long-range bombers	696	140	396	126

The U.S. still has the advantage in strategic bombers and the technological edge in multiple independently targetable re-entry vehicles (MIRV's).<sup>11</sup> But the previous superiority of the U.S. has been reduced to the point where, today, the Soviets have effectively achieved rough equivalence with the U.S.

More important, the Soviets apparently are going much further than “equivalence.” Indications are that the Soviets clearly are committed not to parity but to superiority. In the words of one observer: “For the Russians, passing the US militarily is a national goal.”<sup>12</sup>

#### *impact of multipolarity*

On another level, the shift from the bipolarity of the Cold War to the multipolarity of the 1970s has special implications for the U.S. The concept of a bipolar world began to crystallize after World War II. At the outset of the Cold War all three factors of power—military, political, and economic—were vested in two opposing nations, the United States and the Soviet Union.

In recent years, however, other nations have made inroads into this structure. China has emerged to take its place beside the Soviet Union as a viable center of Com-

munism and model for Asian development. To some degree, it also represents a potential military force—now with nuclear power. The rising economic power of Japan and Western Europe has likewise divided the West into three major power centers.

The multipolar nature of today's international system reflects this impact of the Sino-Soviet split and a lessening of America's influence on Western bloc countries. As Japan and Western Europe grow in power, their rise will necessarily mean greater independence from the U.S. and, in the long term, a possible movement toward more neutral ground between the two superpowers.

For 30 or 35 years, America was the political center of the Western world, meeting Soviet challenges with collective Western effort. Today, the U.S. faces not only military challenges from the Soviets but also economic challenges from the emerging power centers of Japan, Western Europe, and China. In turn, the Soviet Union, noting the decline of America's military and political power, faces the dwindling resistance of a somewhat fragmented Western alliance. The key word now is *uncertainty*.

## THE PARADOX OF POWER

*... the United States is no longer in a position to operate programs globally; it has to encourage them. It can no longer impose its preferred solution. ... our role will have to be to ... foster the initiative of others.*

HENRY A. KISSINGER<sup>13</sup>



There are, however, some significant developments among other international actors. One of the paradoxes of our time is that the greatest nations of the world can have their power restrained, not only by other nations but by other international factors as well.

## *multinational corporations*

Some Americans are not aware of the hugeness of economic power wielded by U.S.-based multinational corporations (MNC's). If all the nations and all the corporations of the world were rank-ordered according to yearly "production" (gross annual sales and gross national product), General Motors would be the 23rd largest, with Standard Oil and Ford not far behind. Of the 99 largest entities so rank-ordered, more than half would be multinational corporations.<sup>14</sup>

To some observers, multinational corporations represent an infringement upon national sovereignty.<sup>15</sup> Their view is that some 200 large corporations operate virtually autonomously in more than 20 nations, responsible only to their own corporate management.

The counter to this holds that while there may be some instances of abuse of power by MNC's (such as International Telephone and Telegraph involvement in Chilean affairs in the 1970s), responsible multinational corporations function nonpolitically in nations all over the world. This second view implies that economic activities are nonpolitical in nature and that economics and politics are both separate and separable.

However, economics and politics are closely related, if not interdependent. The historical notion of national power is that it derives from economic power. In three periods of historical development—ancient, feudal, and modern—economic power was essential to the development of political power.<sup>16</sup> Even today, gross national product

(an economic indicator) has been used to measure national political power.

Other developments bear out the dependence of political power on economic strength. The concept of multipolarity, discussed earlier in this article, stems from the political emergence of Japan and Western Europe on their *economic* strength. Neither Japan nor Western Europe could have accrued significant autonomous political power until they had achieved economic power in their own right.

Because of the close relationship between economic and political power, involvement in political issues is unavoidable for corporate giants that control so much of the world's resources. Two recent examples illustrate this problem. In April 1974, Argentine subsidiaries of U.S. automotive manufacturers (Ford, General Motors, Chrysler) were faced with a request from the Argentine government to sell 40,000 cars and trucks to Cuba, still under a U.S. trade embargo. If they honored the host country government and sold vehicles to Cuba, the large corporations would violate U.S. trade policies and transgress U.S. sovereignty. On the other hand, if they honored the U.S. embargo, they would undermine Argentine national policy.

The issue was resolved when the American government yielded and permitted the Detroit auto makers to sell to Cuba.<sup>17</sup> Some supporters of multinationals saw this as vindication of their view that MNC's can contribute to international harmony by breaking down the barriers which separate nations. But *no* national policies were changed in this case. After it was all over, both Argentina and the U.S. retained their respective trade policies.

In the second example, the British government sought to prevent Chrysler from granting what they considered to be an inflationary wage increase to its British workers in 1971. In the view of the British

government, holding down wages was an important part of a program to overcome the nation's depressed economic condition. In Chrysler's view, the wage increase was needed to preclude possible strikes and interruptions in car production. In the end, Chrysler refused to yield to government pressure and raised the wages of its British employees, an act which demonstrated the power wielded by the multinationals.<sup>18</sup>

By their very nature, the goals of the U.S. and those of multinational corporations cannot always coincide. The U.S. is the base for more multinationals than any other nation. Because much of American industrial capacity lies in these corporations, America will continue to be confronted with conflicting corporate-state problems. Based on past performance, it is reasonable to expect that these conflicts will increasingly be resolved in favor of corporate interests.

In addition, multinationals can be hostages as well as shapers of policy. In the interdependent world of the late 1970s and beyond, the spectre of being drawn into international conflict to protect American-owned MNC's is becoming easier to visualize.

### *growing interdependence*

One of the most significant developments in international affairs has been the growing interdependence of nation-states. With our celebration of the Bicentennial of the founding of the republic, we should recall that for almost 170 of those 200 years, the involvement of the U.S. in world affairs was generally insignificant. It was not until about 1940 that the U.S. was thrust into the world in a leadership role. At that point, the American industrial base was maturing, and the U.S. economy was recovering from the crushing depression of the previous decade. Only since World War II has the U.S. played an active and dominant role in world affairs, for but 30 or 35 years.

Although some might wish to return to the uninvolvedness of an earlier age, it is hard to imagine an America today that could retire within its borders and let the rest of the world go by. Indeed, that option possibly is no longer America's to exercise. Because of the needs of industrialized societies for widely diversified imports, all nations are recognizing their growing interdependence with the rest of the world.

For Americans, the oil embargo of 1973 made it clear just how dependent the American economy is on oil. Even though the U.S. is the second largest producer of oil in the world, its demand for foreign oil, as just one of several critical resources needed to keep the U.S. economy strong, has provided significant leverage to the Organization of Petroleum Exporting Countries (OPEC) nations.

Other shortages are forecast in natural gas, chromium, nickel, aluminum, and manganese—all essential for American industry. Whereas the U.S. enjoyed basic self-sufficiency in natural resources prior to World War II, by 1975 the U.S. was dependent on the rest of the world for essential imports. Some experts estimate that the U.S. is already dependent on outside resources for 26 of 36 basic raw materials used by industry.<sup>19</sup> Further, the National Academy of Sciences predicts that reserves of U.S. oil and natural gas will be exhausted in 25 years.<sup>20</sup>

There are, of course, other dimensions to this interdependency. The growing interdependency to which I refer includes not only economic interdependencies among nation-states but also international interdependencies among cultural, industrial, agricultural, and educational agencies as well. Technological advances in communications and travel have brought food, medicines, and education to millions of needy people around the world through many outlets, including the Food for Peace and

other U.S. international programs. Now that satellite television can bring live telecasts of starving children into the homes of millions of Americans, affluent Americans will find it difficult to escape the realities of the world they share with unfortunate millions.

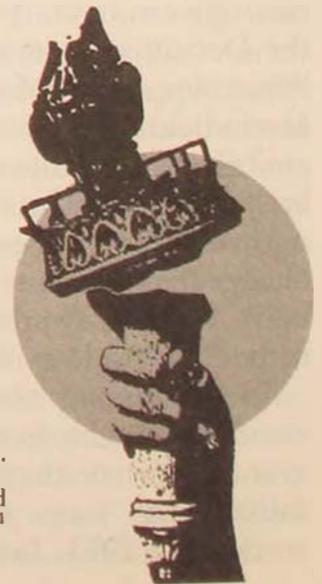
U.S. influence, in the interdependent world, must necessarily abate. As America must increasingly rely on other nations for raw materials to keep its economy strong, it can only be as strong and independent as its suppliers permit it to be—an ironic condition for the most powerful nation in the world. Even while considering the two-way nature of this relationship—America's suppliers need U.S. markets, as well—one realizes that the impact of interdependence on the American superpower is to limit its power. Less powerful supplier nations, on the other hand, have much less to lose.

In short, the increasing power of multinational corporations and the growing interdependency of nation-states have combined to lessen the power and undermine the sovereignty of all countries. America is no exception to these forces. Indeed, because it has the most to lose, it may be the one nation-state most affected.

## Synthesis

*The problem is not a loss of legal sovereignty but a loss of political and economic autonomy. Most states retain control . . . and are able to pursue their objectives. They are just less able to achieve them.*

JOSEPH S. NYE, JR., and  
ROBERT D. KEOHANE<sup>21</sup>



Viewed from the perspective of the events of the last few years and, more recently, from the collapse of American foreign policy in Southeast Asia, America's predominant influence in world affairs has certainly declined. The competition for scarce resources and political primacy in a world marked by drastic change makes it clear that the world once dominated by the U.S. can no longer be taken for granted.

### *international trends*

It is important to note, however, that the change in America's position is due to fundamental systemic changes in the international order rather than to any "failure" on America's part. While American policy-makers have had a significant impact on other nations, they have never really been "in control" in the sense of being able to shape the international environment more than very lightly. The trends noted in this article are due more to changes in the international system than to any one nation's policy. This can be demonstrated by briefly reviewing the international nature of these trends:

—Ideology (democracy, in the U.S.) is giving way to renewed nationalism around the globe. In Latin America, Asia, and Europe there has been a notable increase in national consciousness, especially among emerging nations. Among Communist nations, ideology varies significantly. The Communist parties of the Soviet Union, the People's Republic of China, and Yugoslavia, for example, are divided on issues of party leadership. In domestic affairs, demands for more consumer products and national benefits are being raised in developing countries around the world.

—Multipolarity means that there are more competing spheres of influence for nations to attract client-states. Less hegemonic and more equal spheres of influence for the

superpowers mean, in turn, that their allied nations also suffer a drop in power.

—As nations become more industrialized, they will face the same difficulties as the U.S. in conciliating national interests with the goals of multinational corporations. All developing nations have both the benefits and the problems of having multinationals from other nations on their soil.

—Last, the growing interdependence of states affects all nations, not only the U.S. Today, no single nation has the resources to support both development and industrialization concurrently without extensive imports. As the world's population continues to rise and its resources continue to dwindle, all nation-states will be confronted with basic problems of obtaining and allocating scarce resources.

### *the fundamental issue*

Will the Bicentennial mark the end of the American era, or is there hope to reverse, or at least neutralize, these trends? The answers to these questions may lie in the understanding that America has not lost control of its destiny; it has simply been losing its *autonomy*, a quality which will increasingly elude all nation-states in the future. The age of national sovereignty, in the traditional sense of unobstructed self-determination, appears to be passing in favor of a more highly integrated world, a world where national objectives and policy options are more influenced by other nations—and other international actors—than in the past. In surrendering a certain amount of autonomy, America nonetheless retains great power and influence in world affairs.

### Six Policy References

The developments I have outlined in this article lead me to suggest six points that



*It is at once the weakness and the strength of democracy . . . that its fate lies largely in its own hands.*

CARL COHEN<sup>22</sup>

may be helpful in restructuring U.S. policy in an international system marked by dramatic evolutionary change.

- The first point is that dwindling international influence should not mean that America would have decreasing international interests. Rather, the trends noted here call for renewed American interest in international affairs. This is important for two reasons. First, the U.S. is still a powerful world leader. Although it may not have the national will again to assume the role of world policeman, the U.S. does have the political and economic power to be one of the world's peace legitimizers. The cause of international survival may depend on renewed American interest and diplomacy in troubled areas, such as the Mideast and Africa. Second, if war involving the U.S. cannot be avoided, Americans will still prefer to fight aggression before it reaches U.S. soil. Thus, international American interests benefit both the international order and U.S. security.

- The solution of the problems of world population control and the allocation of scarce resources will increasingly

involve the underdeveloped nations. The U.S. can wait for developing nations to place demands on the system and then respond to them; or it can initiate the adjustment by reorienting its foreign policies to those more attuned to the problems of an interdependent world. Such an orientation should prove helpful, in the long run, to an America that must depend more and more on the other nations of the world for its well-being.

- As noted earlier, the undermining of national sovereignty and the perception of exploitation by multinational corporations present conflicting problems among nations. Because of their vulnerability as hostages, multinationals may also increasingly become lucrative targets for national blackmail. To bring multinational corporations more under control of the international system, three actions seem necessary:

- codify international rules of operation, specifying opportunities and responsibilities of both multinational corporations and nation-states;

- establish arbitration and enforcement agencies to resolve conflicts between participants;

- require standardized accounting data and informational systems to preclude misunderstandings and to permit a clear understanding of the impact of multinationals on the international economic system.

While it seems apparent that these actions should be concluded through international organizations (such as the United Nations), it is possible that selective U.S. action could be a successful first step in reducing the potential for conflict.

- Tocqueville wrote at a time of great optimism in the American democratic experiment, and Americans should realize that the American condition then was far different from that of developing nations today. The driving need of developing na-

tions today is not more freedom but security and stability. In many parts of the world, freedom is not dead; it has simply been suspended in preference for order. U.S. interests should be oriented more to providing the needed legitimacy to responsible governments of troubled nations. The American slogan of an earlier time, to make the world "safe for democracy," recognizes this need of nations first to achieve security, *then* liberty. In short, we should recognize that in many instances, democracy follows order; it does not precede it.

- Creeping socialism may be an inevitable consequence of a democratic citizenry which opts for the better life. The democratic socialism of America today portends a less open market system and more social benefits for tomorrow. But if Americans refuse to recognize the social, economic, and political change they are undergoing, they will not be able to control it. What is needed is a new definition of the American political and economic condition that marries democracy and social programs in understandable and unemotional terms. One step may be recognition of a term similar to "democratic socialism" to describe the nature of this fundamental change more accurately. The all-important second step should focus on a national re-evaluation of congressional budget allocations. This would require, at a minimum, a public discussion geared to increasing public awareness of the costs of the current trend away from an open market system and toward a more powerful federal government. A more ambitious goal would be to require dollar costs and funding sources on all new federal legislation to increase the visibility of the mounting costs of all programs.

- Last, a reassessment of budgetary priorities naturally will involve debate on the defense budget. One urgent task of

Congress should be the attainment of a redefinition of an adequate defense posture in terms of the demands of a socialist democracy. Insofar as defense and welfare programs are both constitutional and practical requirements of an open and secure political system, they should be treated as complementary, rather than exclusive, goals of a democracy. An instructive national dialogue on this critical issue, which arrives at useful and easily understood levels of defense and welfare spending, is imperative. In the final analysis, even in an era of reduced tensions, the Soviet Union represents the greatest threat to the security of the United States. It is this basic threat that makes the maintenance of an adequate defense mandatory if we are to survive as a nation into the next century and beyond.

*In the end, more than they wanted freedom, they wanted security. . . . when the freedom they wished for most was freedom from responsibility, then Athens ceased to be free.*

EDWARD GIBBON



THE last quarter of the twentieth century promises more explosive technological change and political consciousness than have occurred in all of American history. To be better prepared to meet those challenges, there is no more urgent task

today than that of restructuring American interests and goals to coincide with the realities of the world political condition.

Over the past half century America has moved from isolation to involvement to interdependence. However, unless we can reverse the trends noted in this article, we shall have to purge ourselves of the notion that Americans have a "chosen" role in world affairs. We should realize that if the American role is to be chosen, it may well be one determined by other nations rather than by Americans.

Can we forget the vision that America has held for the rest of the world? "So at last," Mary Antin wrote in 1912 in her immigrant classic, *The Promised Land*, "I was going to America! Really, really, going at last! The boundaries burst. The arch of heaven soared. A million suns shone out for every star. The winds rushed in from outer

space roaring in my ears, 'America!' 'America!'"<sup>23</sup>

Mary Antin's words may seem a little dated in the jaded world of 1976. It may be possible, however, that she has captured the essence of the faith humanity has in its ability to shape its future to its highest hopes. It may also be possible that the vision of the immigrant at the start of this century may be what sustains us into the next.

Will the Bicentennial mark the end of the American era? Maybe . . . but not if Americans have the foresight to adapt to the demands of a changing world. But alone or in a more cooperative, international political system of shifting alliances and increasing regionalism, it is quite likely that America will remain the hope of the world for more than just the next quarter century.

*Air Command and Staff College*

#### Notes

1. Robert A. Dahl, *Polyarchy* (New Haven, Connecticut: Yale University Press, 1971), p. 248; *The World Almanac & Book of Facts 1975* (New York: Newspaper Enterprise Association, Inc.), p. 588.

2. For a complete understanding of Robert Dahl's classification, refer to his book *Polyarchy*.

3. *The World Almanac & Book of Facts 1975* (New York: Newspaper Enterprise Association, Inc.), pp. 519, 536, 562, 582.

4. C. Jackson Grayson, Jr., "Let's Get Back to the Competitive Market System," *Harvard Business Review*, November-December 1973, p. 103.

5. Howard Flieger, "Can We Afford It?" *U.S. News & World Report*, January 20, 1975, p. 76.

6. "Social Security Benefits Slash Tied to Creeping Socialism Fear," *Montgomery Advertiser*, January 26, 1975, p. 3A.

7. *Ibid.*

8. Howard Flieger, "The Real Loser," *U.S. News & World Report*, November 25, 1975, p. 108.

9. Zbigniew Brzezinski, *Between Two Ages: America's Role in the Technetronic Era* (New York: The Viking Press, 1972), p. 283.

10. Barry M. Blechman, Edward M. Gramlich, and Robert W. Hartman, *Setting National Priorities—The 1975 Budget* (Washington: Brookings Institution, 1974), p. 108.

11. *Ibid.*, p. 109; "American Military Power—Sliding into Second Place?" *U.S. News & World Report*, November 4, 1974, pp. 30-31.

12. *Ibid.*, p. 31.

13. Henry A. Kissinger, "Central Issues of American Foreign Policy," *Agenda*

*for the Nation*, Kermit Gordon, editor (Washington: Brookings Institution, 1968), p. 612.

14. U.S. Congress, Senate, *Multinational Corporations*. Hearings before the Subcommittee on International Trade of the Committee on Finance, 93d Congress, First Session, 26 February-6 March 1973 (Washington: U.S. Government Printing Office, 1973), p. 404.

15. Department of Economic and Social Affairs of the United Nations Secretariat, *The Impact of Multinational Corporations on International Relations* (New York: United Nations, 1974), pp. 45-50.

16. Franz L. Neumann, "Approaches to the Study of Political Powers," *Comparative Politics*, Roy C. Macridis and Bernard E. Brown, editors (Homewood, Illinois: Dorsey Press, 1972), p. 52.

17. "Pressure for Deal with Castro," *U.S. News & World Report*, May 6, 1974, p. 33.

18. Joseph S. Nye, Jr., "Multinational Corporations in World Politics," *Foreign Affairs*, October 1974, p. 169.

19. Zbigniew Brzezinski, "U.S. Foreign Policy: The Search for Focus," *Foreign Affairs*, July 1973, p. 710.

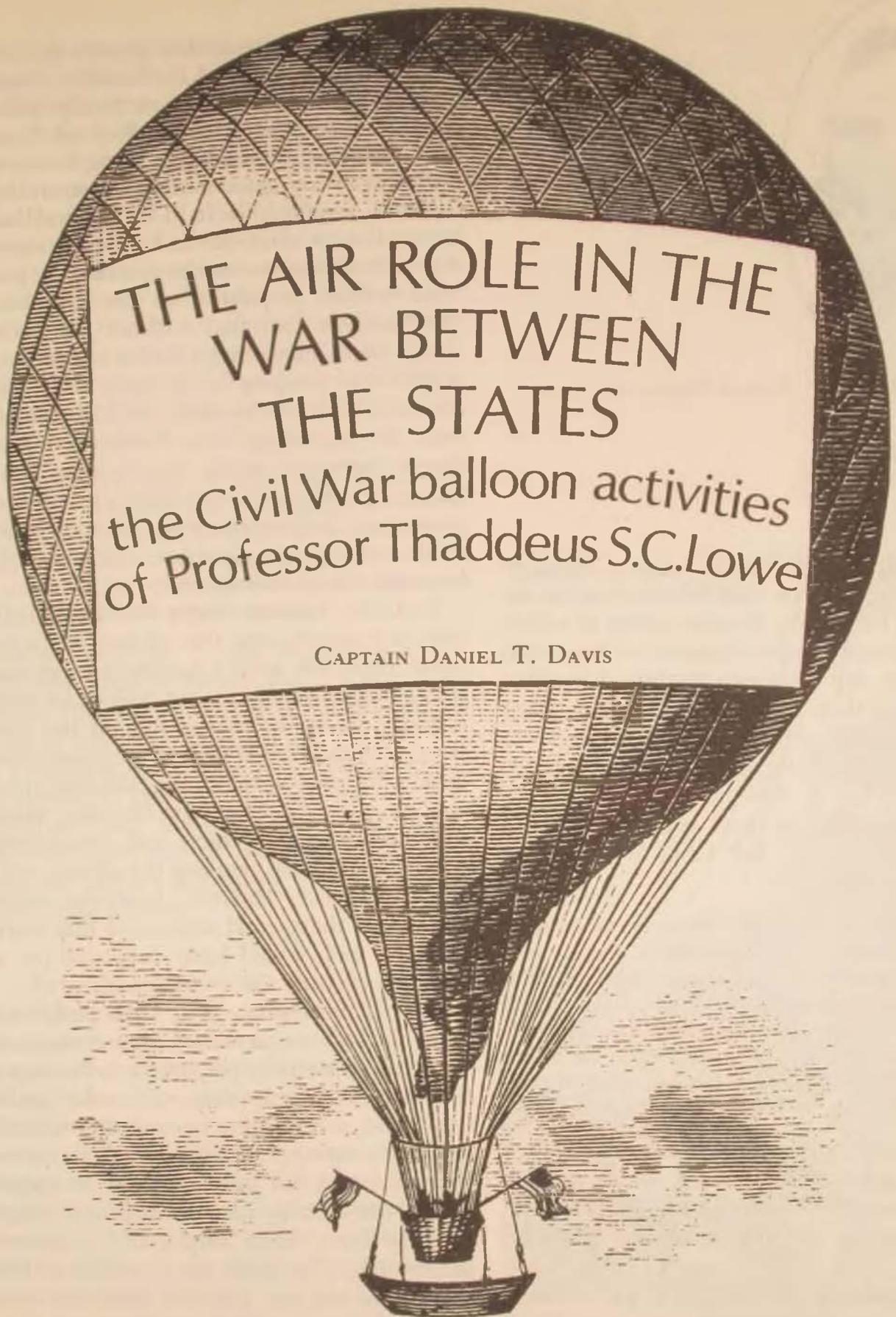
20. "Newsgram," *U.S. News & World Report*, February 24, 1975, p. 6.

21. Joseph S. Nye, Jr., and Robert O. Keohane, "Transnational Relations and World Politics: A Conclusion," *Transnational Relations and World Politics* (Cambridge, Massachusetts: Harvard University Press, 1972), p. 393.

22. Carl Cohen, *Democracy* (Athens, Georgia: University of Georgia Press, 1971), p. 288.

23. Saul K. Padover, *Sources of Democracy: Voices of Freedom, Hope and Justice* (New York: McGraw-Hill Book Company, 1973), p. xxviii.

*From the Diary of King George III, 4 July 1776  
"Nothing happened today."*



THE AIR ROLE IN THE  
WAR BETWEEN  
THE STATES

the Civil War balloon activities  
of Professor Thaddeus S.C. Lowe

CAPTAIN DANIEL T. DAVIS



Professor Thaddeus S. C. Lowe

**M**AJOR GENERAL Robert Ginsburgh and Major Edd Wheeler, in an *Air University Review* article in which they outlined the development of American air power and its use in warfare, identified the lighter-than-air balloon as having been an important milestone along the road to Kitty Hawk. While they were correct up to that point in their analysis, they were far less accurate in their appraisal of what occurred after the first Civil War balloon was launched:

Had it not been for the personal interest and foresight of two Presidents, the air role might have been established much later; and having been established, it might have enjoyed a considerably less meteoric development. President Lincoln impressed upon an unbelieving Union Army the tactical value of military balloons . . .<sup>1</sup>

The authors appear to commit the rather common error of attributing a much greater role to the effect balloons had on later developments in aviation than the evidence shows.

Literature on the subject is not voluminous, but it does describe in some detail

the formation of the Union Army's Balloon Corps and the work of its founder, Thaddeus S. C. Lowe.<sup>2</sup> And practically every work includes the familiar story of President Lincoln personally escorting Lowe to see the early commander of the Union armies, General Winfield Scott. The general had found all sorts of excuses to keep from meeting with Lowe, even disregarding a personal written request from the President. Most authors feel that without the President's direct intercession Lowe would have made little progress by himself. They discount Lowe's connections in high places (viz., his friendship with Professor Joseph Henry, Secretary of the Smithsonian Institution) as well as the fact that a number of prominent balloonists were able to make their military preparations without help from the Chief Executive.

Probably because there has been little serious research into the subject in recent years, there has been a tendency to assume that Lowe and his aeronaut colleagues were actually an indispensable step in the continuous evolution of military air power. The important exception to this thinking may well have been F. Stansbury Haydon, whose *Aeronautics in the Union and Confederate Armies* (1941) still remains the classic work on the subject. Haydon, however, never completed the second volume of this work, which, I feel, would have disproved (or at least discounted) the evolution theory.<sup>3</sup>

Instead, I propose, first, that while balloons did indeed provide Union commanders with potentially important advantages, they were not always realized on the battlefields; and, second, that because the tactical and even strategic value of aerial reconnaissance was not fully realized or appreciated, the development of air power might actually have been impeded by several generations. The major thrust of this article is to point out the value of the balloon as a reconnaissance vehicle and to enumerate

those factors operating to keep that significance hidden from view.

Balloons were used during the period of the French Revolution and later by Napoleon in some of his campaigns, and early experiments in this country were conducted at the College of William and Mary as early as 1786.<sup>4</sup> The first serious proposal for using balloons in American military operations appears in 1840 during the Seminole War. On October 12, 1840, Frederick Beasley joined at least two other "patriots" in asking Secretary of War Joel R. Poinsett to consider using balloons to aid in defeating the Seminoles in Florida:

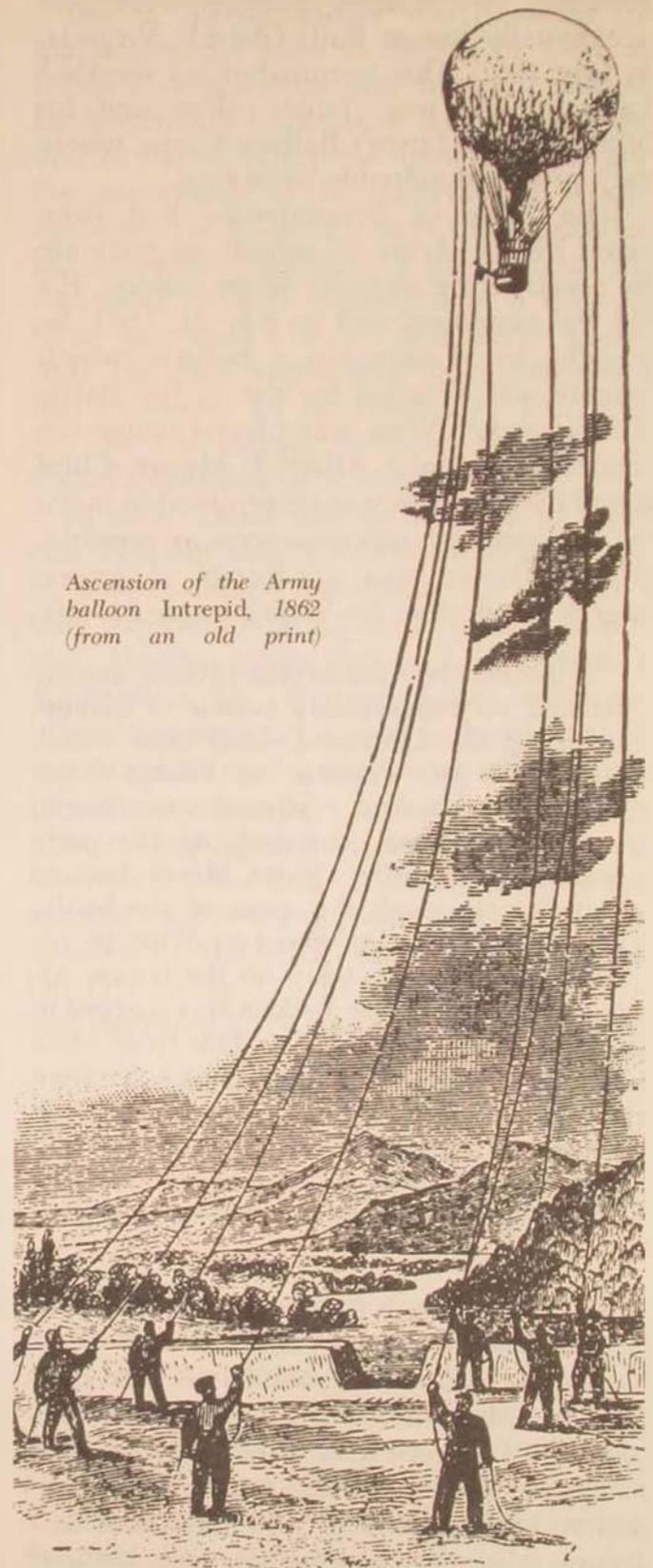
A small number of Balloons, under the direction of skillful and experienced aeronauts, will serve all the purposes of so many telegraphs established in the atmosphere to communicate any desirable intelligence from one part of that country to another.<sup>5</sup>

Beasley went on to add that even if the balloons failed as observation stations, they might still prove useful as psychological tools of war.<sup>6</sup>

There was apparently some thought given to dropping bombs from balloons in the Mexican War,<sup>7</sup> but the science of conducting war from the air received its greatest impetus and its first major test during the 1860-1863 period.

IN THE SPRING of 1861, a number of well-known balloonists quickly offered their services to commanders in the Union Army. Of primary importance were James Allen, John Wise, John La Mountain, and Thaddeus S. C. Lowe.

On April 18, 1861, Allen joined the First Regiment, Rhode Island Detached Militia, under the command of Colonel Ambrose E. Burnside. Allen brought his balloon with him, and he can be credited with having been the first military aeronaut to serve with American forces.<sup>8</sup> On June 9, he made



*Ascension of the Army balloon Intrepid, 1862 (from an old print)*

the United States Army's first trial captive balloon ascent, but according to Juliette Hennessy, two of Allen's balloons were later accidentally lost at Falls Church, Virginia, in July 1861. This terminated his service.<sup>9</sup> Later in the war, James Allen and his brother joined Lowe's Balloon Corps, where they provided valuable assistance.

John Wise of Pennsylvania had been asked by the Army to submit an estimate for constructing an observation balloon. His bid was accepted, and on July 21, 1861, he brought to Washington a balloon which quickly was detailed for use in the Battle of Manassas.<sup>10</sup> Wise was placed under the command of Major Albert J. Meyer, Chief Signal Officer, who was determined to move the balloon into action as soon as possible. What followed was a comedy of errors, largely responsible for Wise's losing his job:

A ground crew walked the balloon, already inflated, up Pennsylvania Avenue to Georgetown, up the Chesapeake and Ohio Canal, and across the Potomac to Fairfax Road, where Maj. Meyer . . . fastened it to a wagon and the trip was continued. As the party neared its objective, Major Meyer became impatient to reach the scene of the battle; against the better judgment of Wise, he ordered the driver to whip up the horses. Almost immediately the balloon was snagged in the upper branches of the roadside trees; when Meyer tried to force it free, great holes were torn in the bag. Actually, this was not the tragedy it then appeared to be, for had the balloon arrived in time to be of use, the Confederates very likely would have captured it.<sup>11</sup>

All four aeronauts were men who had gained some degree of fame in the years immediately preceding the Civil War, and John La Mountain was no exception. According to Eugene Block, he had "aroused widespread public interest with an ascension which landed him in a Canadian wilderness where he remained for days without

food or shelter."<sup>12</sup> On May 1, 1861, he submitted to the War Department an impressive list of names of prominent New York citizens who recommended him highly for balloon service in the Union Army.<sup>13</sup> On June 5, he was placed under the command of Major General Benjamin F. Butler, then commander of the Department of Virginia at Fort Monroe. This position allowed La Mountain to make some valuable contributions to the art of balloon observations until his dismissal from the service some seven months later.<sup>14</sup>

At the time La Mountain was preparing to go to work for General Butler, Professor T. S. C. Lowe<sup>15</sup> was busy making ready his own equipment and submitting his requests for military service. For a period of about six months both men worked for the Union Army, although never as a team (for reasons which will be discussed later).

In December 1860, Lowe's avowed intent to make the first crossing of the Atlantic by free-flight balloon had attracted the attention of Professor Joseph Henry of the Smithsonian Institution,<sup>16</sup> a fact that probably had some bearing on Henry's intercession with Secretary of War Simon Cameron on Lowe's behalf in June 1861.<sup>17</sup> Although Lowe never made that flight, he did embark on a journey over the United States which, like La Mountain's trip into Canada, gained him some publicity. On April 20, 1861, he set off from Cincinnati on a free flight. Almost nine hours later he touched down nine miles west of Unionville, South Carolina.<sup>18</sup> J. Duane Squires makes an interesting commentary about that flight:

On the day previous to Lowe's balloon trip, President Lincoln had declared his first blockade of the Southern ports. . . . So quickly indeed did Southern sentiment against the North and all its works mount that Lowe had the very greatest of difficulty in extricating himself from charges that he was a Yankee

spy and in getting back across the Ohio River at all. Only after a circuitous and tedious trip through the back country of the Confederate West did he succeed once more in reaching Cincinnati, bringing back his balloon with him.<sup>19</sup>

On July 29, 1861, Captain A. W. Whipple of the Topographical Engineers offered Lowe a position with the U.S. Army, stipulating that he would be paid \$30 per day "for each day the balloon is in use for reconnaissance on the Virginia side of the Potomac" and authorizing him twenty men to assist in the operations.<sup>20</sup> Lowe declined the offer, opting instead for a contractual arrangement that would guarantee him a longer term of employment, even at a smaller salary. On August 2, 1861, Captain Whipple informed him that the Army would pay him "\$10 per day as long as the Government may require your services."<sup>21</sup> In addition, he was informed, "the materials you will purchase immediately, the best the markets afford and at prices not exceeding ordinary rates."<sup>22</sup> It was an accommodating offer, and he thus began an association with the Union Army that would last for slightly more than three years.

While Lowe was still busy constructing balloons and finding assistants, La Mountain was already engaged in actual observations at Fort Monroe.

After some initial delays, La Mountain made a successful ascension near Hampton, Virginia, on July 31, 1861. Rising to a height of 1400 feet, he discovered a concealed Confederate camp with several hundred men near Sewall's Point.<sup>23</sup> Haydon points out that La Mountain made a number of successful ascents at Fort Monroe during the summer of 1861, enjoying the full confidence and support of General Butler:

It is greatly to his [Butler's] credit that he encouraged a branch of military science then in its infancy in this country, when his ad-

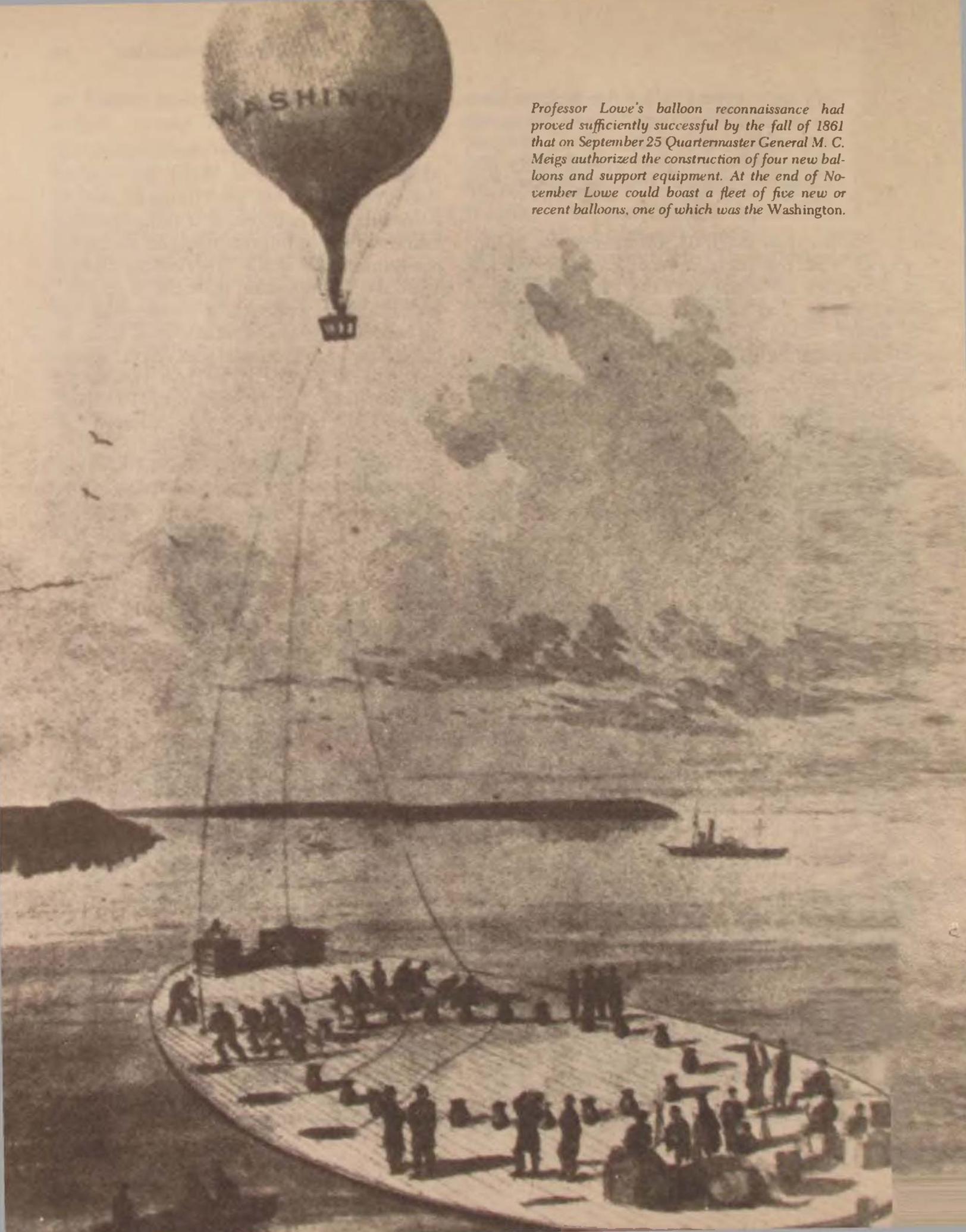
ministrative superiors failed or refused to recognize its possibilities.<sup>24</sup>

But in August Butler was replaced by Major General John E. Wool. In view of Butler's reliance on and frequent use of La Mountain's balloons, it is rather strange that he failed to impress upon his successor the importance of the observations. Never again did La Mountain have the support of his immediate superior, a prerequisite for successful balloon operations at a time so little was known about this novel operation. His luck appears to have gone from bad to worse, for on November 16, 1861, he lost his largest balloon, *Saratoga*, at Cloud's Mill during a heavy wind.<sup>25</sup>

In early December he applied to General William Buel Franklin in Washington for a new balloon, specifically one of Lowe's that was then waiting to be placed in service. Haydon states that in La Mountain's application he "charged Lowe with deliberately storing the new balloons, first to prevent his rival from using them even though they were idle, and second, with the plan of buying them, unused, at the end of the war for a mere trifle."<sup>26</sup> Despite the unusual tone of the request, Franklin recommended to McClellan that it be approved. On December 27, the Commanding General informed La Mountain of the following:

It is his [General McClellan's] wish that all balloons shall be under the superintendence of Mr. Lowe. Upon this basis if you can come to an understanding with Mr. Lowe, it may be of interest to yourself and the service.<sup>27</sup>

Because of the intense rivalry between the two aeronauts, there was little likelihood that La Mountain could reconcile his differences with and then subordinate himself to Lowe. On February 19, 1862, McClellan directed that La Mountain be dismissed from the service,<sup>28</sup> thus leaving the field clear for Lowe.



*Professor Lowe's balloon reconnaissance had proved sufficiently successful by the fall of 1861 that on September 25 Quartermaster General M. C. Meigs authorized the construction of four new balloons and support equipment. At the end of November Lowe could boast a fleet of five new or recent balloons, one of which was the Washington.*

In passing, it is enlightening to examine the nature of the conflict between these two men to gain some insight into their personalities, goals, and what prevented them from working together. On September 20, 1861, Brigadier General Fitz-John Porter, acting on instructions from McClellan, conducted a joint interview with the two men. In his report to Colonel R. G. Marcey, Chief of Staff, Porter wrote:

I think the Commanding General can rely upon the cordial cooperation of both to forward his views in working for the service. Both are jealous—Mr. La Mountain has a powerful incentive to action—the desire to obtain a subsistence, and no doubt will work to the best of his ability—of which I know nothing. Professor Lowe is also actuated by powerful motives—not the least of which is (as stated by him)—from the science of the aeronaut, and its perfect utility to the purpose to which applied.<sup>29</sup>

It might appear that McClellan simply grew tired of the bickering between Lowe and La Mountain and chose to go with the former as being the lesser of two problems.

ANY ATTEMPT to define the relevance and significance of balloon operations must necessarily focus on determining the value of the observations. Colonel G. F. R. Henderson, British army officer and historian, commented on the role of reconnaissance during the Civil War:

Lack of reconnaissance was a fruitful source of indecisive success and of unnecessary loss. Movements were projected and carried out without previous exploration of the ground or selection of the most effective line of advance. Little care was taken to discover the weak points . . . and the Confederate divisions attacked exactly where the adversary wished them to attack.<sup>30</sup>

Henderson's analysis, when compared to the type of information the balloon ob-

servers actually discovered, is a curious anomaly. Lowe began his observations for the Army of the Potomac near Fort Corcoran, Virginia, at the beginning of September 1861, and as early as September 11, General Porter informed him that "you are of value now."<sup>31</sup> An early report by Lowe revealed what he was able to discover and the somewhat general terms he used to describe his sightings:<sup>32</sup>

During my observations this evening I noticed a pretty heavy picket force on Upton's Hill and several camp smokes at Taylor's Corners. On the west slope of Munson's Hill there appeared to be a full regiment with a set of colors, their bayonets glistening in the sun as if on parade. I could see nothing of the horses you [Porter] spoke of, but as soon as I can get the balloon inflated again I will go nearer and examine the woods.<sup>33</sup>

It should be noted that on September 24 Lowe directed artillery fire from a balloon. The instructions he received were quite simple: "If we fire to the right of Falls Church, let a white flag be raised in the balloon; if to the left, let it be lowered; if over, let it be shown stationary; if under, let it be waved occasionally."<sup>34</sup>

Up to this point it is evident that Lowe's work was satisfactory, for on September 25, Quartermaster General M. C. Meigs authorized him to construct four additional balloons along with the necessary inflating apparatus.<sup>35</sup> By the end of November, he had a total of five new or fairly new balloons (*Eagle*, *Constitution*, *Washington*, *Intrepid*, and *Union*) in addition to several older ones from the prewar era.<sup>36</sup>

During these early months Lowe apparently aroused the interest and curiosity of his superiors to such a degree that they often wanted to obtain a firsthand look themselves. Lowe stated that Generals McDowell, Porter, and Martindale all made ascensions, and on September 7, near Munson's Hill, McClellan himself made the first of several ascents.<sup>37</sup>

During the first two months of 1862, Lowe maintained balloons and equipment at Budd's Ferry, Maryland, for General Hooker; at Poolesville, Maryland, under General Stone's command; and at Port Royal, South Carolina, for General Sherman. A balloon was also stationed at Cairo, Illinois, where it was used by Commodore Foote for artillery direction during the attack on Island No. 10.<sup>38</sup> On March 7, General Berry, one of General Heintzelman's staff officers, ascended several times and observed the evacuation of the Occoquan. According to Lowe, this sighting was the first evidence the Army of the Potomac had of the enemy's retirement from the area near Manassas.<sup>39</sup>

On April 3, 1862, Lowe was ordered by McClellan to accompany General Porter in his advance to Yorktown, and on April 6 Porter himself made an ascent of 1000 feet within one mile of the enemy's works, where he remained for an hour. Toward evening General Butterfield also made an ascent.<sup>40</sup> Later that month Lowe was able to determine that the Confederates had evacuated Yorktown, and he and General Heintzelman sent this information to the Union Army below by means of telegraph apparatus located in the balloon basket.<sup>41</sup>

In retrospect, Haydon maintains that during the fall and winter of 1861-1862, the type of service provided by the Balloon Corps gave the Union commanders information which "though not of vital importance, had been accurate and reliable, and had provided the various commanders with a knowledge of the strength and position of the hostile forces confronting them that they would not have otherwise been able to obtain."<sup>42</sup> But the best was yet to come.

The high point of Lowe's service occurred during the Battle of Fair Oaks, southeast of Richmond, which began on May 31, 1862. The day before a violent rainstorm had flooded the Chickahominy valley, and Mc-

Clellan found his army spread out over the area. Confederate General Joseph Johnston attacked, but McClellan was able to reinforce Heintzelman in time to prevent a major disaster, credit for which Lowe fully assumed:

I think that I have reason to presume that the cause of this favorable movement of our troops was mainly due to my report that the enemy were moving down and strengthening in front of Fair Oaks.<sup>43</sup>

In his report Lowe cited Prince de Joinville's narrative of the battle in which the latter stated, "There was some doubt whether the enemy were making a real attack, or whether it was merely a feint; but this doubt was soon removed by reports from the aeronauts, who could see heavy columns of the enemy moving in that direction."<sup>44</sup>

Lowe's role at Fair Oaks is further corroborated by General A. W. Greely, Chief Signal Officer, United States Army, who commented on the battle some 38 years later:

The balloon observations of May disclosed to General McClellan the intentions of the enemy to attack Heintzelman, and the reserves moved up to support him were just in time to check this contemplated movement. Had it not been for this concentration the advanced Union forces, which had crossed the Chickahominy, would unquestionably have been driven back on the rapidly rising stream and totally routed. Indeed, it may be safely claimed that the Union Army was saved from destruction . . . by the frequent and accurate reports of Lowe, which clearly discovered to McClellan the determined intentions of Johnson [*sic*] to overwhelm an army divided by the practically impassable river and swamps.<sup>45</sup>

A contemporary account of balloon operations by General Robert McAllister reported significant observations near Bottoms Bridge even three days earlier. In a

letter to his wife dated May 26, McAllister wrote, "I found that in the baloon assention [*sic*] of yesterday morning a large Rebel force was seen moving towards the center of our line at Bottoms Bridge."<sup>46</sup>

Even taking into account exaggerations and fading of memory caused by the passage of time, it is evident that Lowe's Balloon Corps in fact played an important service in the Battle of Fair Oaks. This role was duplicated about one month later at the Battle of Gaines Mills, where on June 27 Lowe's observations revealed that Confederate forces were attempting to outflank the Union right. Again, Lowe took credit for saving a large part of the Army of the Potomac:

I have no doubt that the information given in the above reports . . . saved a large portion of our troops then engaged from being taken prisoners, and also caused a strong guard to be placed at Bottom's Bridge and other crossings below, which prevented the enemy from getting into our rear.<sup>47</sup>

Because of administrative haggling and the fact that Lowe had had his transportation train taken from him by higher headquarters, balloons did not participate in the Battle of Antietam.<sup>48</sup> Lowe's comments provide an insight into McClellan's later feelings about this:

During the battle of Antietam General McClellan remarked on several occasions that the balloon would be invaluable to him, and he repeated this to me when I arrived, assuring me that better facilities should be afforded me in future. It was evident that he was extremely anxious to obtain information of movements at certain points which could be furnished only by the aeronaut, which if he had obtained might have resulted in the complete defeat and utter rout of the enemy while trying to effect his escape across the Potomac. On this occasion he greatly felt the need of reports from the balloons, which, having been on so many previous occasions

furnished without even being called for, were perhaps not sufficiently valued.<sup>49</sup>

Lowe later participated in the Battles of Fredericksburg and Chancellorsville. Edward Stackpole questions the manner in which data from observations were used in the first battle:

Burnside received valuable information from this source concerning the roads, troop movements, and dispositions of infantry and artillery during and before the Battle of Fredericksburg. It is questionable that he correctly evaluated and used this information.<sup>50</sup>

At Chancellorsville, Lowe's "two captive balloons opposite Fredericksburg were up and down like jumping jacks on April 29 and 30, sending in items of accurate intelligence. . . . with the result that . . . both the balloon observers and signal stations kept Butterfield informed of enemy movements."<sup>51</sup>

While the balloons were relied on to a great extent by the Army of the Potomac, they saw at best only limited action in other theaters of operation.

On December 9, 1861, Lowe informed Brigadier General Thomas W. Sherman that McClellan had ordered him to send an aeronaut and equipment to the Union forces at Port Royal, South Carolina.<sup>52</sup> Charles Starkweather, an able balloonist with considerable experience, was sent there, but Haydon states that Starkweather remained idle for three months and then performed very little.<sup>53</sup> Much the same situation occurred in the West, where Lowe had sent John H. Steiner to General Pope's forces in February 1862. Four months later Steiner still had not seen service and complained to Pope, "I cannot see why I am kept out of active service so long. I am anxious to be placed in proper relation with your command if agreeable to you."<sup>54</sup> He was able to assist Commodore Foote, but that was the extent of his work.

The Battle of Chancellorsville actually marked the end of the practical service provided by the Balloon Corps. Despite McClellan's alleged assurances to Lowe after Antietam, support rapidly disappeared, reaching its nadir with the appointment of Captain Cyrus B. Comstock, an engineering officer, to supervise all balloon operations in April 1863. Lowe resigned on May 7, 1863, and the Balloon Corps itself was disbanded a month later. Lowe's departure marked the end of practical Army air operations until General Greely resurrected a balloon detachment in 1892.<sup>55</sup>

THE WEIGHT of the evidence up to this point shows that observation balloons were more than mere toys in the hands of eccentrics. Reconnaissance observations, ambiguous and sketchy at first, were eventually refined into meaningful intelligence data about enemy movements and strength which were of value to field commanders. Also significant was the speed with which this information could be relayed to commanders. Equally important was the effect this speed had on the enemy.

Freeman notes that at the Battle of Fredericksburg Jubal Early "observed that one of the Federal balloons had risen, most in-

*At the Battle of Fair Oaks (Virginia) May 31 and June 1, 1862, Lowe made his outstanding military achievement. Years later General A. W. Greely stated: ". . . it may be safely claimed that the Union Army was saved from destruction . . . by the frequent and accurate reports of Lowe. . . ."*



quisitively, as if 'Professor' Lowe had known that 'the rebels' had afoot some new treason against the Union. Early concluded that the Federals had discovered his move and he anticipated the worst.'<sup>56</sup>

Haydon cites numerous examples of the Confederates' taking elaborate measures to conceal their positions from the balloons and in some cases actually trying to outsmart the observers by constructing such ruses as Quaker Cannon:

The Confederate efforts to vitiate the effect of the aerial observations clearly indicate that Lowe's operations were regarded as a serious threat to the security of the Southern army.<sup>57</sup>

But, as the adage so succinctly states, "Imitation is the sincerest flattery." Accordingly, the Confederates went into the balloon business themselves in the spring of 1862. General Johnston had obtained a captive balloon and secured the services of Captain John Randolph Bryan to serve as an aeronaut.<sup>58</sup> Only one ascent was made—the balloon's rope broke, taking Bryan on a hair-raising free flight across Union lines and back again—and Bryan's trip is the only recorded account by a Southern aeronaut.

GENERAL McCLELLAN himself made an analysis of Lowe's operations and gave the aeronaut an excellent report:

To Prof. Lowe, the intelligent and enterprising aeronaut, who had the management of the BALLOONS, I was indebted for information obtained during his ascensions. In a clear atmosphere, and in a country not too much obstructed by woods, balloon reconnaissances made by intelligent officers are often of considerable value.<sup>59</sup>

In trying to assess what went wrong—why the Balloon Corps's usefulness was never fully exploited, and why it was allowed to disband and the concept of air

operations remain buried for almost 30 years—three factors emerge: first, and probably least important, there were some physical factors that limited the employment of balloons; second, there was the nature of the administrative bureaucracy of the Union Army to contend with; and third, the personalities of the aeronauts themselves often hindered their efforts.

McClellan's tribute to Lowe indicated that balloons could not always be used effectively in all tactical environments. Weather conditions obviously could create problems, especially moderate winds and fog.

Another problem which had to be considered was the fact that the balloons frequently drew heavy artillery fire from the enemy guns. Although no balloon was ever lost to hostile fire, a number of near misses were recorded.

Lowe's ground crews changed frequently, but he was apparently able to train them quickly. Still, he himself recognized that it took approximately three hours to inflate a typical balloon, even using his sophisticated hydrogen-generating equipment.<sup>60</sup>

While the balloons and the men who operated them were administratively grouped into a "corps," organization was at best loose, and the chain of command changed frequently:

In relation to the other branches of the service it was an orphan, imposed as an unwanted ward upon the Bureau of Topographical Engineers, the Quartermaster Corps, and the Corps of Engineers. At the close of its existence, the Signal Corps was also selected as its unwilling guardian, but the chief signal officer refused to accept the added responsibility.<sup>61</sup>

Several authorities have indicated their belief that had Lowe and his chief assistants been given actual officer commissions, they would have had sufficient authority to exercise the control and supervision needed to obtain maximum effectiveness from the corps.<sup>62</sup> Without this formal structure, the

best that Lowe could hope for was to arrange the best possible working agreement with whoever happened to be commanding the Balloon Corps at any given time.

The last straw in the circle of administrative problems perplexing Lowe was the appointment of Captain Comstock as his immediate supervisor. Each quickly took a dislike to the other, but it is obvious that Comstock's attitude probably left something to be desired. In addition, he lacked the necessary expertise to manage and lead the corps effectively. Almost immediately upon assuming command, Comstock reduced Lowe's salary and fired his father, who had been assisting in aeronautical operations for some time. In a letter to Assistant Secretary of War Watson, Comstock's personality emerges:

On taking charge of this establishment—I found it—as I *thought*—unnecessarily expensive and reduced Mr. Lowe's pay from \$10 to \$6 per day and the number of men (civilians) under his control from four to two. . . . In my opinion any aeronaut is capable of taking charge of one of these balloons; so far as managing them in the field is concerned, leaving repairs aside, a man of intelligence can learn it in a week. It seems that Mr. Lowe in reference to these balloons has been acting without the knowledge or authority of any one connected with the army of which he is an employe—prompted without doubt by a stronger sense of his own interests than of those of the government.<sup>63</sup>

Comstock's all-too-efficient analysis contrasts sharply with Lowe's equally subjective parting comments in his final report to Secretary of War Edwin Stanton:

I feel assured that whatever may be the estimate of my own services, it will redound to the honor and credit of President Lincoln and his Administration that they have availed themselves of every means to crush this rebellion which loyal minds could devise or loyal men be willing to execute. . . . To gain

this knowledge has cost me many years of hard labor and nearly \$30,000 in money, and for which the United States Government alone is daily reaping the benefits. . . . I have never shrunk from the discharge of my duty, however hazardous, and holding no commission, I have often been perplexed and put to inconvenience in doing the business of the aeronautical department. . . . I have also been at all times exposed to the danger of being treated as a spy had I fallen into the hands of the enemy.<sup>64</sup>

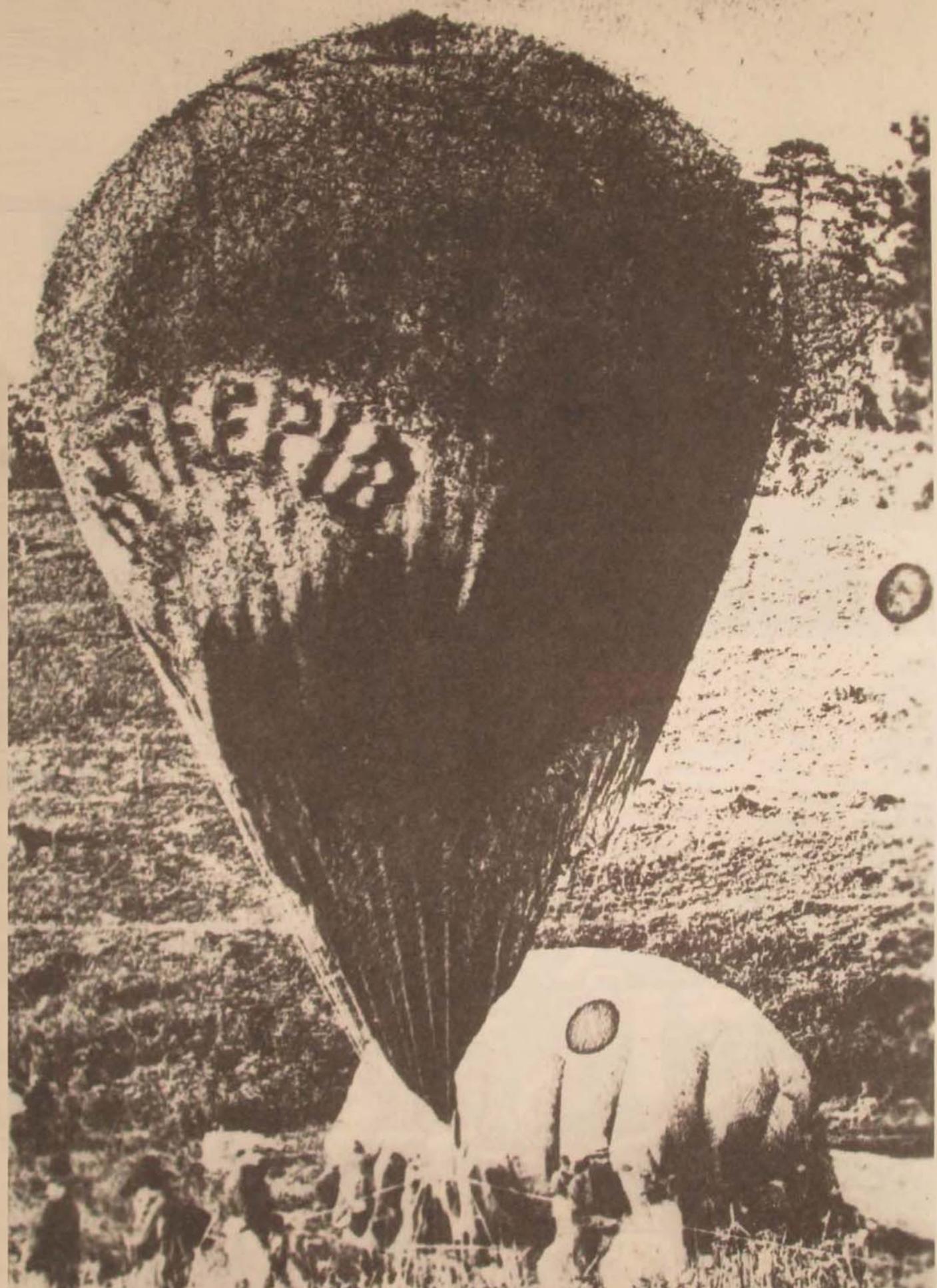
And finally there was Lowe himself. An examination of his character and personality through his correspondence and reports reveals his tendency to maximum self-promotion. His feud with La Mountain and his inability to accept criticism<sup>65</sup> denote the jealous personal attachment he displayed toward balloons and anything associated with their function.

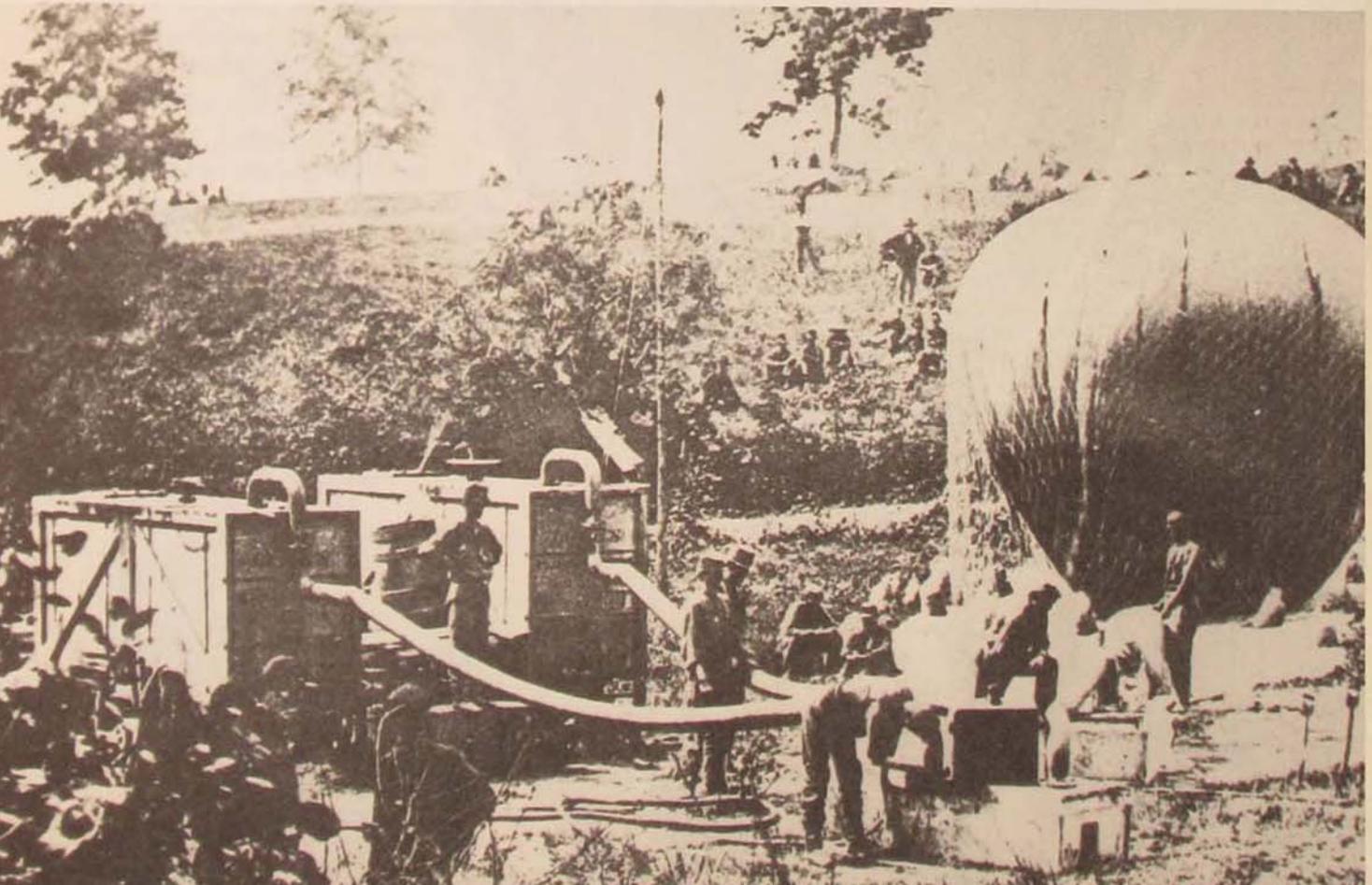
He was not a careful administrator, and despite the latitude which the Army initially allowed him in making purchases, bills still went unpaid. A letter from Captain John B. Howard of the Quartermaster Office to his superior about an overdue bill for some lumber is only one example of Lowe's lackadaisical attitude:

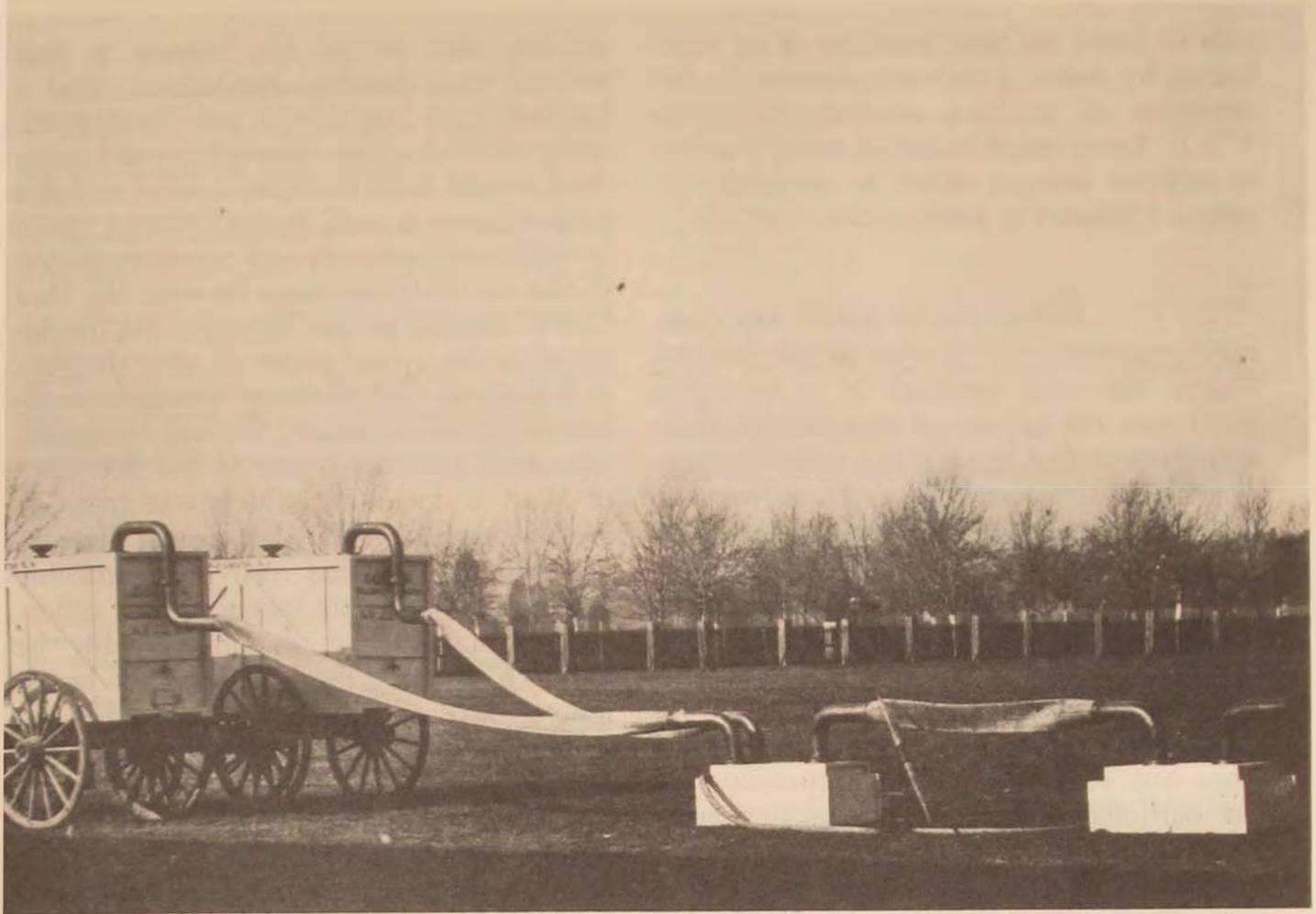
In reference to the delay in the payment of the account of Messrs. E. Pickrell and Co., I would respectfully state that the bill has never been presented to this office and that Prof. Lowe has neglected to inform me of the fact of his having made the purchase of lumber.<sup>66</sup>

This particular bill had even been sent to Secretary Stanton for payment before it was placed in the proper channels.<sup>67</sup> Obviously, incidents like this did little to enhance his standing as an efficient manager

*Professor Lowe's Intrepid being refueled on the north-side of the Chickahominy River at the Battle of Fair Oaks, spring 1862. The questionable quality of this photograph by Mathew Brady may be attributed to the violent rainstorm that preceded the two-day battle.*







### The Ubiquitous Mr. Brady

*Mathew B. Brady photographed the Union side of the U.S. Civil War from 1861–1865, including these photographs of Professor Lowe's halloon activities. The Intrepid (opposite, above) rises to observe Confederate troop movements in the Chickahominy valley, site of the Battle of Fair Oaks (Seven Pines). . . . Union troops inflate an observation halloon in the field (below), using two of the gas generators invented by Professor Lowe. They are being supervised by the civilian to the right of the halloon (probably Lowe himself). . . . Essential support equipment for the reconnaissance halloons was "Lowe's Balloon Gas Generator." No. 7 and No. 8 (above) are shown as they worked in tandem to inflate the observation halloons.*

in the eyes of those who could have furthered his cause.

His neglect in financial transactions extended into his private life as well. In 1862 Mrs. Lowe sent him the following telegram: "We are well. Nothing new. You must send money immediately."<sup>68</sup> In February 1863,

she followed with another reminder of her financial plight: "Did not receive money. Need it badly. We are well."<sup>69</sup>

Considering his personal and administrative shortcomings, one can perhaps accuse Lowe of being a bit eccentric and neglectful of specific details—but only in his eager-

ness to prove the practicability of an innovation by showing its compatibility to the demands of modern warfare. Whether T. S. C. Lowe could be hailed as the prophet of military science which he certainly envisioned himself is really quite academic.

THERE can be hardly any question concerning the success of the Balloon Corps. The only problem is in trying to determine the degree of that success since it is obvious that there really were no long-range objectives established. There were no criteria by which to measure the extent to which the balloon observers were able to provide field commanders with tactical maneuverability. The relationships which existed between Lowe and his assistants and the commanders to whom they were assigned were fluid, ill-defined, and drifted from one day to the next, depending on the battlefield situation and the personalities of individuals assigned.

In spite of it all, it must be recognized that the aeronauts were able to develop an innovative concept of military science—tactical reconnaissance on a scale never before thought possible. Unfortunately, the lessons were not retained and would have to be relearned some fifty years later in a world war.

Why the concept of balloon observation was allowed to ripen and then die on the vine was due to a number of reasons. Three contributory causes have already been discussed: physical factors, military bureaucracy, and the nature of Lowe himself. However, all three were only contributory and not insurmountable.

The Army was hastily disbanded after the end of hostilities, and there is little to indicate that the government did much to

analyze and record the lessons it had learned on a hundred battlefields. Had a competent review board been established, it is possible that the significance of Lowe's work would have been recognized and the proper impetus and encouragement given to continued research and experimentation in the use of lighter-than-air vehicles. Had Lowe himself pushed strongly for recognition in the proper channels after the war, it is possible that his work would have received greater attention. Instead, he merely submitted his final report to the Secretary of War, a document which was properly included in the Official Records. His disillusionment with the Army was probably responsible for his not taking further action.

In a sidenote, it should probably be pointed out that there appears to be no record of President Lincoln's further involvement with balloons other than his introducing Lowe to General Scott. Despite the Ginsburgh-Wheeler claims, the Union Army in 1863 still remained unconvinced of the tactical value of military balloons.

That the Balloon Corps performed a valuable service is evident today. However, there is certainly nothing to suggest that the Civil War balloons were a necessary evolutionary element. They were not an essential link in the chain which eventually led to Kitty Hawk. It is more probable that the "meteoric development" of air power occurred totally independent of the events of the Virginia Peninsula during the 1861-1863 period. But there is every reason to speculate that, given the proper circumstances, the balloons could have played a much more important role, adding a dimension to warfare even at that early date that would have to be rediscovered a half-century later.

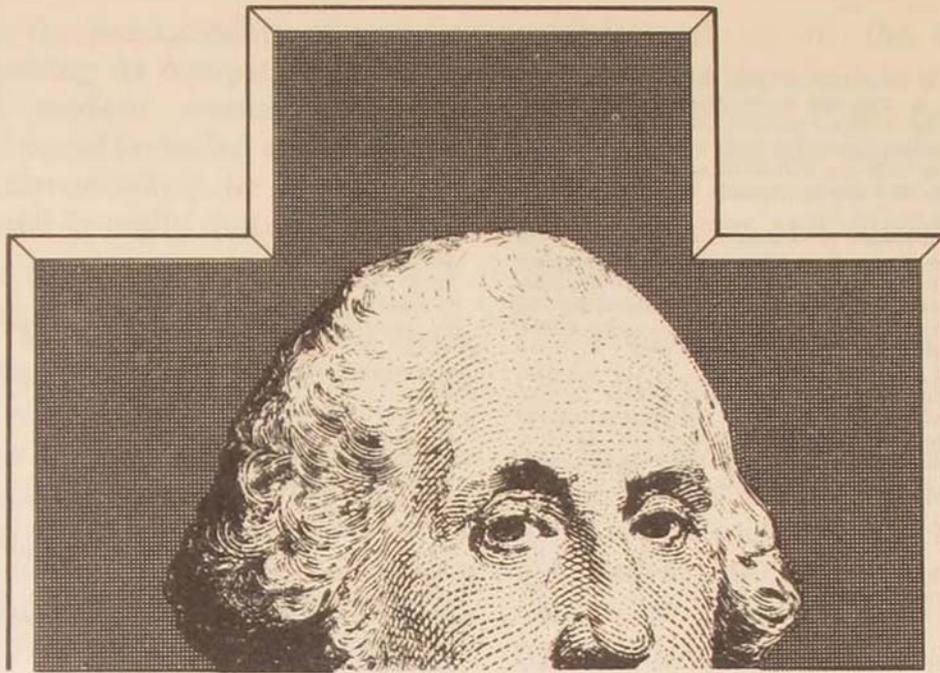
*Langley AFB, Virginia*

## Notes

1. Major General Robert N. Ginsburgh and Major Edd D. Wheeler, "The Evolution of Air Warfare," *Air University Review*, March-April 1972, p. 5.
2. Without reference to their respective depth of scholarship, some of the available works include: *Thuddeus Lowe, Uncle Sam's First Airman* by Lydel Sims, 1964; *Aeronautics in the Union and Confederate Armies* by F. Stansbury Haydon, 1941; and *Above the Civil War* by Eugene B. Block, 1966. Lowe is mentioned in many works on the Civil War.
3. F. Stansbury Haydon, *Aeronautics in the Union and Confederate Armies*, Vol. 1 (Baltimore: The Johns Hopkins Press, 1941). According to researchers at the National Archives, Haydon never published Volume 2 of this work. Volume 1 is a comprehensive history of the use of the balloon in the Civil War, including operations on the Potomac lines, November 1861-March 1862. The volume ends with the operations in the South and the West.
4. Haydon, p. 23.
5. Letter, Frederick Beasley to Hon. Secretary Poinsett, October 12, 1840, enclosed in QM Consolidated File, "Balloon" Box 87, Letters Received, National Archives. (Hereafter referred to as QM Consolidated File, NA.) It is interesting to note that many of the suggestions made by Beasley were actually adopted by T. S. C. Lowe some 21 years later.
6. *Ibid.*
7. Haydon, p. 28.
8. *Ibid.*, p. 40.
9. Juliette A. Hennessy, "Balloons and Airships in the United States Army, 1861-1913," *Aerospace Historian* (Winter 1969), p. 42.
10. *Ibid.*
11. *Ibid.*
12. Eugene B. Block, *Above the Civil War* (Berkeley, California: Howell-North Books, 1966), p. 96.
13. "Petition Recommending Mr. La Mountain for Army Service," May 1, 1861, QM Consolidated File, NA.
14. Haydon, p. 85.
15. The title "Professor" was lightly conferred on anyone connected with science in the nineteenth century.
16. *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies*, Series III, Vol. 3 (Washington: Government Printing Office, 1884), p. 253. (Hereafter referred to as III OR, 3.)
17. *Ibid.*
18. J. Duane Squires, "Aeronautics in the Civil War," *The American Historical Review*, XLII, No. 4 (1937), p. 656. The author cites as his source an account in the *New York Times* for April 19, 1936.
19. *Ibid.*
20. III OR, 3, p. 258.
21. *Ibid.*, p. 259.
22. *Ibid.*
23. Haydon, p. 93.
24. *Ibid.*, p. 109.
25. *Ibid.*, p. 130.
26. *Ibid.*, p. 131.
27. *Ibid.*, p. 143.
28. *Ibid.*, p. 148.
29. Letter, Brigadier General F. J. Porter, Headquarters Porter's Division, Fort Corcoran, Virginia, to Colonel R. G. Marcey, Chief of Staff, Army of the Potomac, Washington City, September 21, 1861, enclosed in Record Group 94, Office of the Adjutant General, Civil War, Pilots-Balloons and Construction Corps, National Archives. (Hereafter referred to as RG 94, Civil War Balloons, NA.)
30. Colonel G. F. R. Henderson, C.B., *The Science of War* (London: Longmans, Green, & Co., 1905), p. 221.
31. III OR, 3, p. 261.
32. Haydon, pp. 314-18. The author describes numerous indicators and signs that were used as aids in gathering intelligence.
33. III OR, 3, p. 262.
34. *Ibid.*, p. 263.
35. *Ibid.*, p. 264.
36. Squires, p. 659.
37. III OR, 3, p. 260.
38. *Ibid.*, p. 269.
39. *Ibid.*, p. 271.
40. *Ibid.*, p. 273.
41. *Ibid.*, p. 276.
42. Haydon, p. 374.
43. III OR, 3, p. 280.
44. *Ibid.*, p. 281.
45. General A. W. Greely, "Balloons in War," *Harper's Monthly*, June 1900, p. 42.
46. James I. Robertson, Jr., editor, *The Civil War Letters of General Robert McAllister* (New Brunswick, New Jersey: Rutgers University Press, 1965), p. 165.
47. III OR, 3, p. 291.
48. Haydon, p. 294 and III OR, 3, p. 292.
49. III OR, 3, p. 292.
50. Edward J. Stackpole, *Drama on the Rappahannock* (Harrisburg, Pennsylvania: The Stackpole Company, 1957), p. 44.
51. Edward J. Stackpole, *Chancellorsville* (Harrisburg, Pennsylvania: The Stackpole Company, 1958), p. 163.
52. Letter, T. S. C. Lowe, Chief Aeronaut, USA, Old Point, Virginia, to Brigadier General T. W. Sherman, Commanding Forces at Port Royal, South Carolina, December 9, 1861, enclosed in RG 94, Civil War Balloons, NA.
53. Haydon, p. 381.
54. Letter, J. H. Steiner, Aeronaut, Cairo, Illinois, to Major General Pope, Army of the Mississippi, June 16, 1862, enclosed in RG 94, Civil War Balloons, NA.
55. General A. W. Greely, "Balloons in War," *Harper's Monthly*, June 1900, p. 45.
56. Douglas Southall Freeman, *Lee's Lieutenants, II* (New York: Charles Scribner's Sons, 1945), p. 609.
57. Haydon, p. 217.
58. "Balloon Used for Scout Duty," *Southern Historical Society Papers*, XXXIII (January-December 1905), p. 32.
59. George B. McClellan, *McClellan's Own Story* (New York: Charles L. Webster and Company, 1887), p. 135.
60. Letter, T. S. C. Lowe, Chief of Aeronautics, Army of Potomac, Headquarters Aeronautic Department, Camp near Falmouth, Virginia, to Brigadier General S. Williams, Asst. Adjt. Gen., Army of Potomac, March 30, 1863, enclosed in RG 94, Civil War Balloons, NA.
61. Haydon, p. 280.
62. Haydon, p. 302; Hennessy, p. 40; and Robert V. Bruce, *Lincoln and the Tools of War* (Indianapolis: Bobbs-Merrill Company, 1956), p. 88.
63. Letter, C. B. Coimstock, Captain of Engineers, Headquarters Army of the Potomac, to P. H. Watson, Esq., Asst. Sec. of War, April 25, 1863, enclosed in QM Consolidated File, NA.
64. III OR, 3, p. 317.
65. Letter, Lowe to Williams, *Ibid.*
66. Letter, Captain John B. Howard, Office of Assistant Quartermaster, Headquarters Army of the Potomac, to Brigadier General R. Ingalls, Chief Quartermaster, Army of the Potomac, March 26, 1863, enclosed in RG 94, Civil War Balloons, NA.
67. *Ibid.*, endorsement on letter.
68. Telegram, Mrs. T. S. C. Lowe, Philadelphia, to Prof. T. S. C. Lowe, Headquarters, Army of the Potomac, Commanding Balloon Corps, no date, enclosed in RG 94, Civil War Balloons, NA.
69. Telegram, Mrs. T. S. C. Lowe, Philadelphia, to Prof. T. S. C. Lowe, Chief Aeronaut, USA, February 10, 1863, enclosed in RG 94, Civil War Balloons, NA.

Young man, there is America—which at this day serves for little more than to amuse you with stories of savage men, and uncouth manners; yet shall, before you taste of death, show itself equal to the whole of that commerce which now attracts the envy of the world.

EDMUND BURKE, 1775



# THE RELIGION OF GEORGE WASHINGTON

*a Bicentennial report*

CHAPLAIN (LIEUTENANT COLONEL)  
EDWIN S. DAVIS

**H**E was not Saint George—the revisionist historians have convinced us of that. Yet there is ample evidence to show that religious faith was a deeply significant force in the life of the general who became our first President.

While some may consider religion a private matter only, George Washington saw it as more. For him it was a subject of demonstrated interest and public expres-

sion. As General of the Army he showed clearly that religious faith and military command can be joined. Indeed, for him there was a vital connection between the two.

Washington recognized the need for religion in the military and demanded chaplains for his troops. Roy J. Honeywell's *History of the Chaplaincy of the United States Army* traces the federal chaplaincy

in this country from legislation enacted by the Continental Congress on 29 July 1775 in response to Washington's request that chaplains be provided for the Continental Army.<sup>1</sup> Then, the chaplain's corps was augmented as a result of Washington's general orders of 9 July 1776, when the Army was quartered in New York City. These orders directed that:

The Colonels or commanding officers of each regiment are directed to procure for chaplains accordingly, persons of good character and exemplary lives. To see that all inferior officers and soldiers pay them a suitable respect and attend carefully upon religious exercises. The blessing and protection of Heaven are at all times necessary but especially so in times of public distress and danger. The General hopes and trusts, that every officer and man will endeavor so to live, and act, as becomes a Christian Soldier defending the dearest rights and Liberties of his country.<sup>2</sup>

On the day these orders were issued, Washington had received from Philadelphia the resolution of the Congress declaring that "the United States of America" were "free and independent . . . and absolved from all allegiance to the British crown." So it was in the same orders which increased the chaplain's corps that Washington informed his troops of the Declaration of Independence and directed that:

The several brigades are to be drawn up this evening on their respective parades at six o'clock, when the Declaration of Congress, showing the grounds and reasons of this measure, is to be read with an audible voice. The General hopes that this important event will serve as a fresh incentive to every officer and soldier to act with fidelity and courage, as knowing that now the peace and safety of this country depends, under God, solely on the success of our arms.<sup>3</sup>

The phrase "under God," so much a part of our nation's tradition and so familiar as

part of Lincoln's Gettysburg Address, was used by George Washington when he learned that the United Colonies had declared themselves an independent nation.

The ninth of July—the day Washington received news of the Declaration of Independence—was significant to him for still another reason, as seen in his letter to an old comrade, Colonel Adam Stephen:

The anniversary of the 3rd and 9th of July I did not let pass without a grateful remembrance of the escape we had at the Meadows and on the banks of the Monongahela.<sup>4</sup>

So the records show that these thoughts were in the mind of Washington on the day he learned his nation had declared its independence: gratitude to Providence for having twice spared his life in battle, and the realization that now he faced even greater trials. Significantly, he noted that these events and the destiny of the new nation were "under God."

The faith in God expressed by the first great American general was that of a man who had been introduced to religion at an early age. On 3 April 1732, when George Washington was less than two months old, he was baptized in the traditional manner of the Church of England (to become known later in America as the Episcopal Church). The Washington family Bible recorded that two godfathers and one godmother stood with him.<sup>5</sup>

George Washington was reared in a religious home. His father was a vestryman in the Truro Parish Church, and his mother was staunchly religious. The young Washington's earliest known signature—written probably at the age of eight or nine—was inscribed on the title page of a book of sermons, perhaps placed in his hands by his mother.<sup>6</sup> Because of the family's close association with the Truro Parish Church, it is more than likely that young George

took catechism lessons from the Reverend Charles Green, rector of the parish.

After his marriage, George Washington, like his father before him, served for a considerable time as vestryman in Truro parish. Later he served in the same capacity in Fairfax parish. He is recorded as having served on the building committees of Falls Church and Pohick Church—the latter edifice, being built from plans which he drew,<sup>7</sup> still stands today.

Thus, on 15 June 1775, when Colonel George Washington was elected General and Commander in Chief of the Army of the United Colonies, he had been for many years an active vestryman and respected leader in his church. However, during the turbulent days surrounding the outbreak of the Revolutionary War, there is little recorded evidence of Washington's making reference to religion other than in a letter to his wife written eight days after he became Commander in Chief in which he said, "I go trusting in that Providence which has been more bountiful to me than I deserve . . ."<sup>8</sup>

In his speech accepting the appointment of Commander in Chief of the Army, Washington made no reference to God. But soon thereafter, on 5 August 1775, the matter of prayers and church services appears in the general orders issued from Cambridge. These orders directed that "the Church be cleared tomorrow and the Revd. Mr. Doyles will perform Divine Service therein at ten o'clock."<sup>9</sup>

NOT ONLY was George Washington a man of religion, he was one who respected the religion of different faith groups. His magnanimity, even toward the enemy, was manifest during the early part of the Revolutionary War when he ordered Colonel Benedict Arnold to take command of a detachment of the Continental Army

and move against Catholic Quebec. The first article of the instructions reads:

You are immediately, on their march from Cambridge, to take command of the detachment of the Continental Army against Quebec and use all possible expedition as the winter season is now advancing and the success of this enterprise, under God, depends wholly upon the spirit with which it is pushed.<sup>10</sup>

And the 14th instruction reads:

As the contempt of the religion of a country by ridiculing any of its ceremonies, or affronting its ministers or votaries, has been deeply resented, you are to be particularly careful to restrain every officer and soldier from such imprudence and folly, and to punish every instance of it. On the other hand, as far as lies in your power, you are to protect and support the free exercise of the religion of the country, and the undisturbed enjoyment of the rights of conscience in religious matters, with your utmost influence and authority.<sup>11</sup>

After the Colonies had won their independence, it was a matter of special pride to Washington that the American Republic guaranteed full religious liberty to all, especially to such persecuted groups as the Jews and the Quakers. In a famous letter to the Hebrew congregation at Newport, Rhode Island, in August 1790, he wrote:

It is now no more that toleration is spoken of, as if it was by the indulgence of one class of people that another enjoyed the exercise of their inherent natural rights. For happily the Government of the United States, which gives to bigotry no sanction, to persecution no assistance, requires only that those who live under its protection should demean themselves as good citizens, in giving it, on all occasions, their effectual support. . . . May the Father of Mercies scatter light and not darkness on our paths, and make us all, in our several vocations useful here, and in his own due time and way everlastingly happy.<sup>12</sup>

In similar vein he wrote to the Philadelphia Quakers:

The liberty enjoyed by the People of these States, of worshipping Almighty God agreeable to their consciences is not only among the choicest of their *blessings* but also of their *rights*. . . . I assure you very explicitly that in my opinion the conscientious scruples of all men should be treated with delicacy and tenderness.<sup>13</sup>

As Commander in Chief of the Continental Army during the fearful and uncertain days of the Revolution, Washington's firm belief in freedom of religion did not mean freedom *from* religion so far as his troops were concerned. In January 1777, the Army established its first permanent encampment since the siege of Boston at Morristown, New Jersey. One of the first matters Washington attended to was providing for regular Sunday worship for his men. On Saturday, 12 April 1777, he ordered that:

. . . all the troops in Morristown except the guards, are to attend divine worship tomorrow at the second bell; the officers commanding the Corps, are to take special care to have their men clean and decent, and that they are to march in proper order to the place of worship.<sup>14</sup>

Similarly, at Middlebrook, on 28 June 1777, Washington's orders were as follows:

. . . that all Chaplains are to perform divine services tomorrow and on every succeeding Sunday, with their respective brigades and regiments, where the situation will possibly admit of it. And the Commanding officers of corps are to see that they attend themselves with officers of all ranks setting the example. The Commander in Chief expects an exact compliance with this order, and that it be observed in the future as an invariable rule and practice. And every neglect will be considered not only as a breach of orders, but a disregard to decency, virtue and religion.<sup>15</sup>

Following the grueling campaign of 1777, when the battle-weary troops were on their march to Valley Forge, Washington issued orders for the observance of a day of thanksgiving:

Tomorrow being the day set apart by the Honorable Congress for public Thanksgiving and Praise; and duty calling us devoutly to express our grateful acknowledgement to God for the manifold blessings he has granted us, the General directs that the Army remain in its present quarters and that the Chaplains perform divine services with their several corps and brigades, and earnestly exhorts all officers and soldiers whose absence is not indispensably necessary, to attend with reverence the solemnities of the day.<sup>16</sup>

No chapter in American history is better known than that dealing with the rigorous experiences of the poorly equipped Continental Army at Valley Forge during the harsh winter of 1777-1778. And few paintings are more familiar than that of General Washington praying in the snow at Valley Forge. The incident was related by the Quaker Scotsman, Isaac Potts, at whose home Washington had stayed and who claimed to have witnessed the event. Some historians have gone to great lengths to relegate the story to the status of the cherry tree legend made famous by Parson Weems.<sup>17</sup> For our purposes here, however, arguments over the actuality of this particular occurrence are irrelevant in light of the evidence that Washington was a man of prayer. A further example of this comes in the words written to his soldiers at Valley Forge on 2 May 1778, after the terrible winter had drawn to a close.

While we are zealously performing the duties of good citizens and soldiers we certainly ought not to be inattentive to the higher duties of religion. To the distinguished character of patriot it should be our highest glory to add to the more distinguished char-

acter of Christian. The signal instances of providential Goodness which we have experienced and which have now almost crowned our labors with complete success, demand from us in a peculiar manner the warmest returns of gratitude and piety to the Supreme Author of all Good.<sup>18</sup>

On 18 April 1783, eight years to the day from the beginning of hostilities at Lexington, Washington ordered a cessation of the fighting. Along with his stipulation for the reading of the proclamation, he requested that, ". . . the chaplains with the several brigades . . . render thanks to Almighty God for his mercies, particularly for his overruling the wrath of man to his own glory and causing the rage of war to cease amongst the nations."<sup>19</sup>

In concluding his military career with an address to the Congress upon resigning his commission on 23 December 1783,

General Washington spoke in characteristic fashion by saying:

I consider it an indispensable duty to close this last solemn act of my official life, by commending the Interests of our dearest country to the protection of Almighty God, and those who have the superintendence of them to his holy keeping.<sup>20</sup>

Of course, it was not the "last solemn act" of his official life—the Presidency lay in the future. And in that high office, just as in the command he was giving up, he showed that his religious faith and his official duties could be joined.

Our first general and our first President saw this Nation as "under God." If after 200 years we were called upon to report back to him, his first question might well be: "How is *that* legacy faring?"

*United States Air Force Academy*

#### Notes

1. Roy J. Honeywell, *History of the Chaplaincy of the United States Army* (Washington: Office of the Chief of Chaplains, Department of the Army, 1958), p. 37.

2. John C. Fitzpatrick, editor, *The Writings of George Washington* (Washington: Government Printing Office, 1931-1944), vol. V, p. 245. (Hereafter cited as *Writings*.)

3. *Ibid.*

4. Francis Rufus Bellamy, *The Private Life of George Washington* (New York: Thomas Y. Crowell Company, 1951), p. 216.

5. Joseph Dillaway Sawyer, *Washington* (New York: The Macmillan Company, 1927), vol. I, p. 61.

6. *Ibid.*, p. 74.

7. *Ibid.*, pp. 249-50.

8. *Writings*, vol. III, p. 301.

9. *Ibid.*, p. 403.

10. Saul K. Padover, editor, *The Washington Papers* (New York: Harper and Brothers Publishers, 1955), p. 125.

11. *Ibid.*, p. 127.

12. *Ibid.*, p. 411.

13. *Ibid.*, p. 12.

14. *Writings*, vol. VII, p. 407.

15. *Ibid.*, vol. VIII, p. 308.

16. *Ibid.*, vol. X, p. 168.

17. For a pertinent discussion of the topic, "Did He Pray at Valley Forge?" see Rupert Hughes, *George Washington, The Savior of the States* (New York: William Morrow and Company, 1930), pp. 270-98.

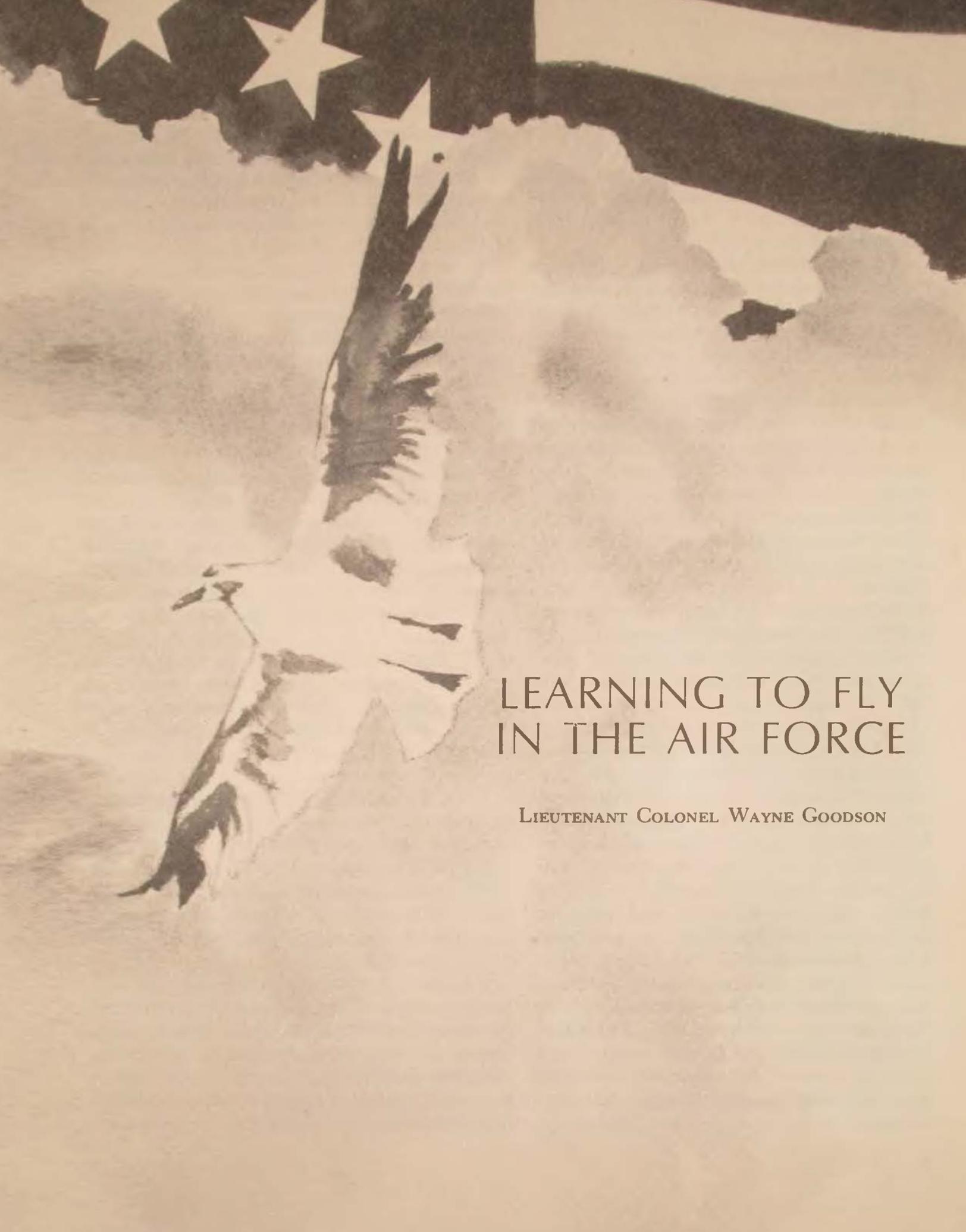
18. *Writings*, vol. XI, pp. 342-43.

19. *Ibid.*, vol. XXVI, p. 334.

20. Padover, p. 262.

In war, when a commander becomes so bereft of reason and perspective that he fails to understand the dependence of arms on Divine guidance, he no longer deserves victory.

GENERAL DOUGLAS MACARTHUR



# LEARNING TO FLY IN THE AIR FORCE

LIEUTENANT COLONEL WAYNE GOODSON

**C**RITICS of the United States military forces might have raised more than just eyebrows when the Institute of Social Research at the University of Michigan, in a report made public in May 1974, found that of all American institutions, the U.S. military topped the list as the most admired.

To the surprise of many in uniform as well, 1444 respondents to the Michigan survey scored the military above colleges and universities, the news media, and ahead of the Supreme Court.

Andrew Tully, the noted columnist, attributed the fascinating find to the military's credo of patriotism, service to country, and ". . . in square language . . . a willingness to die in the country's defense." Tully's inference was that Americans are being turned on by old values—the kind so liberally dispensed, for example, in the enormously successful television show "The Waltons." (But even these gentle stories have been put down by the ubiquitous critic as "nauseatingly saccharine.")

Another Waltons-like phenomenon is the emergence of a bird named Jonathan as a national folk hero. And with him, among other old values dusted off rhetorically, is the much-neglected work ethic. Jonathan Livingston Seagull's appeal is that he found "perfect love and honesty" through achievement—achievement which, to be sure, might be labeled as "nauseatingly cornball."

Military life, with its unfading allegiance to the late General MacArthur's adage of "duty, honor, country," is probably as cornball a way of life as can be found anywhere. It may be America's strongest bastion of old values where, among other things, it is presupposed that its members will do the right, ethical, and patriotic thing before anything is done at all. And, as Mr. Tully observed, commit the quintessence of triteness—that of being willing to die for their country.

The fact that this predisposition may have crept into the public's awareness, eliciting some admiration, indicates that there may be no scarcity of cornball Americans: knee-jerk squares who stand up when old glory goes trooping by; those whose hearts beat more quickly when a John Philip Sousa march is heard.

Indeed, as the Nation observes its two hundredth birthday, there are decided red, white, and blue signs that the Spirit of '76 is reviving, taking root in millions of hearts and hearthsides across the land.

The military, certainly, can be credited for sowing some of the seeds. Most American families have been touched by the military in one way or another, and in many instances, perhaps most, the contact has had an infectious quality.

vfw posts, the American Legion, and the many military academies and fraternal and social organizations that are modeled and structured after the military—all serve to perpetuate service-bred idealism and patriotism.

Despite the critics and "bad press" the armed services have received, there remains in the conscience of middle-class America an ingrained belief that military training is character-building training.

Why is this?

For one thing it can be hypothesized that the military is one of the least complicated and least self-serving entities in America today. It remains a controlled society, not in the sense that individual liberty is denied but in the sense that all of its members must conform to unusually strict moral and ethical standards.

For another thing, it is a monumental anachronism in a "me first" age. It possesses more sheer power than any institution in the world but submits humbly to civilian authority. It is now in the process of systematically cutting its own strength because it is the mandate of Congress to do so, a

fact that creates wonderment in countries ruled by military regimes.

Rules and regulations govern almost every aspect of military life, extending even into the sanctity of the home. The permissiveness that has characterized U.S. society in recent years is not to be found among the military. The generals, paternal mentors, do not permit it.

It may be that many Americans, buffeted by the excesses of a permissive society, have a growing regard for uncomplicated institutions wherein "dos and don'ts . . . right and wrong" are clearly articulated and understood.

The military, perhaps, also has an attraction to many because it offers blessed relief from the dog-eat-dog syndrome. Survival, career progression, the old rat race is on a more exalted competitive plane. Rarely does another person's back function as a ladder. For officers, it's an incisive up or out proposition. And each year thousands retire (with stiff upper lips) after failing to win promotions.

This simple fact eliminates much of the unsavory peer competition. The bee is squarely on the individual. He must measure up to established standards or see his career nosedive or end suddenly between the tenth and seventeenth year. And, contrary to most professions, the standard is not how many dollars he is worth in return for his services but how well he comports himself as a whole man in the eyes of his beholders.

The Air Force promotes on what it calls the "whole man" concept: how the individual does his job, his judgment, morals, appearance, and personal behavior.

An officer who writes one bad check, for example, is in serious trouble. Like a school lad sent to the principal, he must suffer the humility of explaining the whys and wherefores to his commander. If he is too fat, he's placed on the fat man's roster for imposed dieting. If he is derelict or drunk on duty,

he risks an Article 15 punishment or worse. One Article 15, a nonjudicial, voluntarily accepted form of punishment, is enough to destroy all chances of promotion.

Enlisted personnel face the same discipline. And the picture is similar in all branches of service.

Because rules are rules and should not be compromised regardless of their intrinsic wisdom, military careerists live with the nagging awareness that a sharp-edged hatchet hangs over their heads, much like Joe Btfsplk's black cloud in "Li'l Abner." Its levitation is controlled by their immediate superiors, and to a certain extent by every other military person. To keep it from falling, careerists must practice at being the ideal soldier, an officer and a gentleman, honest, loyal, and brave. In truth, it is a game, but a serious game dictated by the ultimate reason the military exists: not to die for one's country exactly but to make the enemy perish for his.

It is a matter of duty to allow the hatchet to fall if a gross violation of the military code is committed. This propensity goes a long way toward explaining why careerists—"lifers" to maverick noncareerists—are such indefatigable SOB's.

There are few parallels in civilian life. But this is not to say that the Air Force (nor any of the services) has a Pratt and Whitney engine for a heart. Flexibility, compassion, and the virtues of one man's responsibility to another flow generously through its vastness. Many problems unsolvable at home are unraveled in its boy scout, cornball environment.

"Send us a boy, and we will return a man" is a favorite recruiting slogan of the U.S. Marines. It is a claim that all services can back up. The Air Force until recently said it this way: "Find yourself in the Air Force."

Finding oneself means exploring the complex roots of the conscience. In the ultimate

sense, awareness of self is demanded for psychological reasons of anyone who might be called upon to level a gun, figuratively or otherwise, at another human being. Young Americans facing the awful reality that to wage war means to kill and risk being killed are forced to ponder the difficult question of national responsibility and morality more deeply than those who never had to face danger or be called upon to perform a service upon which hundreds of lives might depend.

The so-called military mind that dotes on raw power and its indiscriminate application has often been the subject of satire. Intellectuals and satirists who hold this view would be wise, however, not to debate the question of morality or the essence of truth in a public forum with a combat pilot or crew member or with any other dedicated military combatant. Most likely they would lose—if not by the weight of reasoned argument, by the fervor of commitment to a cause that has stood the test of time.

Discipline, courage, dedication—the inner stuff seldom tested of an individual who has never experienced such commitment upon which national honor and life itself may hinge—are discovered, gauged, and reconciled somewhere along the way in military service. Found also is an abiding sense of patriotism that makes all the enigmas understandable and meaningful. Patriotism is the “truth” that hardly ever comes up for discussion during happy hour at club bars, but it is, nevertheless, the thread from which the fabric of military life is woven.

Go to a base movie, and you will stand for the *Star-Spangled Banner*. Every day at retreat when the flag is lowered, traffic halts, all activity ceases until the last strains of the *Star-Spangled Banner* fade. New members, who lack awareness of what the flag means to a soldier, soon are educated. Sometimes dramatically.

LIEUTENANT GENERAL George H. McKee, who retired last September from the post of Commander, Air Training Command, is one of many Air Force leaders who exemplified love of country. From this man, who rose through the enlisted ranks himself and served on active duty for 35 years, three young airmen learned something about the flag in a memorable way.

While serving as Commander of the Eighth Air Force at Andersen AFB, Guam, General McKee left his position of rigid attention one day after a retreat ceremony. Instead of turning back into the headquarters building, he strode, without a word to anyone, toward an airmen dormitory three blocks away. During retreat he had noticed three men seated there, their legs dangling from the second floor balcony.

The airmen caught sight of the lone figure marching diagonally across a field of grass. Laughingly, one said, “It looks like he’s coming to see us.” Their interest turned to surprise when the general’s three stars glinted in the setting sun. Transfixed, they watched in silence as he neared, then climbed the stairs of their building.

Moments later they were standing uncomfortably, trying to look military in their T-shirts, cut-off jeans, and sandals, facing a soft-spoken man whom they knew well but had never met. It was from him that they learned about the flag, what it symbolizes, and why they should stand for those who have fallen to keep it waving.

“God, he was sincere,” one of the men said afterwards.

THE acid test of one’s patriotism—love of flag—of course, occurs in combat. It is only in the heat, ordeal, and despair of battle that personal commitment can be given dimension and weighed.

Dedication has rarely been more severely tested or so abundantly in evidence than

among Air Force men and women who endured the long conflict in Southeast Asia. From bases throughout Southeast Asia and the Western Pacific, a lean Tactical Air Command and Strategic Air Command\* combat crew force carried out one of history's most grueling air campaigns. There was little respite for these airmen between June 1965 and August 1973. In this period children grew up without fathers.

Few crewmen and still fewer support airmen in maintenance, munitions, and operations escaped the repeated temporary combat duty. For SAC personnel it was 149-179 days of twelve-hour shifts around the clock, day in and day out. When they did get home, it was for 30 days, then back to the grind, over and over again.

Three hundred combat sorties for crew members were not uncommon. Some flew as many as 500. From Andersen AFB, a single B-52 sortie took 17 hours from briefing to debriefing. The SAM-threatened, twelve-hour flights were described as "eleven hours of sheer boredom and one hour of heart-palpating terror."

The grueling routine took a toll, of course. Marriages failed. Brightly promising careers were abandoned. But most stuck it out to the end and at all costs.

Lieutenant General Gerald W. Johnson, USAF Retired, commanded SAC's combat-famed Eighth Air Force during the most intensive air operations over Southeast Asia. He said of his people:

They worked too hard, they tolerated poor living conditions, they were away from home too long, but they did their job magnificently.

Throughout the long conflict, SAC was called upon to perform an ever increasing and important air role in Southeast Asia and, at the same time, carry out its nuclear deterrence mission. There was no magic wand to produce new and fresh combat crews, no

\* EDITOR'S NOTE. The author was assigned to the Eighth Air Force (SAC) during the most intensive period of air operations over Southeast Asia, hence references deal primarily with SAC operations.

additional logistical, maintenance and munitions specialists in the number needed puffed from Aladdin's lamp. No new manpower or weapons systems came about. The same people, young men and women, were called upon again and again to do the job. But the price was paid and it was paid by the SAC wife.

Of the hard living conditions experienced by SAC people at Andersen, Joe Murphy, editor of Guam's *Pacific Daily News* said the following:

The situation isn't good and there is irony, too. Here we have a combat base on the northern fringes of our booming resort island . . . war, sacrifice, even death, juxtaposed with the leisurely pace of a tropical island enjoying the fruits of prosperity.

Regardless of how one views the long struggle in Southeast Asia, the sacrifice, dedication and professionalism of the SAC crew force cannot be denied. Americans of all walks can take comfort in that fact.

One of the SAC men Murphy may have had in mind was Captain Gregory J. Gamp of Garden City, Long Island. He had waited it out along with the rest, although it had never been his intention to make a career of the Air Force.

Captain Gamp was in the last cell of B-52s to drop bombs in Southeast Asia. On landing at U-Tapao Airfield, Thailand, a newsman asked if he was proud of what he had done. Captain Gamp, after a pause, responded: "I am proud to be an American and having the opportunity to serve my country. I am proud of my crew. Now, I am quitting the Air Force and going back to my family. But I want you to know that I couldn't quit while I was needed and the going was rough. That's the way it is and has been with us Gamps."

It is this sense of responsibility, displayed by men like Captain Gamp who see their duty and do it, that is recognized by Americans as something worthy of admiration and respect.

VISIBLE in the military, perhaps in clearer focus today than in the recent past, are qualities observed by Elbert Hubbard in a soldier named Rowan who was sent on a dangerous mission to Cuba, alone and totally dependent on his own wits, during the Spanish-American war. Of him Hubbard said:

By the eternal there is a man whose form should be cast in deathless bronze and the statue placed in every college of the land. It is not book-learning young men need, nor instructions about this or that, but a stiffening of the vertebrae which will cause them to be loyal to a trust, to act promptly, concentrate their energies, do the thing.

*A Message to Garcia (1899)*

THE NATION seems ready in this Bicentennial year for a return of high values coupled with high aspirations that will add purifying waters of loyalty to a trust, and perfection in the pursuit of honorable goals, in the national mainstream.

A great many Americans are getting the message that the military has achieved this state, more so—as the Michigan survey suggests—than the colleges and universities, the media, or any other element of society.

The word is out . . . blowing in the wind, carried on wings. That outcast seagull named Jonathan is not a bird but an ex-Air Force fighter pilot, Richard Bach, who sought and found a useful, workable definition of “truth” and created Jonathan to articulate it.

Listen to Jonathan after he had blazed triumphantly through the terminal velocity barrier for seagulls—“an achievement for all the flock.”

How much more there is now to living. Instead of our drab slogging forth and back to the fishing boats, there's reason to life! We can lift ourselves out of ignorance; we can find ourselves as creatures of excellence and intelligence and skill. We can be free. We can learn to fly.

*Eglin Air Force Base, Florida*

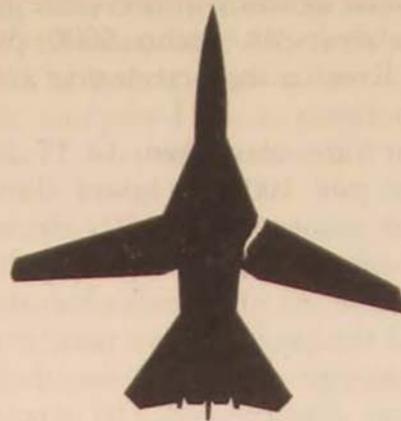
### Of Americans

Sir, they are a race of convicts, and ought to be thankful for anything we allow them short of hanging.

SAMUEL JOHNSON, 1775  
*Boswell's Life of Johnson*

If ever any people merited honor and happiness they are her [America's] inhabitants. They have the tender feelings of humanity and noble benevolence of Christians; they have the most habitual sense of liberty, and the highest reverence for virtue.

JOHN ADAMS, 1766



## SEEKING FAILURE- FREE SYSTEMS

MAJOR GENERAL  
RICHARD E. MERKLING

**F**AILURE-free systems are somewhat like a perfect accident rate—easy to talk about but very difficult to attain. And without failure-free systems we will never have a perfect accident rate. The prevention of accidents is especially significant when expensive and sometimes virtually irreplaceable equipment is involved.

The development and maintenance of failure-free systems require a lot of hard work from everyone associated with a weapon system from design, through its life cycle, to termination. We who are in the safety business work especially hard because of our direct responsibility in accident prevention. At the same time, we recognize that success depends on everyone connected with the system—the operators, maintainers, builders, and designers. Air Force safety history is replete with experiences from which we have sustained substantial weapon system losses because of built-in deficiencies. Often, the causes were so deeply embedded in the basic design that it was impossible to eliminate them even after they had been identified.

Over the years, we have made significant progress toward achieving that generally elusive goal of zero weapon system losses due to accidents. In 1943, there were more than 20,000 major aircraft accidents within the continental United States, only part of

the total—because of the war we were not counting those overseas. Some 5600 persons lost their lives in those stateside accidents.

By 1955, our rate was down to 17 aircraft accidents per 100,000 hours flown, but even at that point we had 1600 aircraft accidents and more than 800 people lost their lives. As one Air Force leader after another worked the problem, we continued to lower the number of aircraft accidents, until in 1975 we experienced 116 aircraft flight accidents for a major aircraft accident rate of 2.8. Commendable—*yes!* But in 1975 alone, USAF aircraft mishaps cost the American people more than \$250 million.

In the late 1950s a popular economist published a best-seller entitled *The Affluent Society*. Both the phrase and the idea seemed to reflect the attitudes of the people. We Americans have always cherished the notion that we could do anything if we would just spend enough money. And there always seemed to be a group that felt we had the money to do whatever we wanted to do. However, I believe that recent events and economic and resource conditions may refute those premises.

In fact, we see our top leadership continually wrestling with the problems of less real buying power in today's budget. While the defense budget in 1975 was \$88.9 billion as compared to only \$53.6 billion in 1964, in terms of today's dollar this is in fact a reduction of more than \$2 billion in real buying power. What is perhaps even more concerning is that during the same period, the portion allotted to procurement decreased almost \$9 billion *in terms of real buying power*, and the portion allotted to Research, Development, Test, and Evaluation (RDT&E) decreased more than \$3 billion.

What does this tell the military manager, the planner, or the operator? Obviously, in very broad terms, it sets forth serious challenges and restrictions. What does this tell

the weapon system developer and those of us who are charged with protecting that system from accidental loss? Quite simply, it tells us that we must do a better job.

Traditionally, accident-prevention programs have been founded on a mode of operation that essentially waited for accidents to occur, parts to fail, and people to make errors. Then we corrected procedures, redesigned parts, or restricted operations. We can no longer operate in such a manner. We cannot risk the loss of a weapon system costing \$50–\$70 million to identify the flaw in the design, the part that will fail under stress, or, perhaps in today's sophisticated systems, the circuit that has an alternate route built into it or a flaw in its logic.

We must take a disciplined approach to these problems. One very promising approach is through system safety engineering. The Air Force concept of system safety is that safety must be considered in the original concept, predesign, design, and test phases of any development to achieve the greatest effect.

I do not know of a system program manager who has not been faced with the task of meeting performance standards. As we push the state of the art, this becomes at times an extremely difficult if not impossible task.

While the manager and engineers are striving to develop a system to do that which has not been attainable before, or in ways not previously possible, there are those who demand that a schedule be met. Frequently, these schedules are based on real world *needs*. Often in today's decision-making processes, decisions to proceed are delayed time after time as we pursue alternatives, tradeoff studies, independent reviews, and the like. Recently, during these delays inflation has been spiraling steadily upward, and now the manager's program has increased in cost and the approval go-ahead process is further delayed as he and

his staff are required to revalidate and rejustify cost estimates.

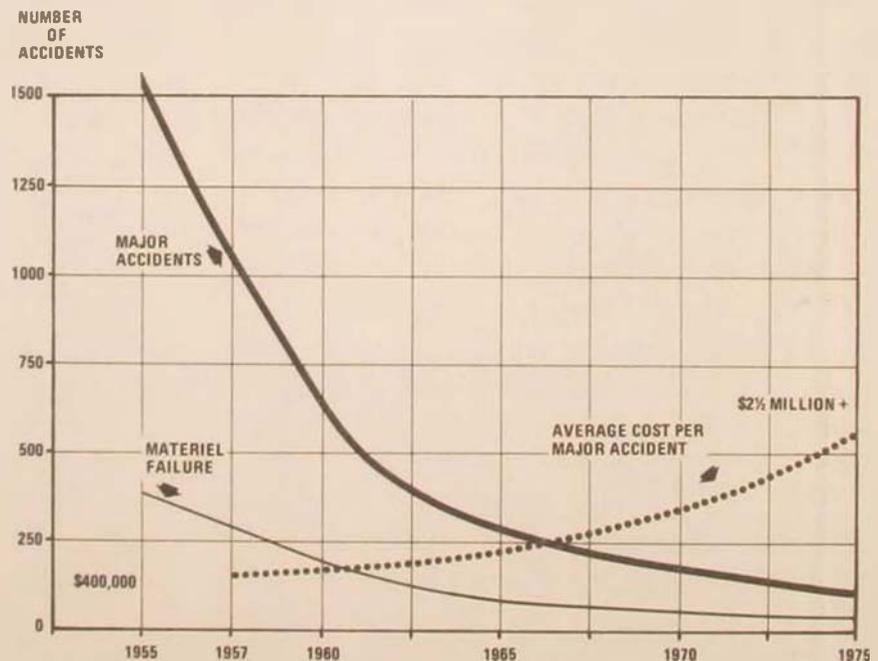
Frequently, a program is stalled while we debate the risks of what initially may be perceived as concurrent development, testing, and production. By the time the argument is finally resolved, if there is a real need for the system in the operational forces—and there usually is—we have lost valuable development time. And we have now ensured that to meet a firm initial operational-capability date, we have to accept a greater degree of development/test concurrency.

While the program manager is fighting all of these problems, here comes a safety person—and it does not much matter whether he is a member of the design group, from the management or corporate level of the contractor's company, or from the USAF Directorate of Aerospace Safety—with a request, a plan, sometimes even a demand for expenditure of system safety engineer-

ing effort. But does he also say, "I, as the safety man, have 'X' number of dollars to add to your program to cover the costs of the analyses I am requesting you to undertake?" No—safety does not have a line item in the budget; we are like the poor country cousin—a great many *wants* and very few, if any, dollars. Now, we have further complicated the program manager's task of satisfying the cost, performance, and schedule aspects of his program by also asking him to invest a sizable amount of manpower and dollars in some vague element called *safety*. To make the problem even more troublesome, we have a difficult, if not impossible, time quantifying the value of efforts invested in safety during the design and development cycle.

Earlier, I commented on the dollar losses due to aircraft accidents. Let's look at that just a bit further. In the years 1971 through 1974, aircraft accidents in nine of our major systems cost \$774 million. The four

Figure 1. USAF major accidents vs. cost



most costly systems were the F-111, F-4, B-52, and C-5 at \$213, \$209, \$68, and \$57 million respectively. Admittedly, this does not tell the entire story because of different exposures and missions.

What is significant, however, is that generally speaking about 30 percent of these accidents were credited to material cause factors, which closely approximates the overall Air Force experience for all aircraft weapon systems. (See Figure 1.) An additional fact of some importance is that, while in the last 25 years we have made a notable reduction in total aircraft accidents and rates, we have not significantly reduced the proportion of this overall experience credited to material problems.

Although we have eliminated many of our past deficiencies, systems today are perhaps an order of magnitude more complex than they were 25 years ago. And they are, in a number of instances, almost that same order of magnitude more expensive as well. Until just recently, we have done very little to attack these problems systematically. For example: How many aircraft flying today have the nose gear steering on the same hydraulic system as the wheel brakes? Even the simplest system analysis would reveal that, in terms of safety, a single failure which deprives us of the wheel brakes should not also eliminate our ability to steer the aircraft during the landing phase. Also we have long recognized the severe threat that fire poses to airplanes. Yet how long has it taken us to change our designs so that fuel, electrical, and hydraulic lines do not run unprotected and grouped together immediately adjacent to the hot section of the engine?

These potential hazards seen in retrospect appear obvious, and one wonders why they were not recognized at the time of design. But there is another factor in this equation—man—and in this case, more explicitly, the engineer, the designer, and

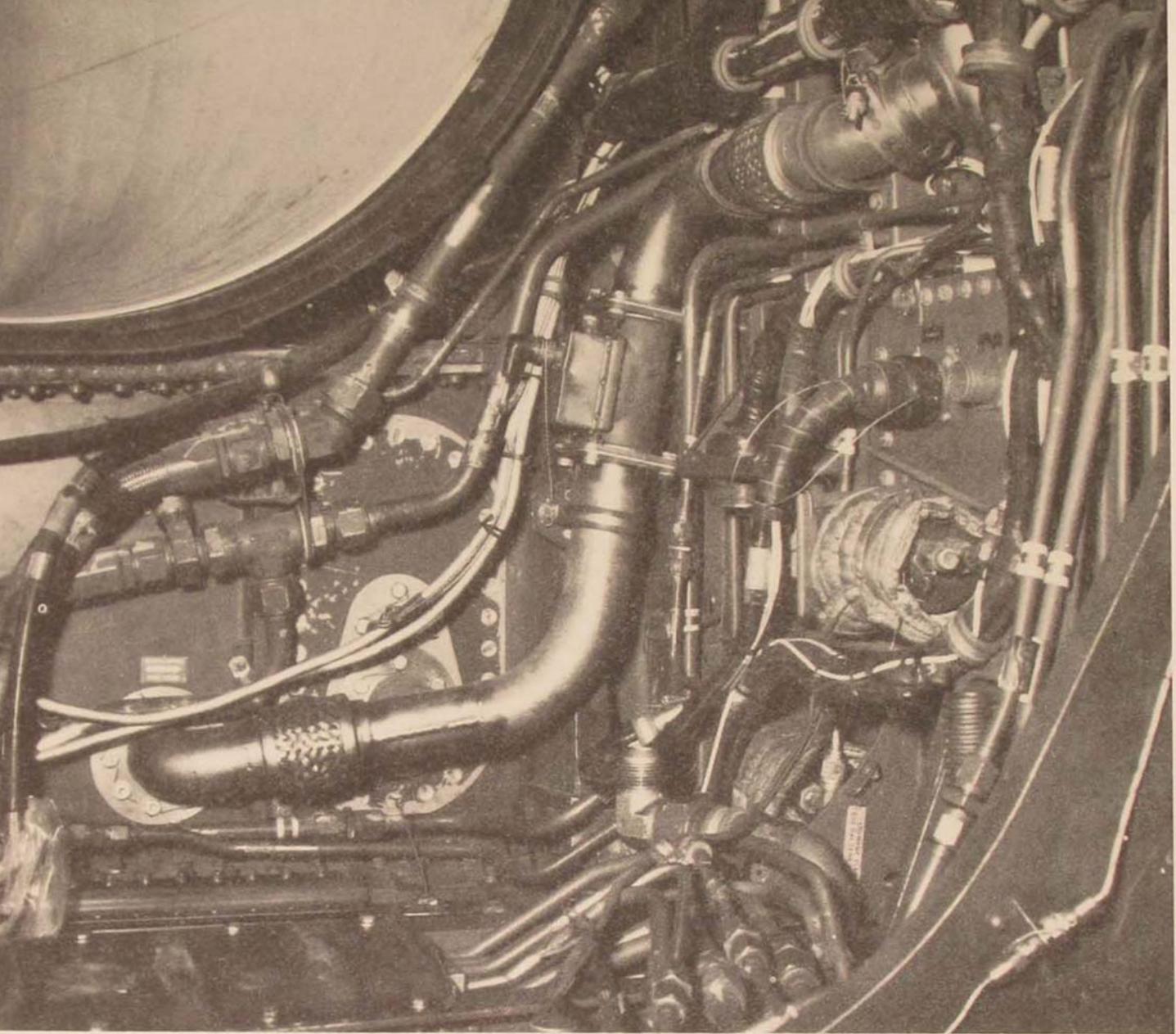
*An Air Force bomber sweeps in for a safe landing, framed by a long series of runway approach warning lights. Accident histories of Air Force equipment are recorded in a computer at Norton Air Force Base, California. Safety officers use the computer readouts to search for common factors in accidents, helping the Air Force improve its safety record.*

the manager. For many reasons, a specific technical design problem may be approached and argued differently even by experts in the same discipline as well as by managers or program directors. I think we must recognize clearly that even if we agree that system safety must be pressed—and pressed hard—in the early design and pre-production stages of a system's development, and even if somehow we find a way to fund the costly analyses that are frequently required to uncover failure modes and sneak circuits, our engineering knowledge may not be sufficient to point the way positively and to identify the real hazards.

In one of our current first-line aircraft, we made an engineering decision in the design phase to use a certain type of structural splice. This splice saved weight and appeared to have all of the necessary requirements of strength, producibility, integration with other members, and the like. Now, a number of years later and with some innovations in the analysis of structural failures called "fracture mechanics," we have found some disturbing data about the susceptibility of such a splice under the loads we ask it to carry. We have learned how very sensitive this joint is to manufacturing-induced minute cracks or abrasions within the holes used for the fasteners that hold the splice together.

Perhaps the real challenge in all of this is not one of attention, programming, or funding. Rather, it is our ability—having once designed a system—to be smart enough, then, to track through to the potential failure of the system, to find the key areas,





*Questionable design. The grouping together of fuel and hydraulic lines with electrical wiring poses a serious fire threat in the engine bay of a fighter aircraft.*

and to determine the failure potential once the system is operationally mature. Frequently, a system may be relatively trouble free for the first few years of its operational life and then fail—not always as a result of wear or age but because of a latent design problem.

There is yet another area where our experience does not track back to before World War II, where we do not have the data from hundreds of smoking wrecks or

thousands of pieces of paper documenting component failures. I am referring to the problem of analyzing the reliability of airborne computers and software, those marvels of today's science that permit us to print a complete memory or computer circuit on a chip the size of a pin head; these advances allow us through multiplexing to use a single wire for a number of electrical signals. Such a system is used in an aircraft under development to achieve

a significant weight savings; but what if—as a result of a sneak electron path or faulty logic resulting from an electronic crossover or interference—the gear should be lowered at supersonic speeds as the weapons operator prepares for weapons delivery? What if, in a fly-by-wire fighter employing negative static stability, a lightning discharge or the energy from a high-powered airborne enemy radar causes the circuit to falter or fail or just switch to an unplanned path within the computer circuitry?

We can postulate a large number of undesired events that may have a higher probability of occurring when we use the multitude of technological advances in computers, miniaturization, and electronics available to us today. With the growing use of computers on airborne systems—radars, remotely piloted vehicle (drone) control, weapons control, and fly-by-wire avionics—our rapid progress has created a new safety concern. How can we adequately conduct a safety analysis of weapon systems that have highly complex logic circuits and computers?

Certainly we cannot hope to accomplish the task using some of the methods of the past. Equally as certain is the fact that we cannot rely totally on the design engineer to be completely aware of and catch all of the possible combinations and potentials for failure in his system, as he initially formulates the design. Increased emphasis on system safety analyses of all types will help us meet this new challenge. We need to continue to look at the man-machine interface through analyses such as the operating hazard analysis and the fault tree analysis.

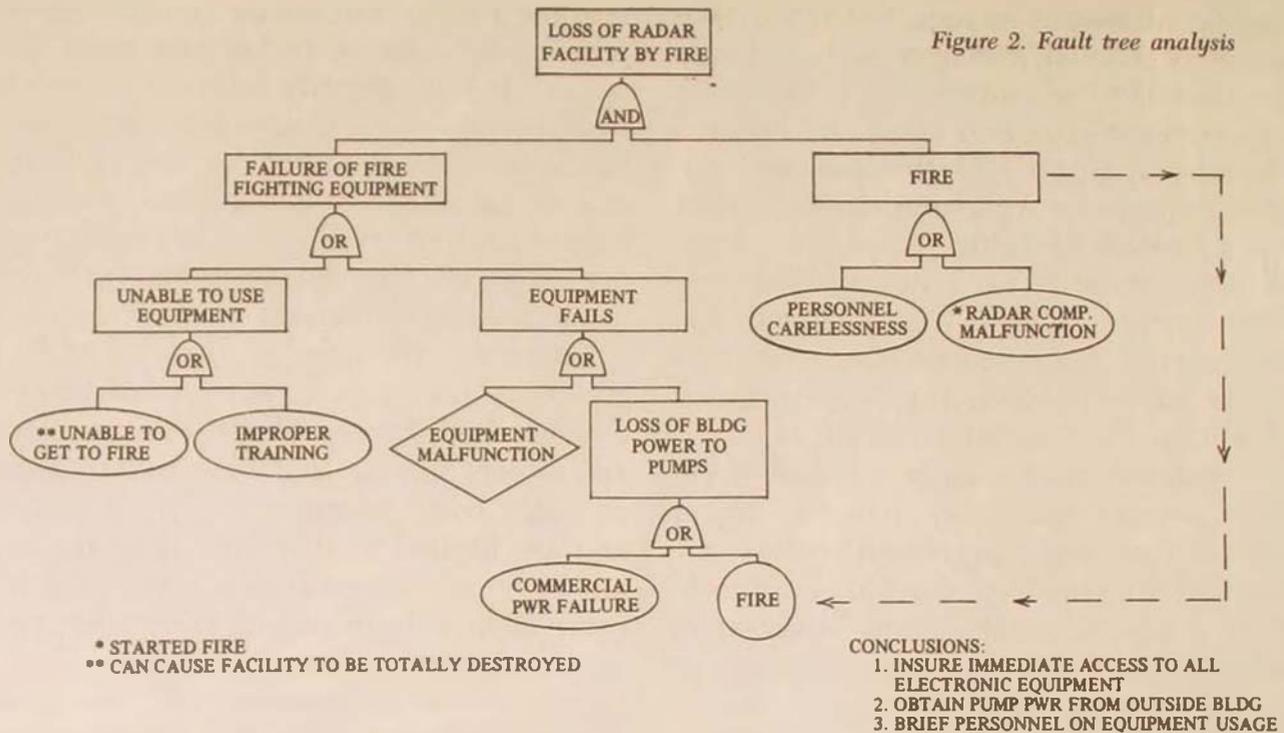
A special kind of operating hazard analysis was performed prior to the first flight of the B-1. The analysis simulated the failure of various “black boxes” on the B-1 and verified that the crew has a way of detecting the failure, taking corrective action, and

keeping the aircraft under control. Several other system safety techniques were used on the B-1 to identify hazards caused by malfunctions in the computer and other hardware. For example, by use of failure modes and effects analysis (FMEA) and fault hazard analysis (FHA), the read/write memory chips on the B-1 were analyzed and hazards were identified.

However, we need a breakthrough to give us a faster, more economical way to conduct fault tree analysis. Failure modes and effects analysis and fault hazard analysis are “what happens if” type analyses and are limited in that they treat the failure of one component at a time. Multiple component failures and/or their subsequent cumulative effect on the systems are not considered—thus the need for the time-consuming fault tree type of analysis which will handle multiple combinations of failures.

The fault tree analysis, incidentally, is a deductive method used to investigate a specific undesired event (such as “loss of radar facility by fire”). Starting with the undesired event, a logic diagram (tree) is constructed which considers all known circumstances that can lead to the top event, either alone or in combination. (See Figure 2.)

But can we defend the cost of these analyses in a program budget? At every level of program review and project approval, the question of whether system safety is a worthwhile endeavor must be pursued. Regrettably, we have yet to find a good way to articulate the benefits of such efforts in the life cycle cost considerations. This is particularly true if the analyses are successful and we do not have the accident-producing failures. I believe some managers have for too long been primarily interested in cost, schedule, and technical performance. We need to express the need for system safety within the constraints of



these classical areas. At times, it would seem to be done more easily if the military were as profit-and-loss oriented as commercial companies.

Ideally, we should have system safety engineering deeply involved from the very outset of a system's development life. Often our definition of a Required Operational Capability (ROC) tries to incorporate too much into a single package, and we wind up with a system that, rather than doing a few jobs extremely well, does many things only fairly well. Frequently, a complexity also results that fosters the potential for accidents.

WE need a well-defined plan for the incorporation of system safety work. While it is important, for efficiency's sake, that efforts by system safety not duplicate similar work being done by the reliability, maintainability, and human factors personnel, it is equally important that, as we do these other tasks, they incorporate to the

maximum extent possible items related to system safety. To do this, a plan is needed. However, perhaps even more basic is that the system program manager needs to realize that these efforts are complementary and that they support and include the safety portion. For example, if the Required Operational Capability developed by a using command included safety design criteria or requested a safety review of the system design before final go-ahead, we would have made a giant step toward catching the attention of our development community.

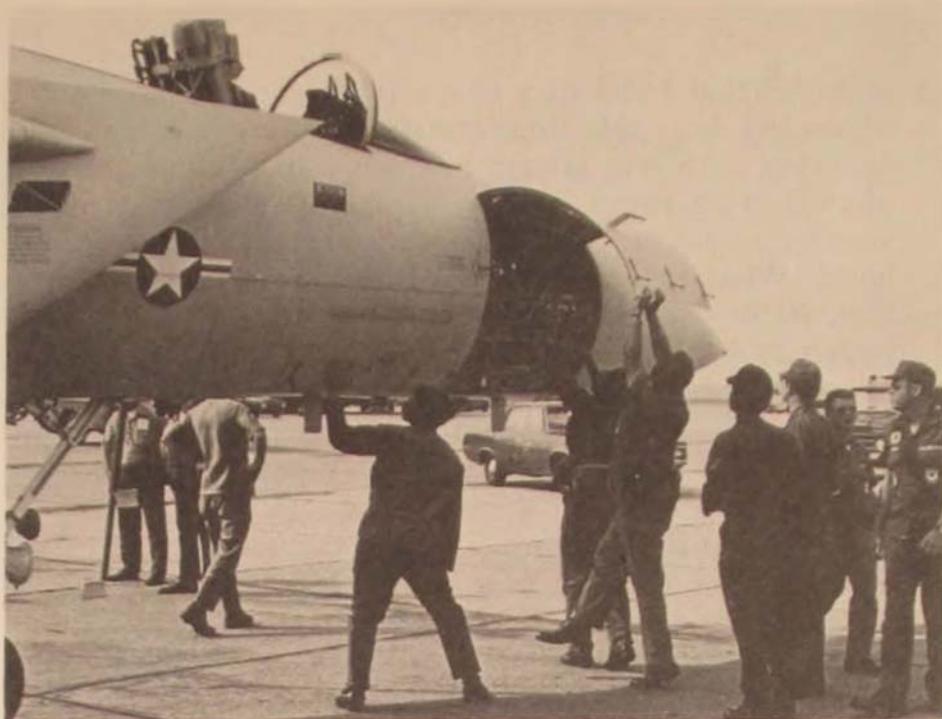
Another word of caution—it is very easy to lose the real meaning of what some of our simplified mathematical expressions are trying to tell us. For example, the level of reliability we are attempting to achieve in one new aircraft program is expressed in these terms, where the “ $\times 10^{-5}$ ” means “per 100,000 flight hours”:

Major accidents	$5 \times 10^{-5}$
Aircraft destroyed	$3.72 \times 10^{-5}$

These are harmless sounding numbers

### F-15 Efficiency

*Easy availability of aircraft components contributes to efficient inspection and maintenance. The high cost of the F-15 makes reliability absolutely necessary in every system and component.*



and ones that I feel may give a false sense of security. Let's take these one step further, assuming a 15-year system life, some 1600 aircraft flying approximately 300 hours per year for a total program of 7.2 million flight hours. What these figures are telling us is that, if the weapon system costs approximately \$4.6 million per copy, we will invest in excess of \$1 billion in aircraft losses over the life span of the system. I wonder how many of the top program review panels and individuals considered the safety level of effort in these terms? And as though this were not enough, how do we handle the problems associated with a production decision that evolved from a prototype design demonstration effort, such as the F-16? In a design-to-cost prototype effort with high value given to performance, how can we expect a program manager to devote critical funds for long-term safety considerations? Once we have bought the system, how do we convince a manager to go back and redesign or study systems that have been incorporated and seem to be doing the job satisfactorily? How can we restructure the impression of system safety engineering from something we "buy" or "add on" to a "way of life"?

In yet another aspect of system engineering under the American competitive system, we seem to repeat mistakes rather consistently and have to relearn costly de-

velopment design lessons. Sometimes we seem not to learn them at all. I would like to think that, through the use of up-to-date design handbooks, we can improve our "corporate memory" and pass on the lessons we have learned. But even here we encounter severe problems in updating the design handbooks, having timely feedback from ongoing programs, and in accurately detailing pitfalls to be avoided.

I HAVE outlined a number of problems and obstacles and have presented no specific answers or solutions. This should in no way be construed as defeatist or negative. I am firmly convinced that the cost, complexity, and defense values of our new systems are such that we must pursue and achieve ways of handling these. This must be done in the same spirit with which our pioneer forefathers opened the West and, more recently, we put a man on the moon. I have that same optimistic spirit that leads me to believe that, if we sincerely put our minds to it, ways can be developed to achieve the necessary analysis and review techniques, but we must recognize and define the problem before us.

We must sincerely support the goal of developing failure-free systems, and we must place this goal in proper perspective with other requirements.

*Norton AFB, California*

America lives in the heart of every man everywhere who wishes to find a region where he will be free to work out his destiny as he chooses.

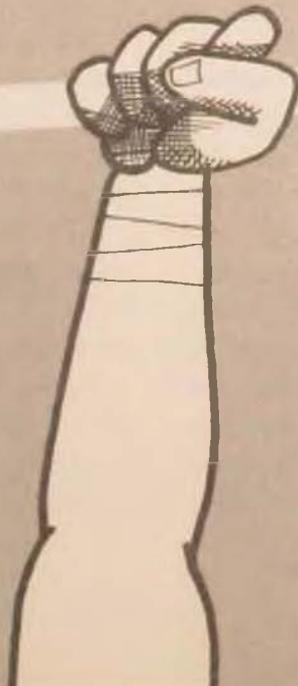
WOODROW WILSON, April 1912

**W**HEN it started in January 1973, it was hailed as the second coming of the famous Vienna Congress, but then it almost disappeared from the international press. It began at almost the same time as the recently completed Conference on Security and Cooperation in Europe (CSCE)<sup>1</sup> and was labeled the more important and substantive of the two, possibly the talks that would bring substance to the words of détente. But now, three years later, if you want to draw a blank look from the average citizen, indeed even those who pride themselves in knowing what is going on, all you have to say is something like, "What is MBFR?" They usually answer, "What's an MBFR?"<sup>2</sup>

My goal is to answer that question and go a bit further, not only to describe the talks on Mutual and Balanced Force Reductions but additionally to discuss the military contribution

## WHAT'S AN MBFR?

DONALD L. CLARK



to this international negotiation as an example of how the military input into the United States Foreign Policy Process.

MBFR did not just pop onto the scene in 1973. In fact, the U.S. and our allies had been calling for discussions about mutual reductions of U.S. and Soviet forces in Central Europe for more than ten years. Books had been written about how many U.S. forces were really needed to insure the security of Europe, and reputations had been made by men like Alain Enthoven, who argued that our forces not only could but should be reduced.<sup>3</sup> Generally, however, the Western approach for an MBFR conference had been turned aside by the Soviets and their allies, who preferred an All-European Security Conference to deal with a much wider range of affairs.

Under great pressure from the U.S. Congress in 1972 to reduce U.S. troops abroad, President Nixon worked out a compromise with Premier Brezhnev at their famous SALT signing summit to hold both European security and MBFR conferences. Some three years earlier, Dr. Kissinger, as the President's National Security Advisor, had already assigned the Verification Panel (VP) of the National Security Council (NSC) to examine and prepare U.S. MBFR alternatives. The VP had been originally created to deal with the issues in SALT, and it seemed the perfect group to pick up this other arms control topic concerned with the reduction of conventional weapons in Europe. The National Security Act of 1947 calls for military participation in the deliberations of the NSC system.<sup>4</sup> The Chairman of the Joint Chiefs of Staff sits on the NSC in an advisory capacity, and representatives of the corporate body, the Joint Chiefs of Staff, work with the various working groups and panels in the NSC system to draft, refine, and develop proposals for the NSC as requested. The military input into the Verification Panel Working Group

(VPWG) for MBFR represents a joint effort by all of the Services. It is brought to the table by a Joint Staff Officer from the J-5 Plans and Policy, Deputy Directorate for International Negotiations (IN). The IN representative, however, presents proposals and input to the other members of the working group only after such proposals and alternatives have been through a process of coordination with interested action officers from all Service staffs and then up through the military organization, where finally an agreed position is approved jointly by the Chiefs.<sup>5</sup>

For MBFR, the Verification Panel Working Group is composed of representatives of several agencies besides the military. They are from the State Department, Arms Control and Disarmament Agency (ACDA), Central Intelligence Agency (CIA), Office of the Secretary of Defense (OSD), and a Chairman from the National Security Council staff.

Normally, in the NSC system, once a problem area has been identified, one of the panels produces a National Security Study Memorandum (NSSM) on the subject. That NSSM then becomes the basis for a decision called a National Security Decision Memorandum (NSDM). The accompanying chart shows the agencies and flow involved in the MBFR decision process. Extremely complex and large issues like MBFR, however, are too difficult to cover in one study, so a building block process has been developed; here the subject is broken into many issues on which studies are prepared. The purpose of these studies is to focus exhaustively on a specific issue, pointing out its interplay with other issues and identifying several alternative ways to handle it effectively.

These studies are the meat and potatoes of the foreign policy formulation process. Each agency involved attempts to shape the study in the way its members perceive

the issue. Naturally, since the agencies are composed of personnel with different backgrounds, since the agencies have different charters and outlooks, and since budgetary impacts and power relationships are, rightly or not, involved, the process is seldom simple.<sup>6</sup>

LET'S take a typical MBFR issue—"whose and how many forces to reduce?"—and try to portray this process with emphasis on the military role. The NSC called for a paper on the issue. Before the military and others can effectively contribute to the system effort to produce a study, they have to reach agreement within their agency or department. For rather obvious reasons, the Army initially proposed withdrawal of Soviet tanks for U.S. nuclear weapons and focused their proposal on U.S. Air Force units, arguing that the Army was already stretched thin and that air units could be more quickly returned to the area in a time of conflict than ground forces could. The AF used partly the same argument to reach a different conclusion. They posited that since indeed air forces could be more rapidly returned, air unit withdrawals were less meaningful; and that ground forces were the predominant numerical forces in the area and the forces that could seize and hold territory and were therefore more appropriate for reduction. The Navy played it low key, agreeing that the region of greatest danger was the land mass of Central Europe and that the Navy, located only on the periphery of that area, was not a logical target for reductions. The Services developed their position through meetings and papers, with responsibility for coordination of the task assigned to the Joint Staff.

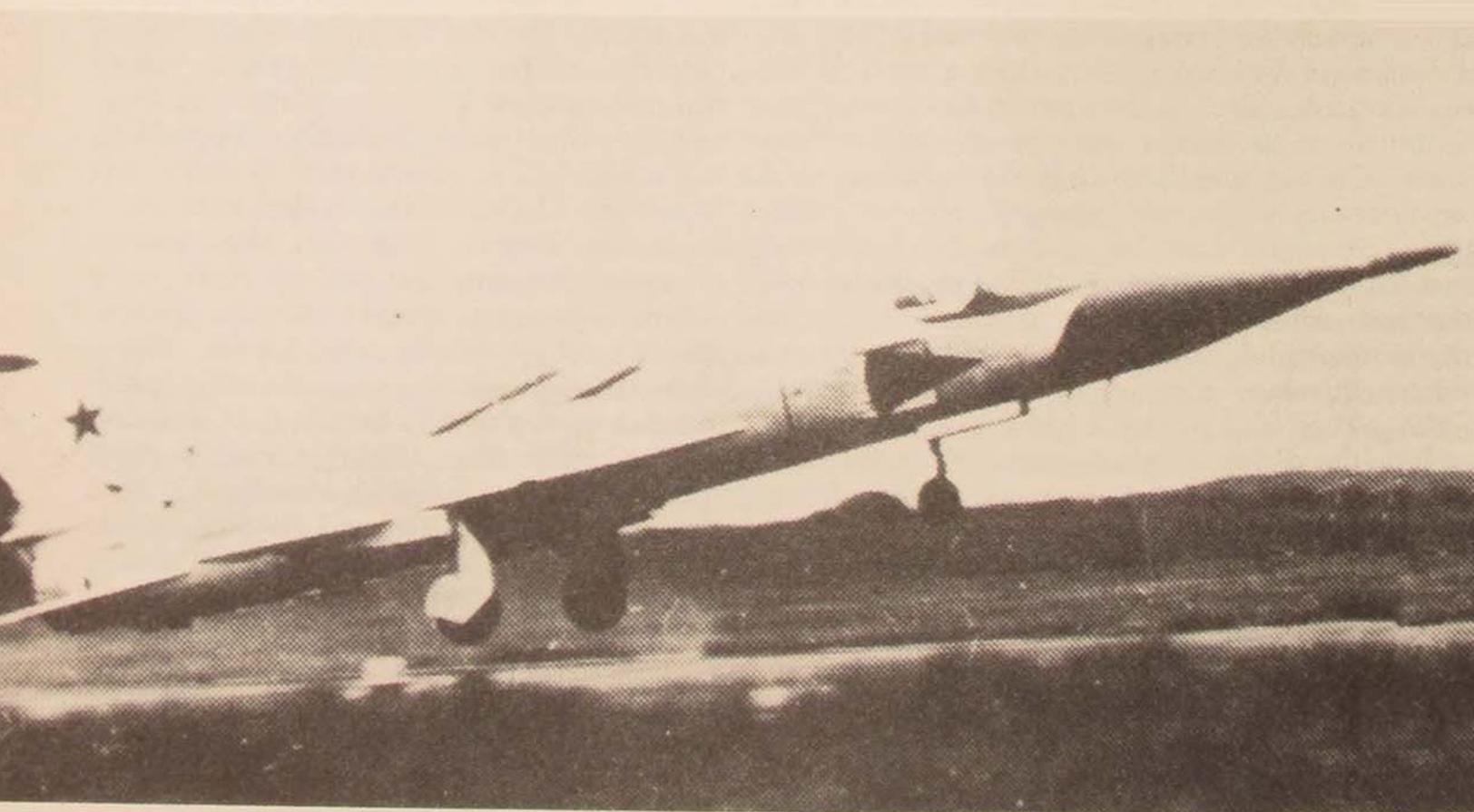
Rightfully, these Service and Joint Staff representatives did not limit their debates and discussions to purely military issues. To

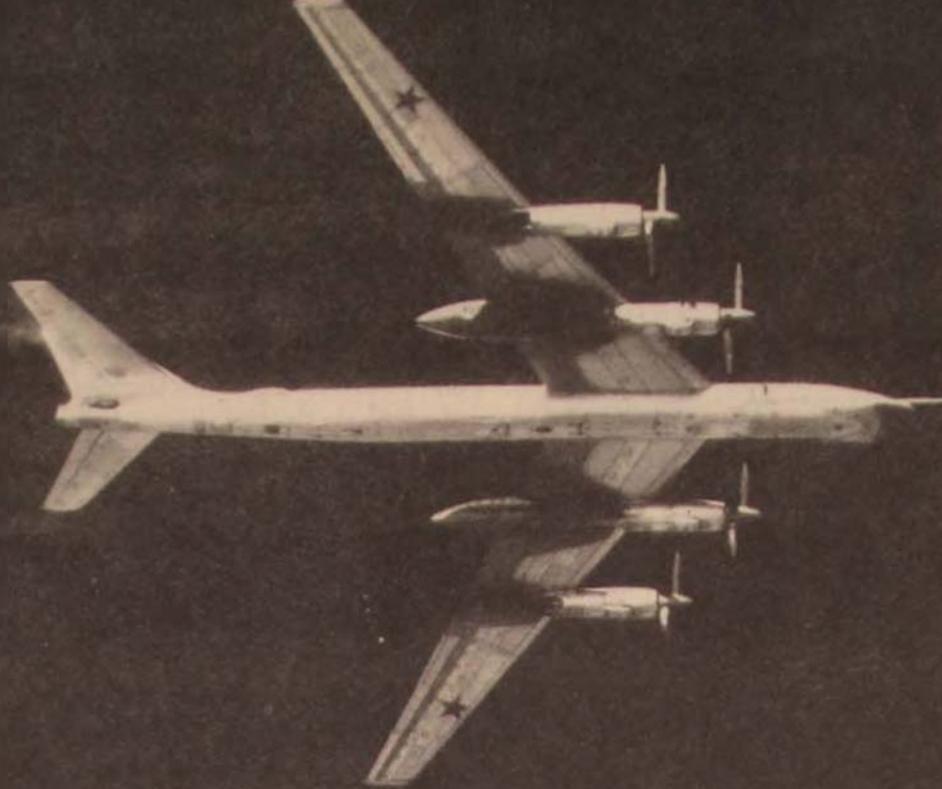
do so might work within the halls of the military portions of the Pentagon, but in the past such "limited" considerations were shot down in flames when exposed to the NSC interplay where economic, political, foreign policy, and negotiating considerations hold equal priority.

Thus, the Joint Staff noted the political and economic facts that reductions of warheads and tanks would not provide a satisfactory response to Congressional demands for *significant* reductions of U.S. manpower abroad and the alleged monetary savings of such withdrawals. Additionally, based on their meetings with representatives of the United Kingdom and Federal Republic of Germany, whose responsible agencies were involved in similar analyses, the Joint Staff experts suggested that our allies were less disposed to accept U.S. air manpower reductions than they were to agree to ground force withdrawals.

The Joint Staff Studies Analysis and Gaming Agency also assisted in reaching a military decision by dynamically gaming various reduction packages in an effort to determine which were militarily acceptable to the U.S. and NATO and what the critical factors are. Their studies included reinforcement capability on both sides, the effects of pre-positioning, and widely divergent reduction packages for both sides. Later on, this agency gamed the refined NSC system alternative proposals and additionally provided an analysis of the British and German gaming results. The Gaming Agency's contribution to MBFR has been considerable.

Security classification and service sensitivities prevent my describing the final military (or so-called JCS) position that was carried by Joint Staff representatives into the interagency arena in competition with State, ACDA, NSC staff, and OSD proposals. Let it suffice to say that it was a compromise position, not the same as any of the Service or Joint Staff initial suggestions.





*Early in the MBFR negotiations the Soviets called for "more equal" reductions, including air and nuclear forces in addition to ground forces. The current Soviet air inventory includes the Tu-114 "Moss" airborne warning and control system (AWACS) aircraft (upper left); the Su-15 "Flagon-B," an experimental short takeoff and landing (STOL) prototype first shown at Domodedovo in 1967 (lower left); and the Tu-95 "Bear-C" (above), long-range reconnaissance aircraft, identified first in the West when it flew near NATO naval maneuvers in September 1964 during Exercise Teamwork near the Azores.*

This is the usual result and raises this question: Does the system result in the best military input being sent forward or encourage compromise that provides "less than the best" although "acceptable" proposals?

After the JCS-approved position is reached, a Joint Staff officer takes it into the interagency arena. The military influence on the subject is to a considerable degree determined by his effectiveness. To be successful, he must above all know his subject well and be extremely articulate in arguing his cause. An important trait that contributes to his potential success is his reception by representatives of the other

agencies. He needs to have proved to them that he is not limited in orientation but is a man who understands all of the ramifications of a foreign policy decision.

Behind each of the representatives in the interagency system, there is a formidable staff of experts providing input. For the JCS in MBFR, for example, besides the Service staffs and other Joint Staff offices, he has the Defense Intelligence Agency, the U.S. military in Europe, and contacts with defense experts of our allies, all constantly ready to offer expertise and advice. ACDA, State, OSD, and CIA also have active-duty military and civilian analysts (often retired military) who have worked on military is-

sues for years and consider themselves as expert as the military on the problems.

Not surprisingly, the jcs representative to the interagency process found as many divergent solutions to the "what forces and how many?" issue as he had earlier found in the development of the jcs position. The Office of the Secretary of Defense through its special MBFR Task Force clearly weighed more heavily the Congressional political demand for *significant* reductions of U.S. manpower than did the military. OSD also preferred reductions that centered more on support forces rather than the balanced cut of support and combat the jcs preferred.<sup>7</sup>

ACDA advocated the concept of reducing the more threatening forces (reducing U.S. nuclear weapons for Soviet tanks) and worked hard to insure that the West's position emphasized additional restrictions over and above reductions: e.g., limits and pre-announcement on numbers and sizes of maneuvers and troop movements, exchanges of observers at maneuvers, stronger verification, etc.<sup>8</sup>

State, as might be expected, seemed more concerned with lessening the impact of withdrawals on NATO, with meeting the desires of our allies, which initially, for example, included a strong Federal Republic of Germany desire not to reduce their forces along with U.S. and Soviet; a strong British insistence that the West should reduce the very minimum necessary in combat forces; and a strong "flank state" concern (Turkey, Greece, Italy, Norway, and Denmark) that withdrawn Soviet forces be restricted as to their new deployment.<sup>9</sup> The other agencies favored cuts higher than those suggested by the military. All of these ideas were presented, debated, and haggled over, time and again, in meeting after meeting. The papers produced by the vpw were usually quite voluminous. When agreement could not be reached on solutions or treatment of an issue, the paper included

each agency's preferred approach and the pros and cons thereto. Usually, one of the agencies initially drafted a paper and then the others hacked away at it, trying at least to insure that their position was presented cogently and effectively. One of the military's shortcomings in this process is that they seldom accept the task of drafting the initial paper on an issue, even though they may well be the best qualified agency to do so. This is the result of an earlier resistance to arms control by the jcs and a hesitancy to take the lead in developing arms control-type proposals. The drafting agency on any paper clearly has an advantage in shaping the issue, and the harder task is to modify the draft in committee.

THIS whole process of examining the issues both within agencies and in the interagency arena covered three years before the first National Security Decision Memorandum was issued, and that NSDM only dealt with preliminary conference issues like title, agenda, status of participants, etc.<sup>10</sup>—the gut issues were worked another nine months before an initial U.S. proposal was finally produced.

Since MBFR is a multilateral (19 nations) yet two-sided (NATO/Warsaw Pact) negotiation, a system had to be developed for agreeing on NATO-wide positions and how to present them to the other side. This led to an interagency recommendation to (1) reach national decisions on an issue, (2) carry those national positions to the North Atlantic Council (NAC)<sup>11</sup> for discussion, modification, and acceptance as a NATO position, and, finally, (3) transmit the NATO position to an Ad Hoc Group (AHG) at the site of the negotiations where the tactics for carrying out the proposal would be decided by consensus. The AHG was composed of the Chiefs of each Western delegation (refer to the Decision Process Chart).



The Verification Panel Working Group and the VP never mutually agreed on an initial U.S. negotiating position on the question of how many forces should be reduced. Instead, several alternatives were presented to the National Security Council. At such decision-making meetings, all of the NSC members have been carefully prepared by their staff as to what the studies say and of course the advantages of their and the other agencies' preferred solutions. A key impact on that final decision is played by the man who briefs or writes the executive summary sheet on the final issue paper, since the full paper is usually too lengthy for the NSC members to have time to read.

The military chiefs have had a stronger impact on some NSC issue final decisions than on others. In the SALT I agreement, for example, the U.S. would probably have agreed to limits on ICBM's only if the chiefs had not held out strongly for inclusion of SLBM's.<sup>12</sup>

Although the initial U.S. position in MBFR was not the preferred military choice, it was as close to their proposal as any other agency's and, after the fact, found to be militarily acceptable by the JCS. It was presented to the NAC by the U.S. with the help of a military representative and generally became the basis of the West's initial position. Essentially, it called for a two-phased reduction of *ground forces only*. In the first phase, U.S. and Soviet forces alone would be reduced (about 15 percent each), and in the second phase other direct participants (nations with forces in the area of reductions) from each side would join in the reductions, reducing to a common ceiling of ground forces at approximately 700,000 on each side. The West, as compensation for the Soviets' geographic proximity to Central Europe and the larger Soviet-Pact forces in the area, suggested that the Soviets withdraw a designated tank army and its equipment (approximately 1500 tanks),

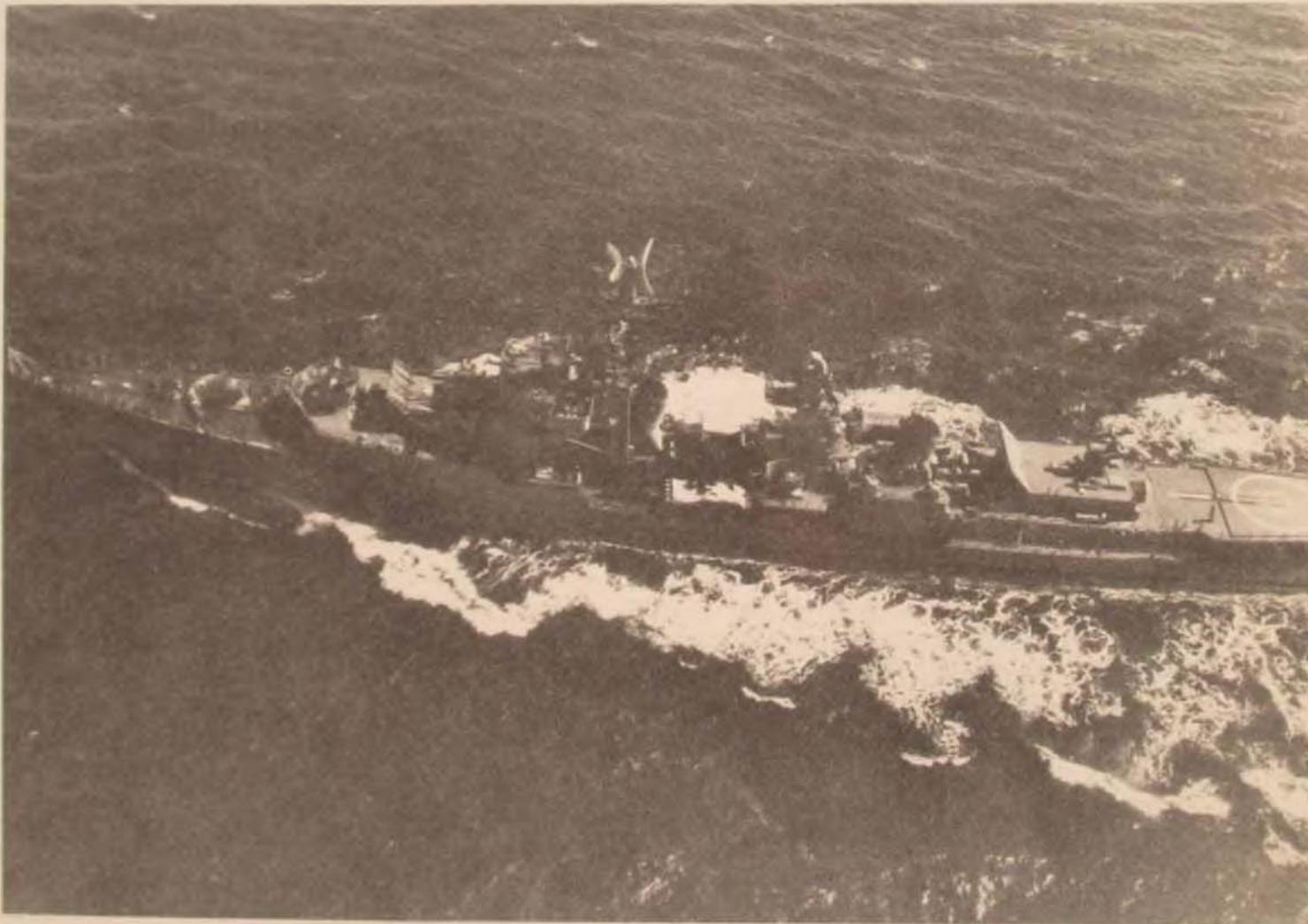
while the U.S. could withdraw individual soldiers and leave equipment pre-positioned in the area. The basic concept of the Western proposal is to have the superpowers set the atmosphere of confidence by reducing first and to alter the current correlation of forces in Central Europe by replacing it with a more balanced and thus more stable situation of equal numbers of ground forces on each side.<sup>13</sup>

But in the early days of the talks, the Soviets rejected the Western outline and called for "more equal" reductions and no alteration of the current correlation of forces, which they claim has successfully kept the peace for the last 30 years. The Soviets instead proposed a three-phase reduction involving all "direct participant" states from the outset and including air and nuclear forces as well as ground forces with equal percentages to be reduced by both sides in each phase. Their reduction proposal totals about 17 percent.<sup>14</sup>

Both sides have made some revisions since those initial positions were proposed. In December 1975 the West made the most substantive addition to their proposal when they offered to reduce a significant number of nuclear warheads (one thousand) if the Soviets would accept the other factors in the Western proposal.<sup>15</sup> Since the Soviets had been demanding inclusion of nuclear forces in the agreement, it was hoped this Western concession would break the deadlock. This so-called "nuclear sweetener" had been part of the U.S. position from the earliest days of the talks but had not been agreed to by our allies until recently. The weaknesses of the "add on" are apparent. From a security viewpoint they commit the West to reduce nuclear weapons but not the East, and from a negotiation viewpoint the Soviets are aware that the U.S. had long been considering such a reduction, even unilaterally. As a concession it is rather undramatic; it has not broken the deadlock.

## The Soviets at Sea

*Naval weapon systems, as well as ground and air forces, played a part in the force-reduction negotiations. In the SALT I talks the Soviets objected to the inclusion of SLBM's in the agreement, but at the insistence of the U.S. delegation (motivated by the strong stand of the U.S. military chiefs: "No SLBM, no ABM") the agreement included SLBM's. Among the Soviet naval forces, an OSA I patrol boat (right) launches a "Styx" missile. . . . A Soviet "Kanin" class guided-missile destroyer (below) plows Pacific waters.*



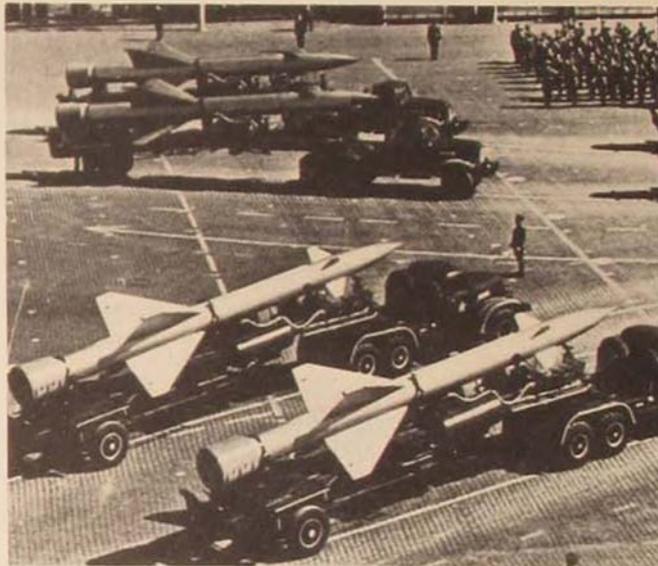
Although talks have continued for more than two years now, there are still major differences between the two sides that have prevented substantive progress. The AHG has proven a most successful vehicle for coordination of Western tactics. Many (and I include myself among the number) felt that the greatest danger in MBFR was its potential divisiveness on NATO, but the AHG, by being a truly democratic and open organization, has prevented this. The group meets three or four times each week and sometimes more often during negotiating sessions. The chairmanship rotates weekly—all are free to speak their piece, and subcommittees, including military representatives, work together drafting speeches, papers, proposals, and tactics. Naturally, there have been some sensitive issues, but all have been resolved by consensus.

The military representation on the U.S. delegation is typical of the West. We have a major general who serves as the JCS representative (he has been from both the Army and the Air Force), and usually he has one to three assistants from the Joint Staff. The assistants rotate every six weeks or so and return to their stateside posts so they can keep up-to-date both on the developments at the negotiation site and in Washington where the U.S. MBFR policy questions are being considered. In U.S. delegation meetings, these military members are free to offer their opinions and suggestions on any issue. They have been selected to chair committees, draft papers, and at times they have acted even as the delegation's Chief of Staff. In Washington, they also play an active role in the interagency apparatus organized to respond to the U.S. delegation's questions and suggestions. No response is sent to the delegation in which the JCS has not played a role in drafting and approving.

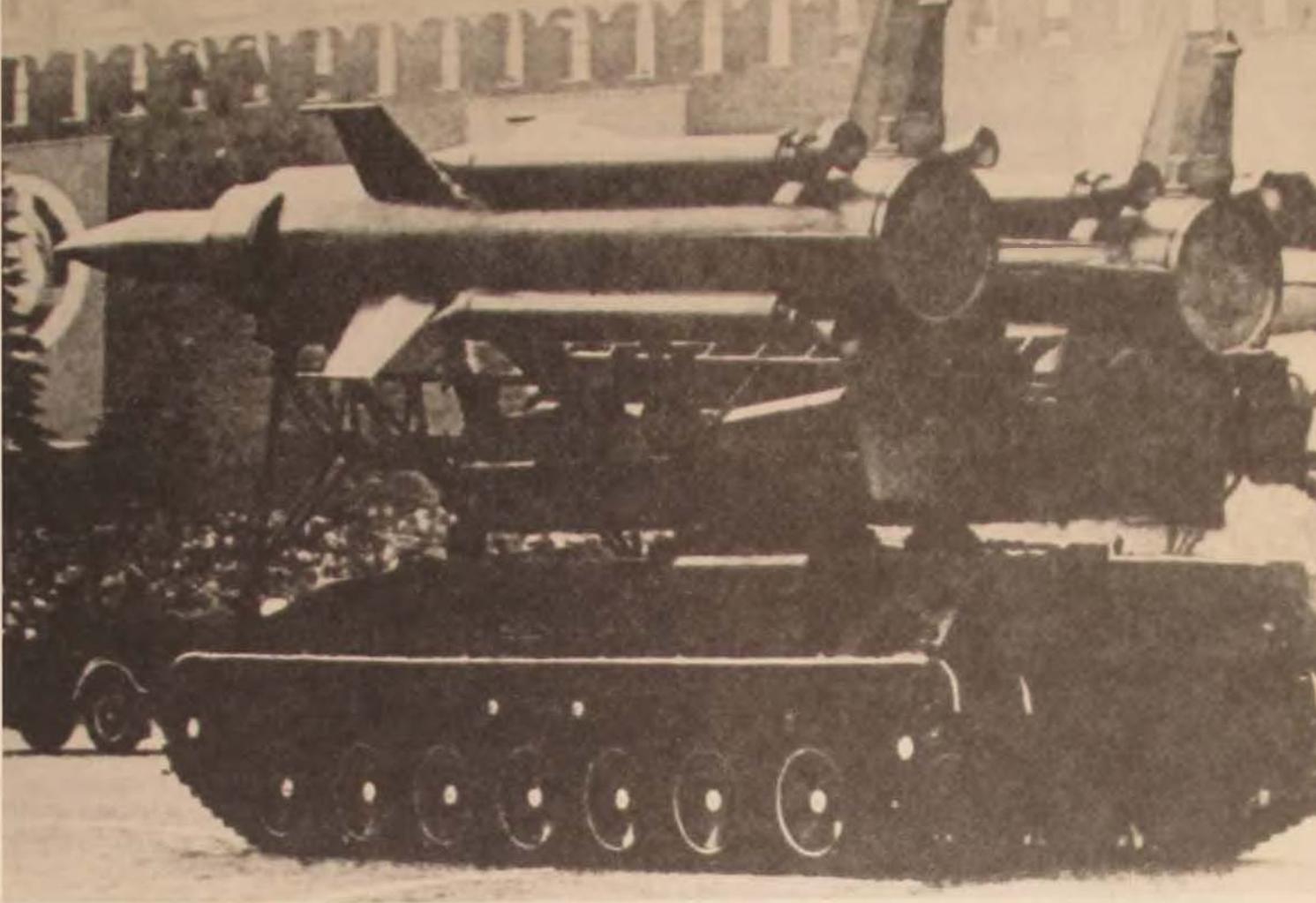
MBFR is now at a crucial stage. The Conference on Security and Cooperation in

### Soviet Surface-to-Air Missiles

*The "Guild" anti-aircraft missiles (below) were publicly shown for the first time at a Moscow parade in 1960. The 39-foot projectile has no separate booster unit, perhaps indicating use of a dual-thrust solid-propellant motor. . . . The "Canef" missile (right), introduced in 1964, is carried on a tracked twin-launcher and can function surface-to-surface. It is 30 feet long with a 2-foot 8-inch diameter.*



Europe has now been successfully concluded.<sup>16</sup> "MBFR'ers" long figured that while CSCE dealt with words, MBFR's task was to translate the words of détente and cooperation into a solid accomplishment of reduced forces on the line of East/West contact. They knew it would be a more difficult task. Still, few are pleased that the talks have made as little progress to date as they have. The slow pace is partly explained by the complex, yet needed, process the West requires before reaching a decision. Perhaps, too, the Vietnam outcome, the Communist danger in Portugal, and the Greek/Turk-U.S./Turkish and Angola difficulties have lessened pressure on the U.S. government



for reductions. Thus, changes in the Western stance seem tediously slow in coming about. And, should it change? Let's look at the West's proposal for a moment with Soviet eyes.

THE COMMON ceiling concept means roughly that 100,000 more Soviets will be withdrawn than American GI's, and if Western numbers of total Soviet forces (air and ground) are accurate, after the second phase the balance would have been reversed and NATO would have a total force advantage since NATO's larger air manpower is exempted from the cuts.<sup>17</sup> Also reducing

U.S./Soviet forces first means the East reduces its largest "in area" force (the Soviets) while the West leaves its largest "in area" force (the West Germans) untouched, at least until the to-be-negotiated second phase.

The West's initial attempt to exclude air and nuclear forces from the reductions is the key point of disagreement with the Soviets. Soviet delegates and their published commentators often describe this as most unreasonable since both U.S. and Soviet military strategists have long stressed the importance in modern warfare of integrated force operations. Soviets frequently cite U.S. authorities when making this point and

quote comments that have stressed how U.S. air power balances Soviet ground force advantages in Central Europe.<sup>18</sup> Their rejection of the "nuclear sweetener" as being insufficient is based on this integrated operations concept and the argument that warheads alone do not kill—it takes men and aircraft to make the warheads a weapon.

I am not arguing that the Soviet suggestions are more reasonable than the West's, but I am saying that from certain viewpoints both sides' proposals have merit and there is sufficient common ground to find an acceptable compromise if both sides so desire. A U.S.-initiated "reasonable compromise" proposal could test Soviet sincerity. Up to now, each side has offered only proposals that clearly favor its own situation—why not offer one that gives something to both? Of course, if the world situation has changed and a reduction appears no longer desired, then it may prove best to hold firm and let the talks wither on the vine.

A suggested "equal" proposal in outline form would be the following:

1. Include air manpower in manpower-focused force reductions. Each side would agree to pull out the aircraft and nuclear weapons (unspecified numbers and types) that the number of air troops agreed to withdraw would normally fly and support.

2. In Phase I, agree to reduce *all* "stationed" forces (U.S., U.K., Canada, U.S.S.R.)<sup>19</sup> by 15 percent ground manpower and 10 percent air manpower. Actual reductions would be delayed until Phase II is also agreed.

3. In Phase II, include the other "direct participants"<sup>20</sup> ground forces, another 10 to 15 percent reduction with the U.S./Soviet reduction to be any portion of the total. The larger numerical Eastern cut provides some compensation while recognizing the dual purpose of Soviet forces in the area.<sup>21</sup>

The common ceiling is dropped. Second phase withdrawals would follow the first phase after a one-year delay.

4. Allow both sides to pre-position equipment. The Soviets, once learning the high cost of pre-positioning, are likely to accept the right (equality mandate) but reject the option; if they do not, it will increase their costs and thus add to the West's compensation. Pre-positioning is far more important to the West than to the Soviets due to the distant location of the U.S.

5. Reduce in all cases by units, but each side determines for itself the units it reduces.

6. Verify withdrawals at exit points.

7. Place a ceiling on the manpower (air and ground) and aircraft left in the area after Phase II is completed.

MUTUAL and Balanced Force Reductions is at a crucial stage. The U.S. must now decide if the changed international milieu of post Vietnam lessens the need to reduce forces in Europe. If not, the objectives of MBFR are still valid, and the military could suggest changing the U.S. proposal by adding a few air and nuclear forces, by including all "stationed" forces in the first phase, and by dropping the overly optimistic goal of a common ceiling of ground manpower since the required reductions for the goal are far too discriminatory against the U.S.S.R.

The military have the influence to "sell" such an approach in the NSC system and could benefit from such sponsorship if it led to a successful and equitable MBFR agreement. The alternative of sticking to the initial Western position could yet lead to Congressional forced unilateral U.S. reductions, an act the military properly consider to be detrimental to U.S./NATO security.

*Bozeman, Montana*

## Notes

1. The CSCE involved 35 nations and resulted in a long document concerning the conduct of interstate affairs in Europe. The nations concurred in the following: their rejection of force as a means of settling differences; their agreement to modify borders by peaceful means only; their agreement to invite observers and preannounce certain military actions; and their agreement to improve human relations via increased contact and freer flow of peoples and ideas. The agreements are not binding or enforceable.
2. MBFR stands for Mutual and Balanced Force Reductions. It is a Western term and was rejected by the East as the official title of the talks during the 1973 preliminary conference. The East interpreted the word "balanced" to signify that the East, having greater forces in the area, should reduce more than the West. The agreed-on official title, seldom seen in print, is Mutual Reductions of Forces and Armaments in Central Europe (MRFACE).
3. "Arms and Men: The Military Balance in Europe." *Interplay*, May 1969, by Alain E. Enthoven, was perhaps the most discussed early article on the issue of how many men the West or East need in Europe, but Dr. Enthoven was far from alone in discussing the issue. A more recent book, *U.S. Troops in Europe*, edited by John Newhouse and published by the Brookings Institute in 1972, studies the issue from many angles. *The Adelphi Papers* Nos. 96 and 98 deal with the issue thoroughly, and most of the renowned authors on strategic affairs, including Kissinger, Brodie, Beaufre, and Bull, have considered the forces in Europe as a key issue in world affairs.
4. This National Security Act created the Air Force, the Central Intelligence Agency, and the position of the President's National Security Advisor who would manage an NSC staff. The Chairman of the Joint Chiefs of Staff became a member of the National Security Council as of a revision to the law in 1949. The wording of the law makes it clear that the system must consider international problems, but from both a domestic and international view.
5. This refers to the "famed" white, buff, green, and red stripe system of the Joint Chiefs of Staff. The color of the paper signifying the progress of the study as it advances from action officer (white) to Joint Staff Directorate (buff) to Director, Joint Staff (green) to agreed by all (red stripe). Each Chief has the option to footnote a red stripe, indicating his Service's disagreement with it. This is not done often as it weakens the influence of the position in the interagency arena.
6. For an excellent study of these agency differences and their impact, see Morton H. Halperin's *Bureaucratic Policies and Foreign Policy*, pp. 26-62.
7. The JCS, in this case spearheaded by the Army, stressed that U.S. combat forces are designed for a more sustained combat than their foes and that only a "balanced" cut of combat and support maintains this capability. Critics, usually but not always civilian, posit that U.S. forces are support heavy and that reductions of support forces could enhance our combat capability at a reduced cost. One such proponent is Stephen L. Canby; see his article in *Orbis*, Spring 1975, vol. XIX.
8. The Conference on Security and Cooperation in Europe produced a similar agreement, although nonbinding. Soviet reactions in MBFR to such "additional measures" beyond reductions have been quite negative.
9. The "flank state" term refers to the participants in the talks not located in the agreed area of reductions, Central Europe. In the West they are Norway, Denmark, Italy, Greece, and Turkey, and in the East, Romania and Bulgaria, with Hungary's status yet to be fully decided. The Western flank states desire to prevent Soviet forces in Europe being withdrawn and relocated nearer flank state borders. Flank states are officially called "special participants."
10. This preliminary conference offered a preview of the difficult negotiations ahead. It was predicted to last only six weeks but took nearly six months. The agenda agreed on was essentially to "let anyone talk about anything," the title became MRFACE (see Note 2), and the biggest point of disagreement, Hungary's status at the talks, was left hanging to be finally resolved later.
11. The North Atlantic Council is the senior political body of NATO. It is composed of the NATO ambassadors or ministers of state of each member and chaired by the Secretary-General. *NATO Facts and Figures*, Brussels, NATO Information Services, October 1971.
12. Prior to the last SALT I negotiation session, most U.S. agencies, feeling the pressure of the impending summit, were prepared to give in to the Soviet objection to inclusion of SLBM's in the agreement (the U.S. had more SLBM's than the U.S.S.R.) and agree only to limit land-based ICBM's and ABM's. The chiefs were the last hold-outs and wrote a strongly worded letter to the President and all members of the Verification Panel stressing the need to include SLBM's in the initial agreement while U.S. bargaining power was greatest (the Soviet main goal of an ABM agreement was pretty well assured). The chiefs' slogan became "No SLBM, no ABM." Surprisingly, they were joined by the Secretary of State at the final meeting, and the point carried. The agreement included SLBM's. This was probably the military's most effective impact on SALT I (author's view).
13. "The Vienna Talks, Problems and Prospects," by Ambassador Oleg Khlestov (Chief of the Soviet MBFR Delegation), *World Economics and International Relations*, #6, 1974; press conferences of Ambassador Charles Quarles, Head of Netherland's MBFR Delegation in Vienna, Austria.
14. "Difficult Start in Vienna," *Izvestia*, 5 March 1974.
15. "Military Confrontation in Europe: Will the MBFR Talks Work?" *The Defense Monitor*, December 1975.
16. CSCE was concluded in Summer 1975 with a summit meeting of the participating chiefs of state. It was noted by most Western commentators to have produced far more words than measurable accomplishments.
17. The Soviets have proven most reluctant to reveal official figures on their or Warsaw Pact force totals in the area. If published Western figures are agreed to, the Soviets would have to reduce this 100,000 or so more than the West to reach a 700,000 common ceiling.
18. *The Defense Monitor*, op. cit., and *Izvestia*, op. cit.
19. "Stationed" forces refers to those forces located in the reduction area of Central Europe (area includes

Benelux and Federal Republic of Germany in the West and German Democratic Republic, Poland, Czechoslovakia in the East and perhaps Hungary) that belong to nations outside the reduction area. They are U.S., United Kingdom, Canadian, and Soviet forces. The Canadian and U.K. position is that because of their special relationship in Europe they should not be considered as "stationed" forces.

20. There are two categories of participants in the talks. A "direct participant" (U.S., U.K., Canada, Federal Republic of Germany, Belgium, Netherlands, Luxembourg, U.S.S.R., East Germany, Poland, Czechoslovakia) is one who is expected to participate in the agreed reductions. A "special participant" (the flank states) is not expected

to reduce forces. Hungary is currently a special participant but will reconsider her status at a later date.

21. This approach recognizes that fewer troops are needed to defend than attack and, more important, the fact of life that Soviet forces are not only in Europe to oppose NATO but to hold on to Eastern Europe—this need has been demonstrated frequently. Soviet officers will confidentially note that the military forces of their allies in the area are less dependable (read loyal to the U.S.S.R.) than the U.S.'s NATO allies.

**ACKNOWLEDGMENT** We are grateful to the Editors of *Commanders Digest* for the use of photographs.

The major deterrent [to war] is in a man's mind. The major deterrent in the future is going to be not only what we have, but what we do, what we are willing to do, what they think we will do. Stamina, guts, standing up for the things that we say—those are deterrents.

ADMIRAL ARLEIGH BURKE, 1960

There is no such thing as diplomacy without strength.

HENRY KISSINGER

# BASING THE NEW AIR FORCE WEAPON SYSTEMS

*a potential for problems*

MAJOR JOHN G. TERINO



THE United States Air Force, as it enters the second half of this decade, is acquiring a variety of new weapon systems that will thoroughly modernize its aircraft inventory. Simultaneous with the prospective acquisition of the F-15, F-16, and A-10 tactical aircraft, the B-1 strategic bomber, the E-3 airborne warning and control system (AWACS) aircraft, and the still-to-be-selected advanced medium short takeoff and landing transport (AMST), the Air Force may also be acquiring numerous potentially expensive lawsuits claiming diminution of property value caused by the introduction of these new weapon systems.

As these new aircraft enter the inventory, they will be assigned in varying numbers to units at bases throughout the United States. (Basing of the aircraft in other countries will also occur, but those actions would raise different questions that are not germane to this discussion.) The new aircraft will have a number of impacts upon the bases and nearby civilian communities. Extensive new construction or remodeling of existing base facilities may be required to accommodate these aircraft, the number of military and civilian personnel employed at the base may grow or shrink, expenditures in the local community may increase or decrease, and a rise or fall in flying activity and noise levels associated with aircraft operations at the base may occur—these are just a few of the areas where the new weapon systems could have an impact.

It is in the last two areas, flying activities and noise levels, that, assuming the provisions of the National Environmental Policy Act have been met, major, costly, and controversial legal actions may arise.

This contention is based on a survey of decisions reached by state and federal courts involving airport operations. These decisions determined that various airport operations, including the introduction of

noisier aircraft, could decrease property values in the area of the airport and constitute a “taking” of the property without proper payment to the owner by the airport operator—a violation of the Fifth Amendment to the United States Constitution as applied to activities of the federal government and extended to other government units in this country through the Fourteenth Amendment.

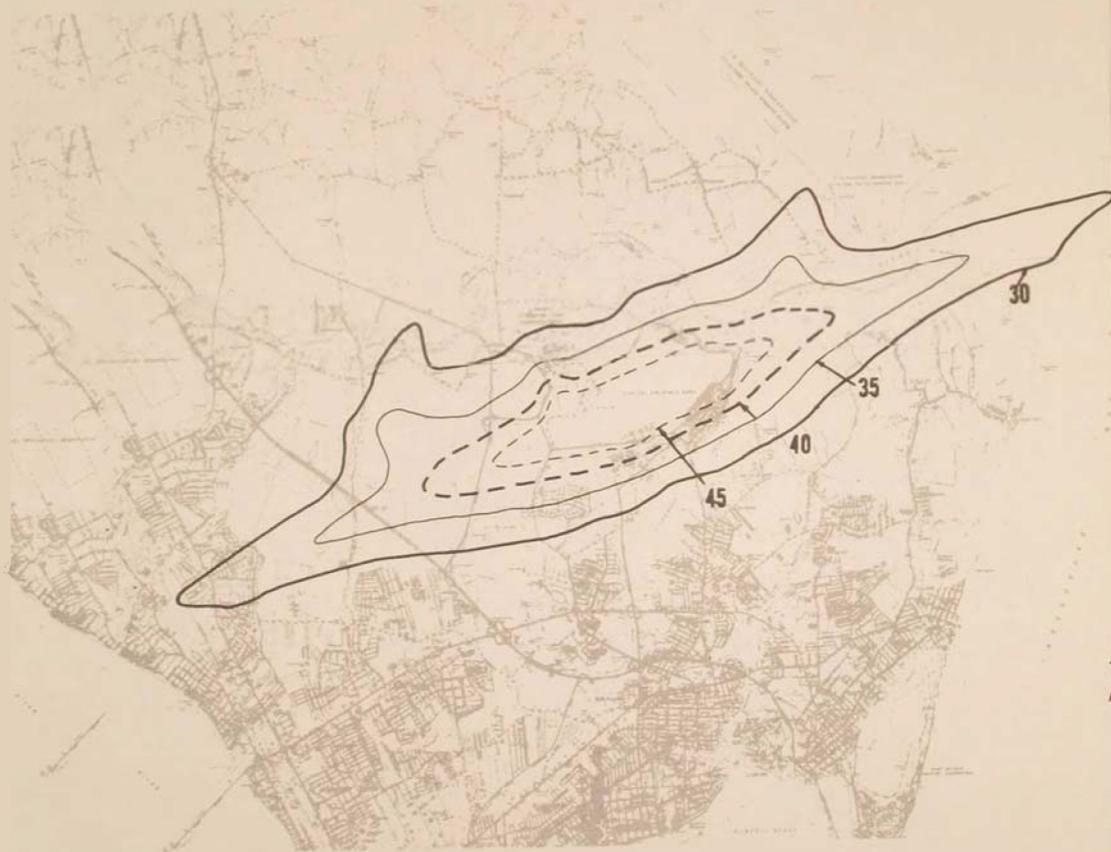
While the initial reaction might be “What difference does a change in aircraft make? They are all jets!” a more measured view recognizes that a change in the type of aircraft operating from a given base could mean a big difference in noise levels experienced both on and off base. It could also mean considerable change in the dimensions of flight patterns and related activities of aircraft operating in the vicinity of the base.

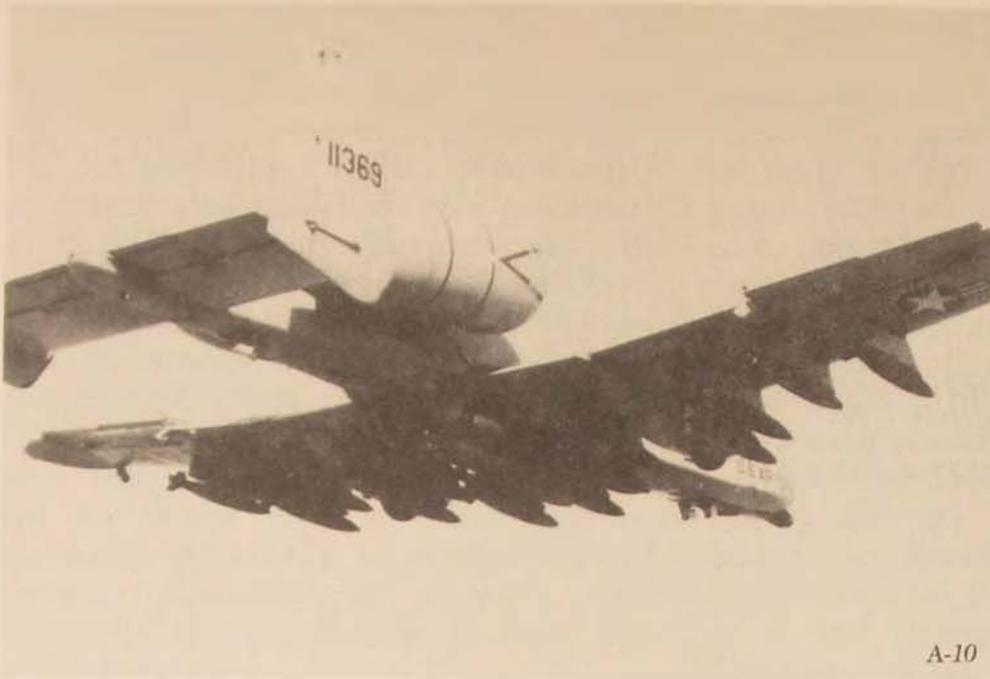
For example, replacing an F-4 Phantom wing with an A-10 wing would mean a substantial difference in noise levels at the base. The A-10 with two large turbofan engines and exceptional lift and maneuverability is substantially less noisy than the F-4 with its two afterburner-equipped engines. Also, because the A-10 requires less runway to become airborne and a smaller turning area than the F-4, the effect of the noise generated by the A-10 on the communities surrounding the base will be significantly less than that of the F-4.

On the other hand, adding F-15 Eagles to bases that already operate fighter aircraft such as the F-4 Phantom, F-111, and F-104 Starfighter, as has been done at Luke Air Force Base, Arizona, and Nellis Air Force Base, Nevada, results in comparatively minor variances in noise levels both on and off base. The variances that do occur result in reductions in the noise impact.<sup>1</sup>

If, however, a C-130 Hercules transport wing with 47 turboprop transports is replaced by an F-15 Eagle wing with 72

*The F-15 noise exposure forecast (NEF) contours of Langley Air Force Base, Virginia, for 1977. The residential area that will be affected by F-15 flying activity is enclosed by the NEF 40 line.*





A-10

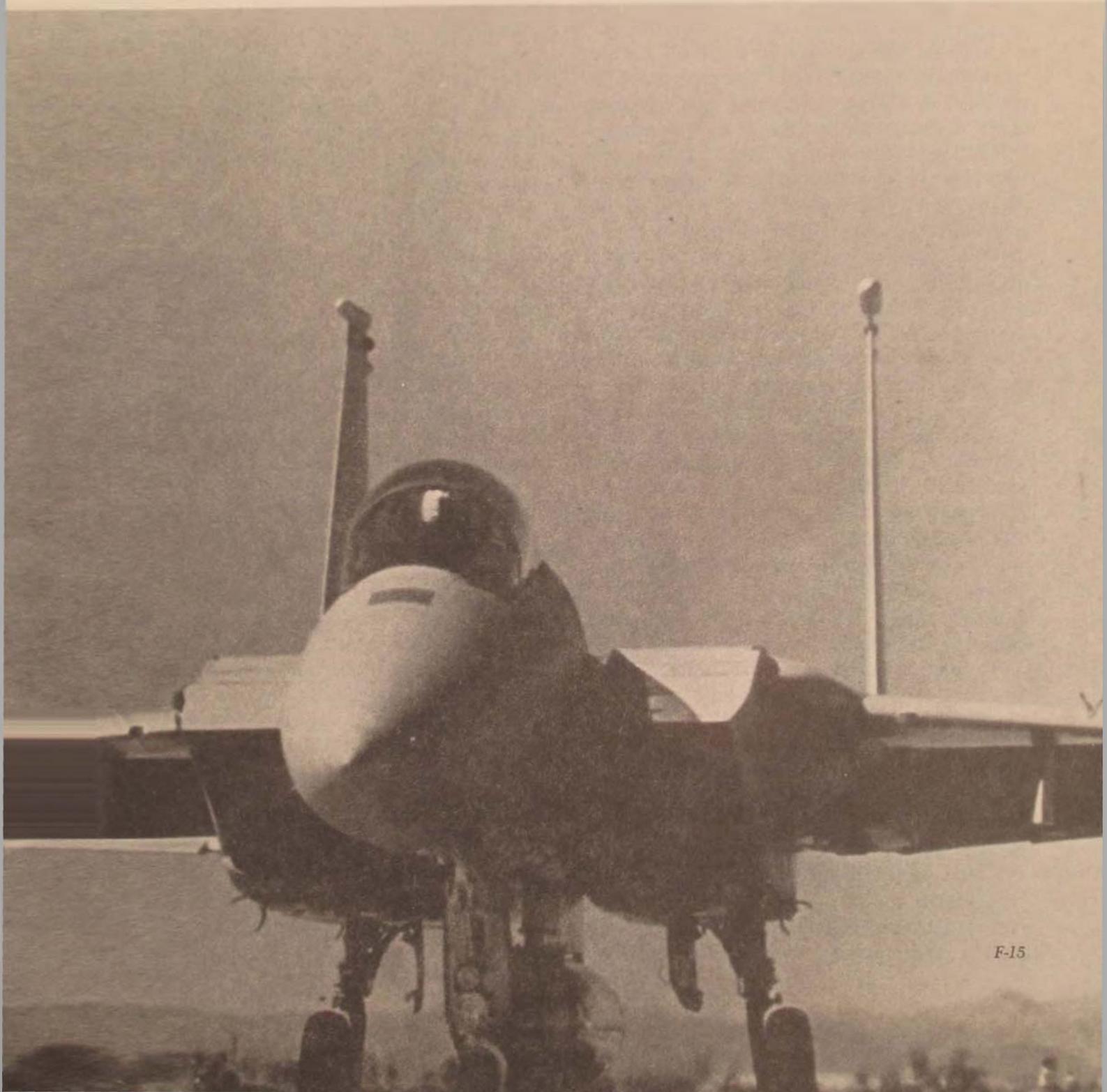


B-1



F-16

*The addition of new aircraft to the Air Force inventory will affect both the receiving bases and nearby civilian communities, particularly as regards the rise or fall in flying activity and noise levels. Any of the accompanying aircraft, alone or in combinations, could alter the local noise impact.*



F-15

twin-engine, afterburner-equipped fighters, as has been done at Langley Air Force Base, Virginia, "... there will be an increase in area impacted by the noise associated with F-15 operations."<sup>2</sup>

In the first two instances, the A-10 replacing the F-4 and the F-15 being added to a base with a comparable noise pattern, there would appear to be little basis for legal action involving the "taking concept."

But, the introduction of the F-15 (or any other aircraft that would increase noise intensity or enlarge the noise impact area) as a replacement for the C-130 would appear to provide a potential for claims against the federal government for uncompensated taking. In fact, the May 1975 *Final Environmental Statement for the F-15 Beddown at Langley AFB, Virginia*, contains information that might be used as a partial basis for such claims. In the statement, the Air Force, using its own Air Installation Compatible Use Zone (AICUZ) criteria, states that the area surrounding Langley that is designated as being incompatible for residential use will grow to include 46 more acres of land and 2213 people with the shift to F-15 operations.<sup>3</sup> If the F-15 operation genuinely renders the area unsuitable for residential use and property values decline, the situation could be exceedingly costly for the Air Force.

According to the Court of Appeals of the State of California, Second District, in the 1974 case of *Aaron v. City of Los Angeles*,<sup>4</sup> if "... the owner of property in the vicinity of the airport can show measurable reduction in market value resulting from the operation of the airport in such manner that the noise from aircraft using the airport causes a substantial interference with the use and enjoyment of the property, and the interference is sufficiently direct and sufficiently peculiar that the owner, if uncompensated, would pay more than his proper share to the public undertaking,"

then the operator of the airport (in this case the City of Los Angeles) is liable for the taking or damaging of the property. This decision was allowed to stand by the United States Supreme Court in 1975 in *City of Los Angeles v. Aaron*,<sup>5</sup> when it denied a petition by the city for a writ of certiorari to the Court of Appeals of the State of California, Second District, in the 1974 case.

While the *Aaron* case does not involve an agency of the federal government, the Supreme Court's action significantly broadens the scope, depending on the merits of a given case, of what may be considered an uncompensated taking involving aircraft operations.

Federal liability for taking resulting from the operation of military aircraft is not a new concept. It was firmly established in 1946 in *United States v. Causby*.<sup>6</sup> The Supreme Court held that frequent low overflights of the plaintiff's land by military aircraft landing at a nearby installation produced noise that made it impossible to use the property as a chicken farm. That constituted an uncompensated taking of Causby's property in violation of the Fifth Amendment to the Constitution. The court reasoned that while the enjoyment and use of the land were not totally destroyed by the flights, they limited the use of the land and caused a diminution of its worth.<sup>7</sup> The court also went on to say that inconveniences caused by airplanes are normally not compensable because they are part of our modern environment and that flights over private land are not taking unless their frequency and low altitude cause them to become "... a direct and immediate interference with the enjoyment and use of the land."<sup>8</sup>

In 1962 the Supreme Court, in *Griggs v. Allegheny County*,<sup>9</sup> held that under the Fifth Amendment Allegheny County as owner and operator of the Greater Pittsburgh Airport was liable for taking an air

easement over Griggs's property because the noise from takeoffs and landings passing over the property rendered it unsuitable for residential use.

That same year the United States Court of Appeals for the 10th Circuit, in *Batten v. United States*,<sup>10</sup> applied a narrow interpretation to the *Causby* and *Griggs* decisions. It held that direct overflight of the plaintiff's property had to occur for a taking to be recognized and that the lateral noise experienced by owners of property adjacent to but not directly under the flight path was not a taking on the part of the government.

This concept of what constituted a taking was generally upheld by federal and state courts. It was used in 1971 by the United States District Court in *East Haven v. Eastern Airlines*<sup>11</sup> and by the City of Los Angeles in its defense in the *Aaron* case. The *Batten* rule, however, was rejected by the California Court of Appeals in *Aaron* when it quoted and adopted the opinion of the Supreme Court of Washington in the 1964 case of *Martin v. Port of Seattle*.<sup>12</sup> The Washington court stated:

We are unable to accept the premise that recovery for interference with the use of land should depend upon anything as irrelevant as whether the wing tip of the aircraft passes through some fraction of an inch of airspace directly above the plaintiff's land. The plaintiffs are not seeking recovery for a technical trespass, but for a combination of circumstances engendered by the nearby flights which interfere with the use and enjoyment of their land.<sup>13</sup>

In rejecting the City of Los Angeles's appeal of the decision favoring *Aaron*, which had been rendered by the California Superior Court, Los Angeles County, the California Court of Appeals sought a more logical approach to the taking issue as expressed by the Washington court cited and the Oregon Supreme Court which held:

The proper test to determine whether there

has been a compensable invasion of the individual's property rights in a case of this kind is whether the interference with use and enjoyment is sufficiently direct, sufficiently peculiar, and of sufficient magnitude to support a conclusion that the interference has reduced the fair market value of the plaintiff's land by a sum certain in money. If so, justice as between the state and the citizen requires the burden imposed to be borne by the public and not by the individual alone.<sup>14</sup>

The previously discussed decisions indicate that the concept of taking is valid in regard to aircraft operations in the vicinity of any airport, military or civilian; that the operator of the airport is liable for compensation to parties whose property is judged to have been taken by aircraft operations associated with the airport; that a diminution of value of the property must be caused by the aircraft operations for a taking to have occurred; and that taking can occur in the vicinity of the airport in areas other than those directly under aircraft flight paths.

Judgments made in favor of plaintiffs in taking cases can be substantial. The *Aaron* case produced awards of \$659,440 to property owners near Los Angeles International Airport. A little over a year later another \$365,700 was awarded to persons similarly affected by Los Angeles International operations. Between the two awards the city bought outright 34 other homes for \$1.8 million.<sup>15</sup>

FOR THE AIR FORCE there are serious implications regarding aircraft operations and the taking issue. With inflation and the consequent shrinking of the defense dollar in terms of real purchasing power, neither the Air Force nor the nation can afford to spend money compensating property owners for taking actions.

With six new weapon systems entering

the inventory now and in the near future, many installations will be changing in terms of their effect on neighboring communities. Reasoned and careful planning now can, in most instances, match our new weapon systems to installations where there would be little or no likelihood of taking suits resulting from aircraft operations at those

bases. Essential to success in this effort is the recognition that considering only the physical environmental effects of aircraft noise and flight patterns is not sufficient; the economic environmental effects must also be evaluated to preclude or at least minimize the possibilities for taking suits.

*Langley AFB, Virginia*

#### Notes

1. *Final Environmental Statement on F-15 Beddown at Luke AFB, Arizona*, August 1974, p. 3-3.

2. *Final Environmental Statement on F-15 Beddown at Langley AFB, Virginia*, May 1975, p. 4

3. *Ibid*

4. *Aaron v. City of Los Angeles*, 7 ERC at p. 1666.

5. *City of Los Angeles v. Aaron*, 7 ERC at p. 1657.

6. *United States v. Causby*, 328 U.S. 256.

7. *Ibid*, at p. 262.

8. *Ibid*, at p. 266.

9. *Griggs v. Allegheny County*, 369 U.S. 84.

10. *Batten v. United States*, 306 F.2d 580.

11. *East Haven v. Eastern Airlines*, 2 ERC at p. 1867.

12. *Martin v. Port of Seattle*, 391 P.2d at p. 545.

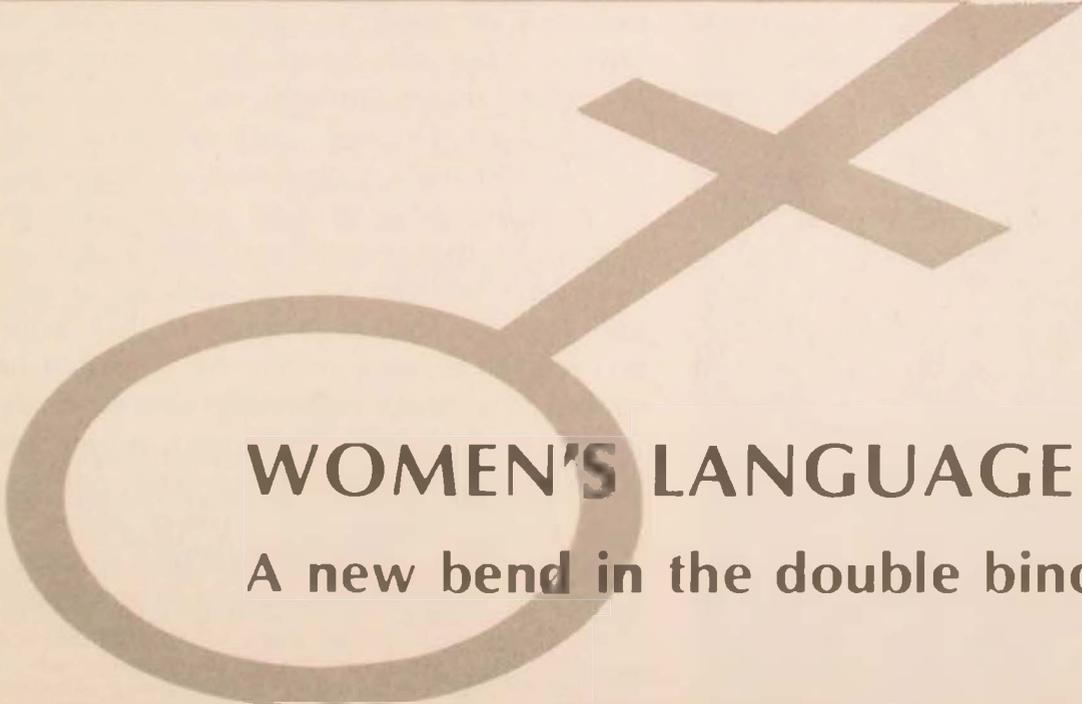
13. *Ibid*

14. *Thornburg v. Port of Portland*, 415 P.2d at p. 752.

15. "49 Families to Get \$365,700 in Jet Noise Suit," *Los Angeles Times*, January 11, 1973.

But when I think of America, that word produces a thousand pleasing images; it is endeared by my past pleasures there, but my future prospects . . . I can bear no comparison between it and the other place. Tis rude, but it's innocent. Tis wild, but it's private.

JOHN DICKINSON, 1760



# WOMEN'S LANGUAGE

A new bend in the double bind

SECOND LIEUTENANT KATIE CUTLER

THE integration of women into the Air Force and the other military services in increasing numbers has called attention to communication barriers that may be attributable to differences in the language of men and women. A typical example is the colonel's quick apology to a woman officer after a "goddam" has slipped into his statement. More covert are the problems of women in adapting their own distinctive language to the predominantly male environment in which they work. To borrow from the field of psychology, women find themselves victims of the "double bind"; they are damned if they do adapt and damned if they don't.

This article defines the pragmatic attributes of women's language and applies the double-bind theory after reviewing literature drawn from the fields of linguistics, sociology, and psychology. Strategies for eliminating the double bind from communication in a sexually integrated Air Force are then suggested.

### Is There a Women's Language?

Although divergent women's languages have been studied in other cultures by researchers such as Theodor Reik,<sup>1</sup> few controlled studies of women's language in this country have been completed. Many research questions have been formulated and research hypotheses set forth, however. For example, Robin Lakoff hypothesizes at length about two aspects of women's language: first, the existence of a women's dialect which avoids strong or forceful statements and, second, the tokens of language behavior which denigrate women.<sup>2</sup> She maintains, too, that reinforcement for acting out women's roles and for the accompanying language uses during childhood are responsible for women's language, which utilizes tag questions, intonation differences, and weak expletives. However, her examples

are not drawn from controlled research but rather from personal experience. Susan M. Ervin-Tripp postulates that speech etiquette differs in men and women and that young women use more deferential request forms than young men do. She cites studies by Labov (1966) and Levine and Crockett (1966) that indicate more situational style shifting by women.<sup>3</sup>

Among the controlled experiments that have been conducted, reports conflict as to documentable differences in language used by males and females. G. R. Miller and M. McReynolds asked subjects to rate the competence of the author of a news release which in one group was attributed to a male and in the other to a female.<sup>4</sup> Whereas the competence of the male and female communicators did not differ significantly for male receivers, female receivers rated the male source significantly more competent than the female. S. Renshaw, D. Gorcyca, and P. Ritter, while investigating differences in the language-encoding behavior of females and males, found the largest difference to be the hedging or ambivalence factor: women's encoding behavior seemed to express conflict or doubt.<sup>5</sup> They also found that women tend to express more emotion and drive states, which, they contend, may influence both female and male acceptance of messages.

From her study of *New Yorker* cartoons, Cheryl Kramer generalized several distinctions between the speech patterns of men and women. Most significant is that women's speech is more restricted: it cannot be spoken in as many different places as men's; it cannot deal effectively with a number of subjects, such as finance and politics; women are allowed a narrower range of ways to address other people; and women's speech is weaker than men's in emphasis, since there are fewer uses of exclamations and curse words.<sup>6</sup>

Despite these conclusions that there are

empirically observable differences in the language of males and females, Kramer finds no significant differences between males and females in the number of adjectives used before a noun (prenominal adjectives) nor in the frequency of adverbs ending in "-ly."<sup>7</sup> Thus, in the sentence, "The red satin chair is handsome," she counted the adjectives "red" and "satin" but not "handsome," which is a predicate adjective. Adverbs ending in "-ly" were analyzed because of the often-cited assumption that women, more frequently than men, use them in such contexts as "That's an awfully pretty picture." Yet subjects drawn from the same population and used for the second part of the study utilizing the cloze procedure<sup>8</sup> wrote that they *perceived* differences in the way men and women use language; for whatever reason, they believed there were differences, although Kramer's study did not bear this out. These "differences" were very similar to stereotypes mentioned earlier, including woman's use of more adjectives, more descriptive language, small details, and her tendency to ramble and to limit her vocabulary to safe, moderate words.

All of these studies indicate that further research is required to determine exactly what differences exist between the two language forms. Whether or not the differences will prove out statistically, the present consensus holds that there are perceived differences between the language of men and women.

### Pragmatic Aspects

Proceeding from this generally accepted premise that there are perceived differences, we can apply the pragmatic study of language, that is, an analysis of how communication affects behavior.<sup>8</sup> Little girls are

taught it is not ladylike to scream, and little boys are taught not to cry. Little boys may talk "rough," even emulating their fathers with the use of profanity, whereas little girls must not experiment with the language of their fathers but follow the example set by their mothers. Communication is paired with behavior, one reinforcing the other. Boys will be aggressive and girls will be docile in the manner of their adult counterparts, whose distinctive languages embody the behavior they typify.<sup>9</sup>

But what happens when these boys and girls leave home for college and careers? Their language behavior will undoubtedly influence the interaction and behavior patterns which develop in adult situations. Think, for example, of the coed in the college classroom. Will the college professor expect women's language from her or more assertive male expression? Her decision re-

*"... little girls must not experiment with the language of their fathers . . ."*



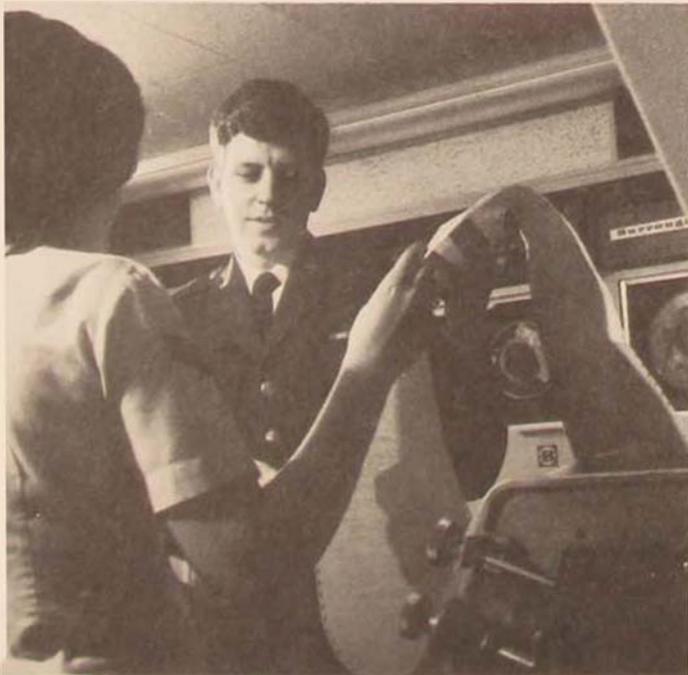
<sup>8</sup> *Cloze procedure*, a testing procedure for comprehension in reading which measures the ability of a reader to supply words which have been systematically deleted from a reading selection. *The Barnhart Dictionary of New English Since 1963*

quires a great deal of insight into the cultural environment of the professor. He may appreciate sweet-talking, grown-girl language (perhaps identified with his wife or mother), or he may set a male standard for acceptable performance in the classroom, preferring aggressive, heated discussions, for example. On the job the woman faces similar decisions: just how aggressive may her communication behavior be before being judged "bitchy" or unfeminine by her male peers, or by other women for that matter?

### The Double Bind

This, then, is the double bind. Women are damned if they adapt to the male communication pattern, yet damned if they adhere to the more deferent, inhibited, "weak" women's language. The term "dou-

*"... just how aggressive may her communication behavior be before being judged 'bitchy' or unfeminine . . . ?"*



ble bind" was first used in the 1950s to describe a theory of schizophrenia. G. Bateson and his colleagues, in their work with schizophrenics at the Mental Health Institute in Palo Alto, described the double bind as a situation in which no matter what a person does, he can't win.<sup>10</sup> As defined by that group and explicated by Paul Watzlawick,<sup>11</sup> certain criteria are essential to the double bind. First, at least two persons are necessary, one of whom is the "victim." Second, the double bind must be a recurrent theme in the experience of the victim, thus becoming an habitual expectation. Third, an injunction is given which (a) asserts something, and (b) asserts something about its own assertion, and (c) these two assertions are mutually exclusive. Finally, the recipient of the message is prevented from stepping outside the frame set by this message. Even though the message is logically meaningless, it is a pragmatic reality: the receiver cannot *not* react to it; but neither can he react to it appropriately, for the message itself is paradoxical.<sup>12</sup>

The Bateson group confined its application of the double-bind theory to abnormal behavior, particularly to schizophrenia, but did not preclude its application to other communication situations. Thus, A. J. Ferreira extended the double-bind theory to delinquent behavior,<sup>13</sup> and Coser<sup>14</sup> described the double bind experienced by resident psychiatrists, maintaining both student-professor roles and doctor-patient roles.

### Women in the Double Bind

An example of woman's language may be used to exemplify the application of the double-bind theory: "I think we should probably notify the commander about this, shouldn't we?" Here we have a woman communicating to several men in her office, meeting the first condition of double bind. Communications qualified in this manner

have become her standard; thus, this situation is part of a recurring theme. Although her idea is clear to herself (notify the commander), she cloaks it in qualifiers which serve to weaken her communication. The tag line ("shouldn't we?") coupled with the qualifiers ("I think" and "probably") detract sufficiently from her intended communication that the men choose to ignore the comment or take their own action independent of the woman's communication. An assertion was made, but the metacommunication (i.e., the communication about the stated communication based on the behavioral or pragmatic context) asserted something else about the assertion, which precluded or at least inhibited the appropriate response ("I'll do it right now" or "Yes, we should") to the original assertion by the time it reached the receivers. Watzlawick further posits that the double bind cannot be unidirectional. He states that "If, as we have seen . . . , a double bind produces paradoxical behavior, then this very behavior in turn double-binds the double-binder."<sup>15</sup> Thus, the receivers were double-bound, hesitant to show any awareness of the contradiction yet unable to react to the mixed assertions. Because her assertions were paradoxical, the woman got no response, which reinforced her feelings of inferiority and unsurety. However, Watzlawick says:

Where double-binding is of long-lasting, possibly chronic duration, it will turn into an habitual and autonomous expectation regarding the nature of human relations and the world at large, an expectation that does not require further reinforcement.<sup>16</sup>

### Double-Bound Women in the Air Force

A woman in the predominantly male environment of the military may feel quite ambivalent. In order to complete basic

training or officer training, she has had to prove that she is aggressive, skilled, and self-confident on the playing field, the parade ground, and in the classroom. In terms of verbal communication, she has learned to reply with snap and confidence and to present speeches and briefings to mixed audiences. Yet she brings with her the passive, deferent behavior and communication learned through twenty or more years of reinforcement. If aggressive, self-confident behavior has become natural to her, her comments may be received by men as threatening because all their lives men, too, have learned that women are docile and that the important decisions are made by males. Even if the woman expresses herself in an assured manner, interjecting no qualifiers or tag lines into her speech, for example, there is the element of double bind. Again, according to the Stanford

*"A woman in the predominantly male environment of the military may feel quite ambivalent."*



group's definition, an assertion is made. What is the assertion made about the assertion? That the woman is being assertive, which is paradoxical or contrary to the stereotype that men have about women.

As the receiver of communications, woman also finds herself in a double bind. Confronted by expletives or dirty jokes, a woman is damned if she acts offended or damned if she joins in. Each interaction puts its own twist into the double bind; variables may be sex, marital status, age, education, or size of the group.

### Strategy

The empirical research suggested by these ideas is staggering, but it would still only *explain* the problem posed by the existence (real or assumed) of a women's language. This may not be essential to eradicate the problem. Efforts in this direction can begin now, however, under the umbrella of the Air Force human relations program. The Air Force has been quite successful through the initial phases of this program in improving communication between whites and blacks. Encompassed in the plans to broaden the human relations program is an Air Force strategy to deal with women's problems.

Yet the Air Force, as well as society at large, I believe, does not know what the real "problem" with women is. Affirmative action plans have been adopted for both military and civilian hiring to avoid charges

of discrimination, and women are mastering the skills necessary to compete with men in the Air Force. So what is the problem that makes both the men and the women edgy and defensive about working together? One possibility to explore is the communication problem that stems from the pragmatics of the languages of males and females.

Making both sexes aware of the double-bind situation in male-female communication transactions is one place to start in correcting the problem. Role-playing, word games, and other T-group techniques can be utilized within the framework already established by the Air Force human relations program. An awareness of the double-binding nature of male-female communications is the first step toward developing an environment in which the most efficient use may be made of the Air Force's human resources.

RESEARCH suggested by this article points to the need for linguists, sociologists, and psychologists to work together to explain the pragmatic aspects of women's language, in which communication cannot be separated from the study of behavior of males and females in our society. However, it is not too soon to begin efforts to overcome the double bind that constricts communication between men and women. The Air Force could be in the vanguard of this movement.

MacDill AFB, Florida

### Notes

1. Theodor Reik, "Men and Women Speak Different Languages," *Psychoanalysis*, Spring-Summer 1954, pp. 3-15.
2. Robin Lakoff, "Language and Woman's Place," a manuscript later published in *Language in Society*, April 1973.
3. Susan M. Ervin-Tripp, "Sociolinguistics," *Advances in Experimental Social Psychology* (New York: Academic Press, 1969), pp. 91-165.
4. C. R. Miller and M. McReynolds, "Male Chauvinism and Source

5. S. Renshaw, D. Gorceyca, and P. Ritter, "Contrasted Language Behavior of Females and Males," Paper presented at the Women's Language Study Division of the Speech Communication Association Convention, Chicago, December 1974.
6. Cheryl Kramer, "Actual and Perceived Sex-Linked Differences in Adverb and Adjective Usage," Paper presented at the annual meeting of the Linguistic Society of America, San Diego, December 1973.

7. Cheryl Kramer. "Women's Rhetoric in 'New Yorker' Cartoons: Patterns for a Mildred Milquetoast." Paper presented at the Speech Communication Association Convention, New York City, November 1973.

8. Paul Watzlawick, J. H. Beavin, and D. D. Jackson. *Pragmatics of Human Communication* (New York: W. W. Norton, 1967), pp. 21-22. (Hereafter referred to as *Pragmatics*.)

9. Lakoff, *op. cit.*

10. C. Bateson, D. D. Jackson, J. Haley, and J. Weakland. "Toward a Theory of Schizophrenia," *Behavioral Science*, October 1956, pp. 251-64.

11. Paul Watzlawick, "A Review of the Double Bind Theory," *Family Process*, 1963, pp. 132-53. (Hereafter referred to as *Family Process*.)

12. *Pragmatics*, pp. 212-13.

13. A. J. Ferreira. "The 'Double-Bind' and Delinquent Behavior," *Archives of General Psychiatry*, 1960, pp. 359-67.

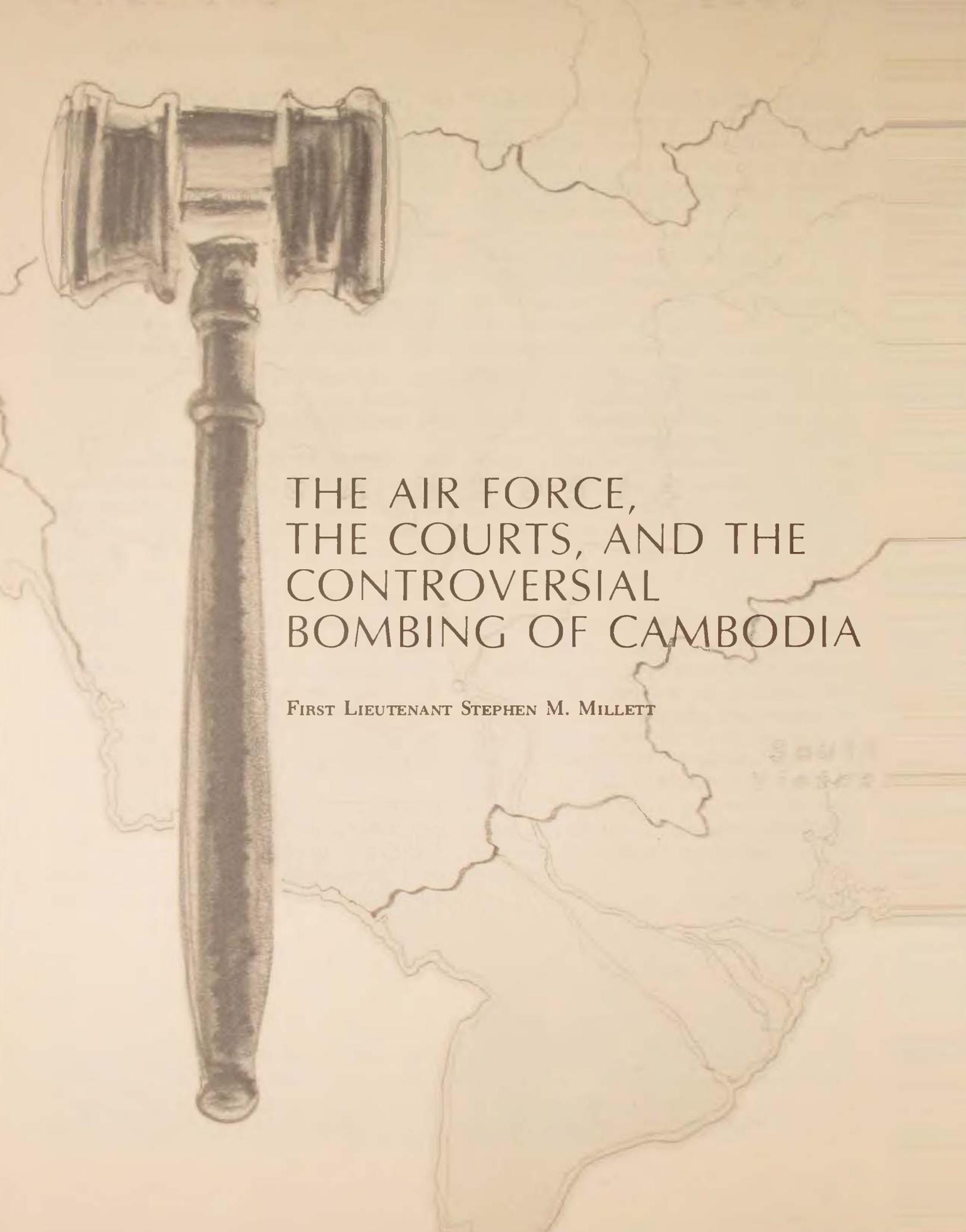
14. *Family Process*, p. 146.

15. *Pragmatics*, p. 214.

16. *Ibid.*, p. 215.

Women have been in everything else—why not in politics? There's no reason why a woman shouldn't be in the White House as President, if she wants to be. But she'll be sorry when she gets there.

HARRY S. TRUMAN, September 1962

The background of the cover is a light-colored pencil sketch of a map of Cambodia. On the left side, there is a detailed pencil drawing of a gavel, oriented vertically with the head at the top. The gavel has two rectangular heads and a long handle that tapers to a rounded end. The text is centered on the right side of the cover.

THE AIR FORCE,  
THE COURTS, AND THE  
CONTROVERSIAL  
BOMBING OF CAMBODIA

FIRST LIEUTENANT STEPHEN M. MILLETT

IN the summer of 1973 a strange episode in the history of the Air Force took place. Under orders of the President, the Air Force was engaged in the bombing of Communist positions in Cambodia in support of the tottering war effort of the Lon Nol government in Pnompenh. Congress, in opposition to the President's policy, tacked onto an appropriation bill of 1 July 1973 a section that would cut off funds for this operation by 15 August. In the meantime, a federal district judge in Brooklyn issued an unprecedented injunction to halt the bombing immediately. These events touched off a major legal and constitutional struggle with profound political and military implications. A review of this case sheds considerable light on the perplexing constitutional problems of the whole American military involvement in Southeast Asia, which is still of considerable interest.

### *the initial suit*

Before 1973 there had been numerous attempts by opponents of the war in Southeast Asia to bring the constitutional and legal aspects of the war into federal courts. Their objective apparently was to prod the national judiciary into interposing itself in the public controversy over American military involvement in South Vietnam. All these earlier attempts had failed, however, since the courts consistently refused to hear such cases because of their essentially political and military nature.<sup>1</sup>

The federal court suit to stop the bombing of Cambodia was filed on 13 April 1973, by Congresswoman Elizabeth Holtzman (D, New York) and four Air Force officers: Captain Michael Flugger of New York City, Captain James H. Strain of Oklahoma, Captain Donald E. Dawson of Connecticut, and First Lieutenant Arthur Watson of Rome, New York. The first three were B-52 pilots who were not at that time

flying missions over Cambodia. Captain Dawson had a personal interest in the suit in which he hoped the federal courts would rule that the bombings of Cambodia were illegal; he was facing court-martial proceedings in June for refusing an order to fly a B-52 mission over Cambodia. Two of the other officers had been grounded for similar reasons.<sup>2</sup>

The suit was brought before federal district court Judge Orrin G. Judd of Brooklyn. Judge Judd, a Republican appointed to the bench by President Johnson in 1968, had refused on an earlier occasion to rule on a similar case. But on 13 June 1973 he granted the motion of the plaintiffs for a summary judgment and dismissed the motion of the government attorneys to dismiss the case because the plaintiffs had no legal standing to present their suit.<sup>3</sup>

The attorneys from the American Civil Liberties Union who were handling the case for Congresswoman Holtzman and the Air Force officers argued that the bombings were unconstitutional since Congress had never given authorization for them. They further contended that the Air Force missions over Cambodia constituted a new military operation, even the initiation of a new war, in light of the Southeast Asian cease-fire agreement of 29 January 1973. The government attorneys argued on the other hand that the Cambodian operations were merely a continuation of the larger war in Southeast Asia and thereby legal in light of congressional appropriations for the American military effort in Southeast Asia.<sup>4</sup>

Judge Judd delivered his opinion on the Cambodian bombing case on Wednesday, 25 July 1973. "The question here," he decided, "is not one posed by the Government whether aerial action in Cambodia is the termination of a continuing war or the initiation of a new and distinct war but whether Congress has authorized bombing in Cambodia after the withdrawal of

American troops from Vietnam and the release of prisoners of war." The basis of his opinion was that Congress had given no explicit authority for continued American military activity in Southeast Asia after the cease-fire agreement of 24 January 1973. The judge's conclusion was that the President had given an unconstitutional order to continue the bombing of Cambodia. Therefore, he issued an injunction to end the Air Force operations over that country, effective at 1600 on Friday, 27 July.<sup>5</sup>

*the political compromise*

Congress had already taken action in the bombing controversy before Judge Judd issued his injunction. There had been great indignation and apprehension on Capitol Hill that the continued bombing of Cambodia would jeopardize the long-awaited truce agreement of the preceding January. There was also growing distrust of Presi-

dent Nixon's political wisdom in both foreign and domestic affairs. For several years congressmen had criticized the White House for its alleged usurpation of war powers by its management of the war in Vietnam. Furthermore, the Watergate scandal had surfaced in April. Congressional suspicions of White House evildoings seemed to be greatly reinforced by public disclosure of covert espionage at home and secret bombings abroad.

The war in Cambodia had continued even after the American agreement with the North Vietnamese to end their hostilities in South Vietnam. It is true that the domestic political situation in Pnompenh was different from that in Saigon, yet the turmoil in Cambodia had been inseparably intertwined with the war in Vietnam since the spring of 1970, if not earlier. There had been no political agreement on Cambodia formulated in January, only a mutual pledge by the United States and North Vietnam to



respect the sovereignty, territorial integrity, and "neutrality" of Cambodia. They did agree to "put an end to all military activities in Cambodia and Laos, totally withdraw from and refrain from re-introducing into these two countries troops, military advisors, and military personnel, armaments, munitions and war material."<sup>6</sup>

The United States continued its aerial combat role over Cambodia as the battles between the Lon Nol government and the Communist Khmer Rouge continued. It is estimated that the Air Force dropped 140,000 tons of ordnance over Cambodia from March through May of 1973. Then, on 30 June, the Communists launched a massive offensive in order to isolate the capital from the sea. President Nixon authorized a step-up in American bombing to break the impact of that offensive. Fighter bombers from Thailand conducted over 200 missions a day, and B-52s from Thailand and Guam flew some 40 missions a day over Cambodia.<sup>7</sup>

Congressional opposition to President Nixon's policy intensified during May and June. Henry Kissinger met with the Senate Foreign Relations Committee in secret to inform its members of the negotiations that were underway to reach a cease-fire in Cambodia. The administration apparently believed that the bombing was vital, both as a military measure to halt Communist gains in the field and as a diplomatic lever in the intensified negotiations, especially with Peking. Congress, however, saw the situation in a different light. It passed an appropriation bill that would have immediately cut off funds for the Cambodian bombings. President Nixon vetoed this on Wednesday, 27 June, and the House failed to override the veto by 35 votes.<sup>8</sup>

Then came the Communist offensive on Friday which threatened to cut off Pnompenh. On the same day the White House appealed to Congress not to oppose the bombings for six weeks more, pending negotiations. House Minority Leader Gerald



*Meanwhile back in Southeast Asia—B-52s from Thailand and Guam flew some 40 missions a day over Cambodia.*



Justice William O. Douglas

Ford (R, Michigan) announced that the President would accept a compromise to halt Air Force operations by 15 August. It was a true political compromise since neither the White House nor Congress was pleased with it. One congressman objected that the compromise date would implicitly mean congressional authorization of a military strategy that it had never endorsed. Yet Senator Hubert Humphrey (D, Minnesota) correctly observed that "no matter how much we pontificate, we do not have the votes to end this war without some agreement with the man in the White House."<sup>9</sup>

On 1 July both houses of Congress passed the Second Supplemental Appropriations Act of 1973 and the Continuing Appropriations Act of 1974. Each bill contained the

provision that no funds were to be used for American military operations in or above North Vietnam, South Vietnam, Laos, or Cambodia on or after 15 August 1973. For the first time since the American military buildup in South Vietnam in 1965, Congress resolved to trim the President's powers as Commander in Chief by denying him the money for military activities. President Nixon signed the two appropriation acts, and his aides informed congressmen that he would terminate the bombings on 15 August.<sup>10</sup>

#### *war of appeals and writs*

On 27 July, the day Judge Judd's injunction was to take effect, a panel of the Court of Appeals for the Second Circuit held oral argumentation on whether to lift the injunction. It unanimously granted a stay of injunction, which allowed the Air Force to continue its operations pending appeal of Judge Judd's decision by government attorneys. The lawyers for the plaintiffs appealed immediately to Associate Justice Thurgood Marshall of the United States Supreme Court to reinstate the injunction. Since the Supreme Court was in summer recess, Justice Marshall himself held a hearing on the matter in Washington, D.C. On Wednesday, 1 August, he decided that he would not lift the stay imposed by the Court of Appeals.<sup>11</sup>

On the night of 1 August, attorney Norman Siegel of the American Civil Liberties Union flew from Washington, D.C., to Seattle, and then drove 145 miles to the summer retreat of Justice William O. Douglas at Goose Prairie, Washington. Justice Douglas agreed to hear the appeal to reinstate the injunction on Friday at the nearby town of Yakima. He heard oral argumentation on that day and wrote a short opinion, which was released publicly on Saturday morning in Washington, D.C.<sup>12</sup>

In an astonishing opinion, Justice Douglas reversed his colleague's decision and granted an injunction to stop the Cambodian bombing eleven days before the deadline date of 15 August. He viewed this matter as a capital case and granted the injunction as though it were a stay of execution for a condemned man sentenced to death by the domestic criminal court. "When a stay in a capital case is before us, we do not rule on guilt or innocence," he observed. "By the same token, I do not sit today to determine whether the bombing of Cambodia is constitutional. . . . Denial of the application before me would catapult our airmen as well as Cambodian peasants into the death zone."<sup>13</sup>

Yet it was clear that Justice Douglas had acted on his personal conviction that the Cambodian operation was improper if not illegal and immoral. In reference to the famous steel seizure case of 1952, he wrote that "if Truman could not seize it [property] in violation of the Constitution, I do not see how any president can take 'life' in violation of the Constitution."<sup>14</sup> He also made mention in the same opinion to "our Cambodian caper." Nearly two months later, Justice Douglas made a speech at Middletown, Ohio, in which he warned that the greatest threat to American society was the "spectre of the so-called presidential war." He further asserted that "if we can stand by and let the presidential war be the accepted standard for military activity . . . I fear the country is doomed."<sup>15</sup>

Justice Douglas's injunction lasted just six hours and ten minutes. Immediately after his opinion became public, the Deputy Solicitor General applied for a new stay of the injunction to Chief Justice Warren Burger, who in turn referred the motion to Justice Marshall. Marshall telephoned all the other justices for their advice, and at 1500 he stayed Douglas's injunction on procedural ground. It was obvious that



*Justice Thurgood Marshall*

Justice Marshall had had the support of his colleagues from the beginning of the matter, whereas Douglas had acted only on his own convictions. Meanwhile, the Chief Justice refused to reconvene the entire Court to hear the case on its merits.<sup>16</sup>

As though the weekend legal battles were not extraordinary enough, new developments on Monday added greater public interest to the case. The Pentagon announced on Monday that B-52s had accidentally bombed a village south of Pnompenh and had killed more than 300 Cambodian civilians—exactly what Justice Douglas had feared might happen. It also became public at this time that the administration had ordered the secret bombing of Cambodia in 1969–1970, which had cost about

\$1.5 billion, unbeknown to Congress and the public.

### *court of appeals decision*

Three circuit court of appeals judges heard the oral argumentation of the case on Wednesday, 8 August. On the same day they announced their decision (2-1 vote) to reverse Judd's opinion. Judge Mulligan ruled that the courts had no authority to hear this case in the first place because it involved diplomatic policy and military strategy, which are by nature political rather than judicial questions. He rejected the argument that there had been no congressional support for the bombing policy: the Gulf of Tonkin Resolution, selective service acts, and appropriation bills had all implied support of Presidential policy in Southeast Asia. Mulligan further emphasized that the acts that called for the 15 August deadline of bombing implicitly condoned bombing before that date, which was the precise compromise between the White House and the Hill on this question. Finally, he ruled that Congresswoman Holtzman and the Air Force officers did not have legal standing to bring the case before federal courts.<sup>17</sup>

On 16 April 1974, the Supreme Court unanimously decided not to review the Cambodian bombing case. The only reason given was that it raised essentially political rather than judicial questions. Be that as it may, it was a moot case. The bombing did end on 15 August 1973, proving that political compromise had been far more effective in changing policy than judicial action.<sup>18</sup>

### *the War Powers Act*

The political epilogue of the Cambodian bombing case was the enactment of the War Powers Act (Javits bill). The House of

Representatives passed its version of the Bill on 18 July 1973, and the Senate passed another version two days later. A Conference Committee agreed on a compromise text, which was sent to the White House. President Nixon vetoed it on 24 October, as anticipated. But surprisingly, both chambers passed the bill again over the veto, by a vote of 75-18 in the Senate and 284-135 in the House. It was the first of nine Presidential vetoes that were overridden by Congress in 1973, which further indicated the eroding political power of the Nixon administration in face of the explosive Watergate scandal.<sup>19</sup>

The War Powers Act requires that the President notify the Speaker of the House and the President Pro Tempore of the Senate within 48 hours after he has ordered American armed services into a combat or imminent hostile situation abroad. If Congress does not expressly authorize this action within 60 days, the President must withdraw all forces. Congress is to grant its approval by a declaration of war or a specific legislative act; implicit approval is not to be assumed based on unspecific appropriation bills, ratified treaties which do not specify American military commitments, or other general acts. If Congress disapproves of the President's actions, the act empowers Congress to pass a concurrent resolution (which would not be subject to veto) to withdraw forces engaged in hostilities overseas before the 60-day deadline.<sup>20</sup>

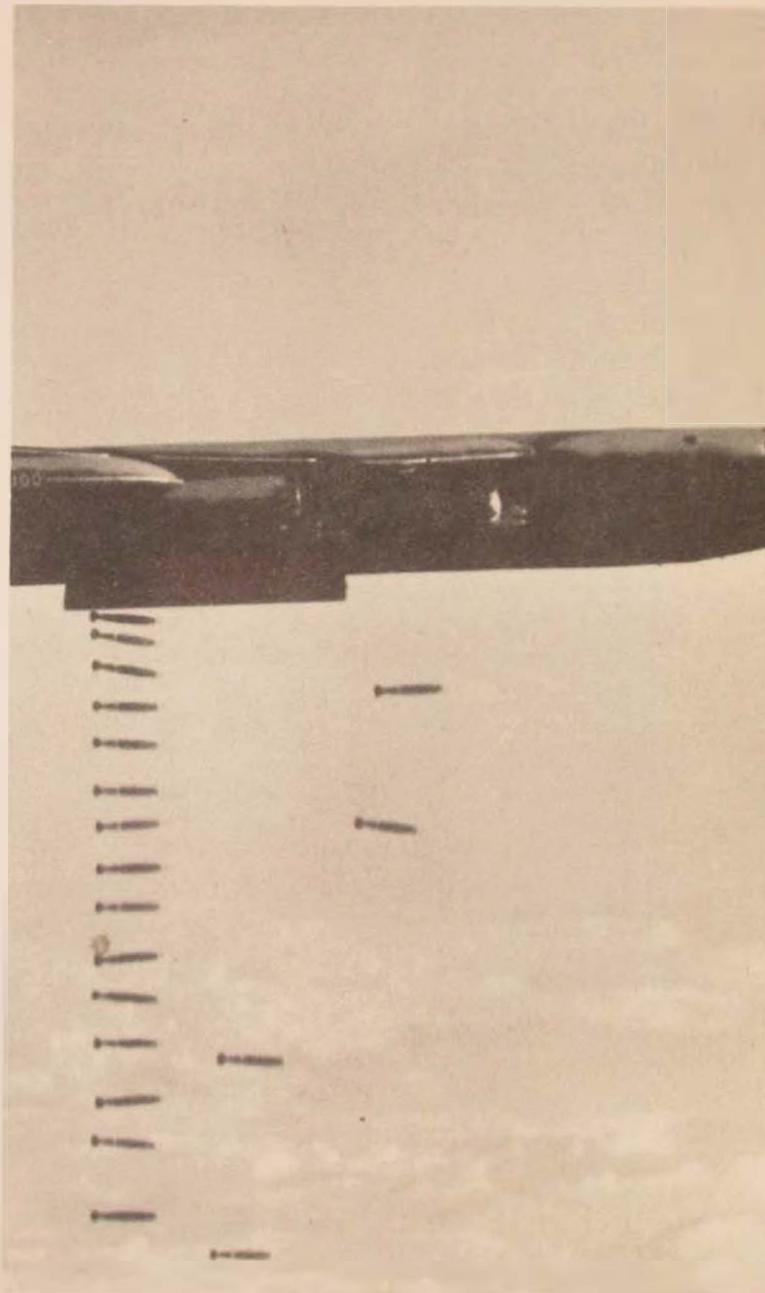
There has already been a debate among legal scholars on the constitutionality of the War Powers Act.<sup>21</sup> But the crux of the issue concerning the scope of the President's powers as Commander in Chief is not as much constitutional as political. President Johnson was able to implement his Vietnam policy not primarily because of the inherent powers of his office but rather because of his political strengths in Congress.

Even though the public unpopularity of the Vietnam war effort cost him the great influence he once enjoyed with Congress in the mid-1960s, President Johnson could always count on a majority of each house to pass the appropriation and draft laws required to implement his policy.

President Nixon enjoyed much of this same authority until 1973. The election of 1972 appeared to be an overwhelming mandate of the people for Nixon to complete his Vietnam-negotiated settlement, especially in light of the outspoken views on this policy by Senator George McGovern. The Deputy Assistant Secretary of State put this fact bluntly in March 1974 when asked to rationalize the continued bombing of Cambodia: "The justification is the reelection of President Nixon."<sup>22</sup> What undermined Nixon's second administration was not a foreign policy or military strategy, but a domestic political crisis. This became evident in July 1974 when the House Judiciary Committee (of which Congresswoman Holtzman is a member) voted to impeach the President on three articles alleging domestic abuses of power but rejected an article of impeachment for the secret bombing of Cambodia.

Whether the War Powers Act is constitutional or not may be settled by the courts in the years to come. Probably the courts will try to avoid a case that will place definitive boundaries on the President's diplomatic and military powers, just as they have in the last few years. Politically, however, it would seem wise for the time being for President Ford to conform to the stipulations of the War Powers Act. If, however, he should ever face a direct conflict between his constitutional responsibility to defend the United States itself and its unquestionable foreign interests and the War Powers Act, he must act according to the former and let the lawyers battle out the latter in the courts after the crisis has passed.

*"The administration apparently believed that the bombing was vital, both as a military measure to halt Communist gains in the field and as a diplomatic lever in the intensified negotiations. . . ."*



THERE ARE SEVERAL lessons to be drawn from the Cambodian bombing case for the armed forces in general and for the Air Force in particular. At the highest level of command, diplomatic policy as well as the military strategy that flows from it is a political matter, not judicial. Litigation attempts to interfere with that policy have been consistently unsuccessful. The ultimate authority of the President lies in his constitutional duties as the Commander in Chief and Head of State. The authority of Congress rests in its legislative powers to declare war and raise, equip, and finance the armed services.

For the Air Force officer, the Cambodian bombing case raises the spectre of individual doubts whether to execute an order the legality of which may be in question. If an officer goes beyond an order in an illegal manner, he can be held personally accountable for his actions before a court-martial. On the other hand, if an officer refuses to

carry out an order because of personal judgment and the order is determined later to have been legal, he may be held personally accountable for his inaction before a court-martial.

The Cambodian bombing case helps to resolve this dilemma of the Air Force officer. When an officer receives an assignment from superiors who are clearly executing the policy of the President and the Department of Defense, he must presume that it is legal. If there is doubt, the officer could consult the local Judge Advocate General's office; but of course this will not always be practical or possible, especially in a combat environment. Yet if the order appears illegal or inconsistent with Air Force policy, the officer may decide not to execute it. But he must be very confident of his own judgment and rely on an inner reserve of intelligence and courage.

*Air Force Institute of Technology*

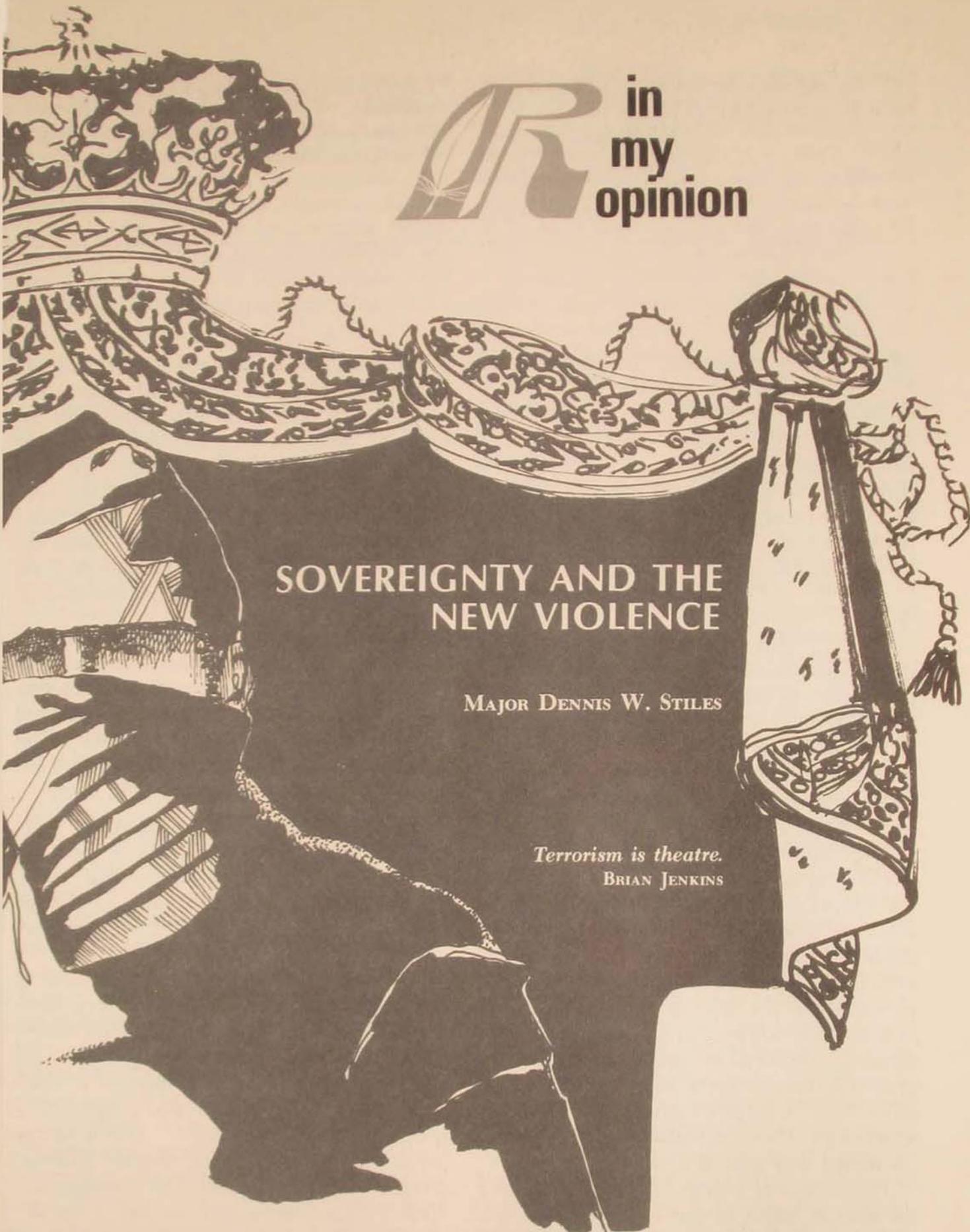
#### Notes

1. *Mitchell v. United States*, 386 U.S. 972 (1967); *Mora v. McNamara*, 389 U.S. 934 (1967); *Massachusetts v. Laird*, 400 U.S. 886 (1970); *DaCosta v. Laird*, 448 F.2d 1368, 405 U.S. 979 (1972).
2. *New York Times*, July 26, 1973, p. 4; *New York Times*, April 16, 1974, p. 10.
3. *Holtzman v. Richardson*, 361 F. Supp. 544 (June 13, 1973).
4. *New York Times*, July 26, 1973, p. 1; *Time*, August 13, 1973, p. 7.
5. *Holtzman v. Schlesinger*, 361 F. Supp. 553 (July 25, 1973); *New York Times*, July 26, 1973, pp. 1, 4; quote on p. 4.
6. "Agreement on Ending the War and Restoring Peace in Vietnam," Department of State *Bulletin*, February 12, 1973, p. 173.
7. *New York Times*, July 1, 1973, pp. 1, 3, E4; *U.S. News & World Report*, July 16, 1973, pp. 52-53.
8. *New York Times*, July 1, 1973, pp. 3, E4.
9. *Ibid.*, p. E4.
10. *U.S. Code, Congressional and Administrative News*, 93rd Congress, 1st Session, 1973, I, 149-53; Arthur M. Schlesinger, Jr., *The Imperial Presidency* (Boston, 1973), pp. 196-98, 256, 293.

11. *Holtzman v. Schlesinger*, 484 F.2d 1307 (August 8, 1973), p. 1308; *New York Times*, July 29, 1973, p. 19.
12. *Time*, August 13, 1967, p. 7.
13. Text of Justice Douglas's opinion in *New York Times*, August 5, 1973, p. 2.
14. *Ibid.*
15. *Dayton (Ohio) Daily News*, September 29, 1973, p. 2.
16. *New York Times*, August 5, 1973, pp. 1, 3.
17. *Holtzman v. Schlesinger*, 484 F.2d 1307 (August 8, 1973), pp. 1308-15.
18. *New York Times*, April 16, 1974, p. 10; *United States Law Week Supreme Court Proceedings*, 42: 3577 (April 16, 1974).
19. *U.S. News & World Report*, November 19, 1973, p. 91; *New York Times*, July 22, 1973, p. E3.
20. *U.S. Code, Congressional and Administrative News*, 93rd Congress, 1st Session, 1973, I, 614-19, and II, 2346-67.
21. Eugene V. Rostow, "Great Cases Make Bad Law: the War Powers Act," 50 *Texas Law Review* 833 (1972) and Raoul Berger, "War-Making by the President," 121 *University of Pennsylvania Law Review* 29 (1972).
22. Quoted by Schlesinger, *The Imperial Presidency*, p. 198.



in  
my  
opinion



SOVEREIGNTY AND THE  
NEW VIOLENCE

MAJOR DENNIS W. STILES

*Terrorism is theatre.*  
BRIAN JENKINS

. . . *Theatre must not retreat to prepared positions.* It is an art of permeation. . . .

RICHARD SCHECHNER,  
ideologue for the  
Guerrilla Theater

"I don't want to go among mad people," Alice remarked.

"Oh, you can't help that," said the Cat: "We're all mad here. I'm mad. You're mad."

LEWIS CARROLL  
*Alice in Wonderland*

**A**LOOK to the future: The Western democracies have become audience societies, swaying to the rhythms of communication. Terrorism is theater; it is high drama. The actors are in the audience, improvising as they see new patterns, shifting tension from one corner to another, playing tricks with the lights. The audience is not sure who is in control, or who should be.

**B**ECAUSE MAN is aggressive, political structure has always been related to the ability to envelop a social group with protection. Protection in turn has depended on technologies, on the ethos in which the political structure rests, and on the alien impingements to which it is subject. Thus, in the ninth and tenth centuries in Europe, Viking raids forced or accelerated the introduction of the manorial system, with the adoption of the heavy moldboard plow allowing economic surpluses which were translated into expensive cadres of heavily armed cavalymen exploiting the new shock potential of the stirrup and lance.<sup>1</sup> This new form of political organization and protection, enforced by professional knights, gradually overpowered the raiders and pirates, who "soon lost their accustomed easy superiority. Their depredations consequently slackened and soon ceased."<sup>2</sup>

This manorial system lay the groundwork for secular forms of power which, in turn, undermined and eventually confronted the

intellectual and social umbrella of the Holy Roman Empire. The manorial system fell victim of its own local wars, and social allegiance lent itself to the greater power which could impose the wider *pax*, the state monarchies, which adopted authoritarian organization with a supreme head from Rome and professional "enforcers" from the baronies. The shadow of the castle became the shadow of the king. The sovereignty of the state

. . . is not an expression of anything universal or perennial in political experience or philosophy; it is a reflection of a particular phase of European history in which society escaped from an age of warring barons at the price of entering upon an age of warring States.<sup>3</sup>

This argument is oversimplified, but there is in history a visible pattern of political adjustment, shifts in governmental architecture and mood, in response to the ascendant form of violence. Such changes were slow, painful, and complex, fed by hundreds of tributary influences. The questions of protection and the power to protect, however often power was corrupted and turned back to gnaw on its own bowels, were central. Governments do change in character when threats to life and property are perceived as intolerable. Governments adjust to fill security gaps, or other forms of government are adopted. The changes previously noted were incremental, centuries in the making. The present potential for

violence and the exposure of violence are accelerating rapidly, while the ability to implement institutional change in government is snagged (not trapped) in political folklore. Change when it does come may have to be sudden and vigorous. In this dynamic context, it is the potential of terrorism that disturbs me, not only for the havoc it can wreak in advanced forms but for the institutional disruption it can evoke.

THE BASIC techniques of the contemporary terrorist are old. Hostages, random violence, and the murder of kings appeared as often in Greek literature as they have in twentieth century news. Russian history is laced with intrigue, subversive groups, bombs, knives, and poison. In the short period from 1894 to 1914 six Western heads of state were assassinated in the name of Anarchism.<sup>4</sup>

The American Navy was nurtured in the heat of anger and worry over extortion, looting, and the treatment of hostages by the Barbary pirates. Stories of cruelty, slavery in stone quarries, and a generally brutal life for American prisoners spurred both the payment of tribute and the construction of ships.<sup>5</sup> In a treaty signed in Algiers in 1795, the United States agreed to pay a lump sum of \$642,500 to Algiers, along with an annual tribute in naval stores equal to \$21,600, for release of the American captives held.<sup>6</sup> Such tribute, and similar arrangements negotiated with Tunis and Tripoli, continued until the United States could bring persuasive force to bear in the form of an effective fleet. The Barbary States exploited the short range of American power until it was extended.

In a sense, such exploitation is an ideal, if miniature, expression of Liddell Hart's strategy of the indirect approach. In principle, Barbary piracy differed little from what terrorist groups do today: employ in-

direct or offset violence to attain a response from the government responsible for the protection of its citizens. The response can be political, economic, or a more subtle recognition of stature through publicity. Similar techniques have been used successfully on a lesser scale and in a different context for years by organized crime.

Given its historical roots, what makes contemporary terrorism more threatening than its antecedents? Two trends are critical. One is the power of the individual terrorist or terrorist squad relative to the vulnerability of industrial and postindustrial societies. The second is the growing anonymity, fluidity, and dispersal open to the terrorist relative to the fixed patterns and visible apparatus of the state.

Terrorist power is based on a potential for violence and on a perception of that potential. Among others, Brian Jenkins of the Rand Corporation has pointed out that terrorists have only begun to exploit their technological opportunities, and they have limited their arsenals to conventional small arms or homemade devices.<sup>7</sup> The potential for use of more exotic and powerful weapons is great. Recent attention has focused on the development of a nuclear device or the scattering of nuclear waste. These are difficult but possible terrorist resources with great emotional potential. More immediately probable, however, is the use of chemical poisons; bacteria; or the new, small hand-held surface-to-air and surface-to-surface missiles. The U.S. Redeye, for example, weighs less than 30 pounds, is only four feet long, and can be used against low-flying aircraft. The Russian SA-7 ("Strela" or NATO designation "Grail") is similar. The French/German "Milan" is a small antitank weapon with semiautomatic guidance. It can be operated easily by one man. West Germany alone plans to purchase 1200 launchers and 50,000 such missiles. A Belgian firm has developed a lightweight, silent mortar spe-

cifically designed for the destruction of utilities, communications, and light structures. "The full field unit, which weighs only 22 pounds, includes the firing tube plus seven rounds. All seven rounds can be put in the air before the first round hits."<sup>8</sup> Tiny submachine guns, new grenade launchers, small explosive mines, and miniature detonating devices are all available today. The point that Mr. Jenkins makes clear is that after years of steady evolution in large weapons, we are now seeing a sudden revolution in very small weapons, made possible by the new technology of miniaturization.

The modern urban complex, on the other hand, is an intricate system of flow patterns. Disruption of electric power, sewage disposal, or water supply can have a prompt and severe nuisance effect, with great publicity impact and minimal ethical revulsion. Trucks and trains carrying volatile substances follow schedules and routes. There are, moreover, hundreds of thousands of fleeting human congregations which form, pause, and disperse in predictable ways as people assemble for transportation, entertainment, and business. The modern environment, in short, is rife with easy targets.

These are trends with great momentum. By the year 1990 individual violence will be still more powerful and flexible than it is today, while the society will be more technologically dependent, more intricate, more fragile and delicately balanced, like a sprawling castle of toothpicks.

It is no surprise to anyone who has thought about terrorism that the major political impact of its violence depends on exposure to an audience and that the media serve as a kind of political catalyst in transforming a small drop of action into a wide stain of effect. The visual imagery of violence shocks and plants seeds of anxiety which can grow to influence political orientation. The communication of violence in nonvisual form (newspaper, radio) has a

similar if less profound effect. The communications explosion has not exhausted its energy, particularly when viewed from a global perspective, and communications is still another area in which a simple projection of ongoing technological and cultural trends promises to facilitate terrorism as a political technique. Trauma can be sustained across great gaps in reality if the terrorist uses imagination in his timing, concentration of effort, and target selection. His dominant principle of war is always surprise.

Studies of terrorist activity often contend that denial of publicity to the terrorist amounts to cutting him off at the root. Such denial is a response option. It is also a very difficult response option, with obvious problems of basic freedoms as they are defined in American political mythology; problems of conflict with media interests; and, most significant, problems with the enormously powerful demand for information. People who are nervous about terrorism do not want to be cut off from information. They want to be informed for a variety of reasons: to prepare themselves, to entertain themselves, to relish their own good luck.

In an exchange of violence with terrorists, the problem of the state is far more difficult. It has to play a reactive role. It has to apply force which is certain, precise, and delicate. It can bring great resources to bear, but first it has to find the face in the crowd.

THE SECOND major trend advantage the terrorist holds over the status quo authorities is his anonymity versus their identity. The terrorist is fluid, ghostly, unpredictable. The government and its society are structured, scheduled, sprinkled with purposeful and persistent highlights. When faced with a targeting decision, the terrorist has an embarrassment of riches,

the government an embarrassment of near-blindness. It has to grope before it can act, like Polyphemus in the cave. When the Barbary States harassed American ships, the government was able to develop appropriate forces and bring them to bear in a relatively straightforward way. It took time, but the situation was in focus in a crude geographic sense.

Today's terrorist groups can command their own profile. They are mobile and dispersed. They can choose, claim, deny, and replace identities from day to day. They can achieve shock thresholds with varying symbolic impact by targeting numbers (a full jumbo aircraft), celebrity (presidents, ambassadors), or sentiment (children). Complex societies, on the other hand, tend more and more to manage by exception. When exception is purposeful but drifting, when it picks its own place and time, the management process breaks down. The potential of terrorism, then, threatens not only the political orientation of the democratic state but the bureaucratic orientation as well.

The question of focus is further complicated by the international system, in which the executive machinery and legal vapors are shaped to expedite the bilateral interface of governments. Terrorist groups are multinational, or can be, in the sense that their centers of interest and gravity move in a geographic plane which has only loose anchors in any single state. Interaction or negotiation with terrorist groups has to pass through state governments, sometimes a number of state governments. While international agreement can facilitate both violent and nonviolent approaches to terrorist groups, the problem for any single state is not simple. Palestine Liberation Organization (PLO) elements in Lebanon are the most obvious current example of a powerful and violent group in, but not of, a friendly government. The challenge to the status quo powers troubled by exter-

nally based terrorism is one of exorcism, driving out the demon without battering the body.

As society grows more complex, it will be more dependent on planning, structured activity, and repetition. The computer is an appropriate symbol for the modern state's administrative apparatus. In this matrix of linear modes and memory circuits, the seeding of disruptive violence will become simpler. At the same time, the individual pursuit of obscurity will become simpler. The Patty Hearst case was a convincing demonstration.

I AM NOT anxious to ring alarm bells, but I am interested in elevating concern. Terrorism is lurid, and we tend to dwell on its individual cases, its statistical curves, its motivation, and its logic rather than its long-term institutional impact. The thought process behind the PLO's murder of Olympic athletes in Munich concerns me less than an extrapolation of technocratic trends and the role terrorism *could* play in, or against, future Western societies.

This is usually considered a police rather than a military problem. Perhaps it is. I can, however, foresee a threshold of violence at which terrorism could become a national problem of such intensity that it would obviate police and military lines of differentiation. The Air Force or National Guard, for example, with rapidly growing electronic sophistication, flexible systems, and unique freedom of movement, could well become a key player in both antiterrorist surveillance and still undefined methods of terrorist suppression. In far-flung, unpredictable episodes of violence, only aerial platforms and systems have the inherent potential to be persistently responsive, however the response is defined.

The world's economic future is troubling. American interests are already widespread

and will spread further. Demographic pressures alone are likely to produce groups attracted to international terrorism by ideology or money. Extranational groups will continue to accrue money and money's power. Sources of violence hostile to the state will be more abundant and more threatening in the future. The dream of attack on order itself rather than on boundaries is an old one. Its moment has not arrived, but in the slow turn of the kaleidoscope I sense an imminent shift in which an old pattern of violence versus the established state will be both logical and radically dangerous in a new way.

Resistance to this violence may take controls and restrictions to privacy that are anathema to the freedoms Americans have come to relish most. There is today a great American re-emphasis on traditional freedoms versus the eyes and fingers of the state. This is an appealing development, and I applaud it—but with a slightly sinking feeling at the end of the applause. Freedoms, sadly, can become too pure for their time, and I cannot help recalling the penetrating lines from Beckett's novel *Murphy*,

Here there was nothing but commotion and the pure forms of commotion. Here he was not free, but a mote in the dark of absolute freedom. . . .<sup>9</sup>

Nothing so extreme is on any horizon, but when I look at the promise of the years ahead, I am forced to ask questions about the terrorist and his potential. Can the state as we know it control him? Can it continue to exercise true sovereignty as the individual microcosm gains power, turns ghostly? Will extranational allegiances introduce a kind of sovereignty without territory? Will extortion, traditionally one of the most personal of crimes, become a form of war with political rather than economic ends? I come back from these questions troubled.

If the citizenry of a state perceives itself as insecure at the basic physical level, some recourse will be in order. When society senses a slow clipping of the ordered threads that make up its fabric, how will it react? We may approach a form of sociogovernmental interface that could be called a Survival State, with a character that would belie the plural and polymorphous impulse we now enjoy and celebrate.

Terrorism, in other words, is a complex threat that has the potential to introduce a dangerous ebb and flow into the ethical, financial, and institutional support for the state. Too mild a concern now may demand later reactions and discipline that will be all the more traumatic. We live with a major external security threat focused on the Soviet Union. We have a new sense of economic threat focused on the Middle East. We should be equally concerned about a more subtle, diffuse threat, now best exemplified in Argentina, where violence, private protection, and martial law have been advancing hand in hand.

Terrorism is cheap. It amounts to affordable war, and it seems to work. If the future more-powerful and elusive terrorist can undermine the protective influence of the state at home and abroad and can infuse the ultimate relationship between government and the individual with growing tensions, what climax will result? What moods will rise and fall, and what institutions will be carried with them? Where will loyalties focus? What system will result?

In his excellent book *Swords and Symbols: The Technique of Sovereignty*, James Marshall asks:

If the legal sanctions, the weapons, available to the sovereign are inadequate to enforce the law, then what becomes of the sovereign "supreme" or "absolute"? He either undertakes a losing fight or remains quiescently limited.<sup>10</sup>

Marshall goes on to cite the case of York in

Shakespeare's *Richard II*. York went to Bolingbroke to protest the latter's rebellion against the realm, but seeing his enemy's strength and understanding his own weakness, York delivered these lines:

. . . if I could, by him that gave me life,  
I would attach you all and make you stoop  
Unto the sovereign mercy of the King;  
But since I cannot, be it known to you  
I do remain as neuter.

Act II, scene iii.

*Hq United States Air Force*

Notes

1. William H. McNeill, *The Rise of the West: A History of the Human Community* (New York: New American Library, 1963), pp. 497-500.

2. *Ibid.*, p. 499.

3. Arthur Larson, C. Wilfred Jenks, and others, *Sovereignty within the Law* (Dobbs Ferry, New York: Oceana Publications, 1965), p. 28.

4. Barbara W. Tuchman, *The Proud Tower: A Portrait of the World before the War, 1890-1914* (New York: Bantam Books, 1966), p. 72. The heads of state assassinated were President Carnot of France in 1894, Premier Cánovas of Spain in 1897, Empress Elizabeth of Austria in 1898, King Humbert of Italy in 1900, President McKinley of the United States in 1901, and Premier Canalejas of Spain in 1912.

5. Glenn Tucker, *Down Like Thunder: The Barbary Wars and the Birth of the U.S. Navy* (Indianapolis: Bobbs-Merrill Company, 1963), pp. 67-69.

6. *Ibid.*, p. 95.

7. Brian Michael Jenkins, *High Technology Terrorism and Surrogate War: The Impact of New Technology on Low-Level Violence*, Project Rand Report # P-5339 (Santa Monica, The Rand Corporation, 1975), pp. 12-15. The summary of weapons' capabilities owes much to Mr. Jenkins's study, and the thrust of this article echoes some of his themes. For another excellent analysis of contemporary terrorism, see Brian Jenkins, "International Terrorism: A Balance Sheet," *Surreal*, vol. XVII, no. 4, July/August 1975.

8. *Ibid.*, p. 14.

9. Samuel Beckett, *Murphy* (New York: Grove Press, 1957), p. 112.

10. James Marshall, *Swords and Symbols: The Technique of Sovereignty* (New York: Funk & Wagnalls, 1969), p. 7.

Terrorism creates tremendous noise. It will continue to cause destruction and the loss of human life. It will always attract much publicity but, politically, it tends to be ineffective. Compared with other dangers threatening mankind, it is almost irrelevant.

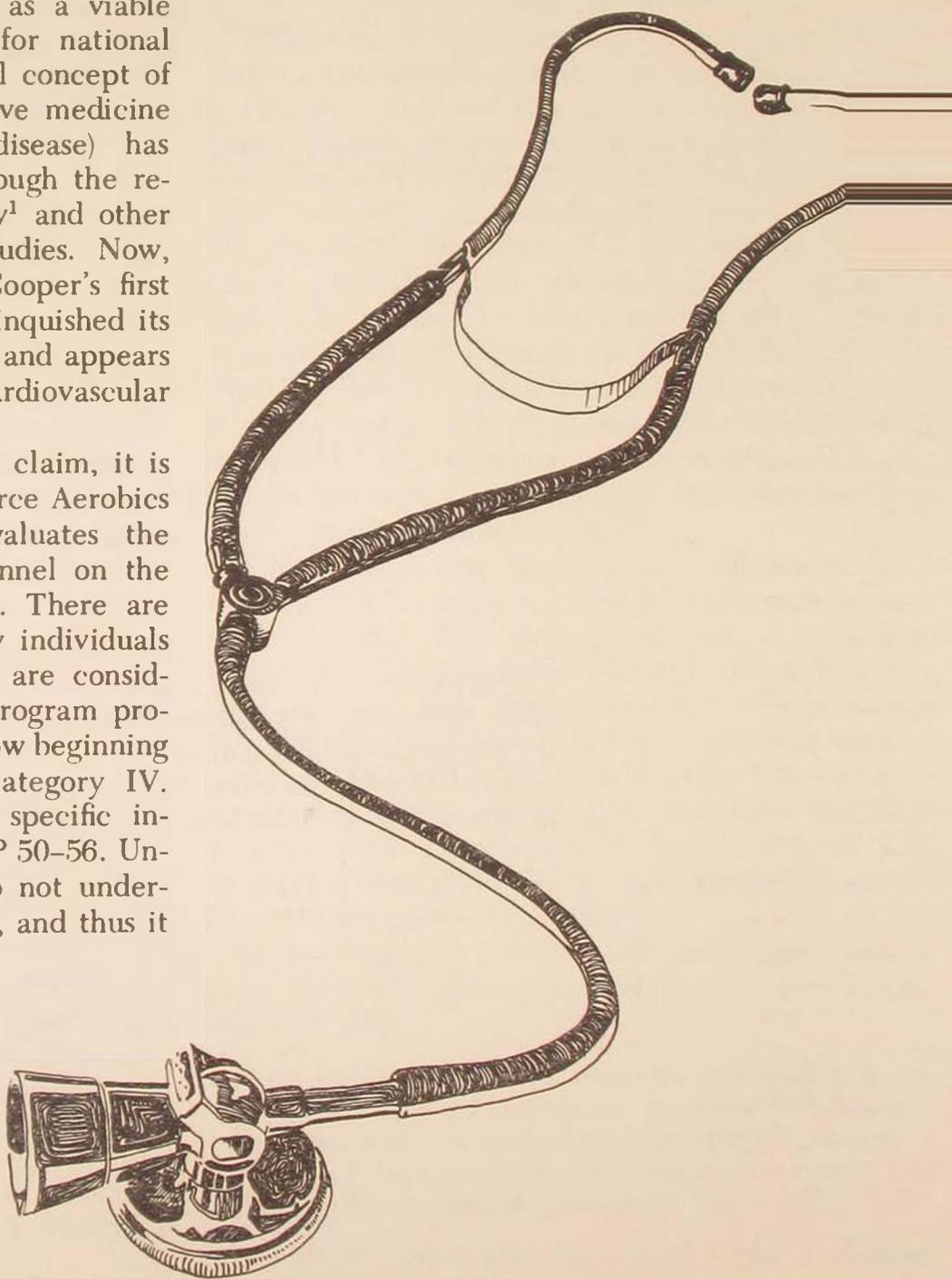
WALTER LAQUEUR  
*Harper's Magazine*

# AEROBICS REVISITED AND RENEWED

MAJOR BRUCE S. HARGER

IN the mid-sixties Dr. Kenneth Cooper and his aerobics program thrust the Air Force into the national limelight as a leader in the burgeoning field of cardiovascular fitness. The ensuing years have seen national interest and participation increase by almost logarithmical proportions. Quite naturally, the Air Force has continually been mentioned in this growth, since, in fact, its acceptance of aerobic fitness as a viable option helped set the stage for national enthusiasm. Likewise, the total concept of exercise as a form of preventive medicine (in limiting cardiovascular disease) has gained favorable exposure through the results of the Framingham Study<sup>1</sup> and other competent epidemiological studies. Now, almost ten years since Dr. Cooper's first article,<sup>2</sup> the Air Force has relinquished its prominent position in the field and appears to have fallen far behind in cardiovascular fitness administration.

In order to substantiate this claim, it is necessary to review the Air Force Aerobics Program, which annually evaluates the physical fitness of male personnel on the basis of a mile-and-a-half run. There are five fitness categories, but only individuals achieving Categories IV or V are considered to be conditioned. The program provides detailed charts, which allow beginning participants to progress to Category IV. Introductory information and specific instructions are contained in AFP 50-56. Unfortunately, most personnel do not understand the real basis of aerobics, and thus it



has been treated as an end, a test, a square to be filled. In reality it is only a means of achieving an end: cardiovascular fitness.

Aerobic or cardiovascular fitness can be measured very precisely in the laboratory. This measurement, maximal oxygen consumption, is considered to be a valuable clinical index of cardiovascular function.<sup>3</sup> However, this lengthy procedure is prohibitive in large groups, and therefore a field test (aerobics) was devised that makes it possible to estimate the laboratory results. Dr. Cooper's experimental data showed a strong relationship between running time and maximal oxygen consumption ( $r = 0.88$ ), and thus the aerobics test was developed to enable individuals to assess their own cardiovascular fitness level.<sup>4</sup> In summary, the aerobics program aspects of progressive conditioning, exercise points, and testing levels are all based on the physiological measurement of maximal oxygen consumption, a recognized clinical means of assessing cardiovascular sufficiency.

WITH this preview to understanding aerobics, let us analyze what I consider to be the Air Force's problem. The program can be considered suspect in three specific administrative areas. First, and certainly the most dismaying aspect for professionally concerned observers, is the designation of Category II as a "passing" level of physical fitness. Several cross-sectional studies<sup>5</sup> have shown an oxygen consumption of 42 ml/kg-min to be representative of a fair-to-good fitness level; however, Category II, as defined by Dr. Cooper, correlates to an oxygen uptake level of nearer 28 ml/kg-min; ml/kg-min is an abbreviation for milliliters of oxygen consumed for each kilogram of body weight per minute. The value of 28 ml/kg-min is poor by any standard, and any program that uses it as an index of satisfactory fitness is

subject to real concern. In fact, many coronary-prevention programs would consider individuals at this level to be high risks and would place them in closely supervised classes.

Similarly disconcerting is the nature of the regulation (AFR 50-49) covering aerobics participation. The program gives too much control to the unit commander, thus limiting chances for a cohesive Air Force-wide program. Actually, the problem area of control is fundamental to my proposal for aerobics revision and will be discussed more thoroughly later.

Finally, sound educational material dealing with "why" aerobics instead of "how" aerobics has been missing. Aerobics presented a new fitness emphasis that needed explanation and validation. However, only the format was stressed by Air Force leaders, and the concept of aerobics as a form of preventive medicine deserved more attention than it received.

Conversely, the fitness boom (cardiovascular fitness) which the nation has experienced since the mid-sixties has benefited from mass media exposure and extensive educational programs within many facets of the private sector. The business world accepted leadership in the fitness arena and moved forward with great strides. An article in *Nation's Business* stated that more than 50,000 companies have developed physical fitness facilities, and some 300 of them have full-time directors.<sup>6</sup> Why? Because business understands hard facts like ". . . premature deaths of young executives due to heart disease are estimated to cost American business \$2.5 billion a year."<sup>7</sup> *Dun's Review* reports that this emphasis is well controlled:

Some companies—Mobil Oil, American Can, and Jersey Standard to name a few—have in-house programs which include medical examinations and follow-up diet and exercise plans. A number of companies are sending

their employees to outside institutes or clinics.<sup>8</sup>

New York Life is cited as a good example of careful exercise monitoring. Here every employee is given a coronary profile annually, including an exercise electrocardiogram (ECG), to determine if his or her heart is capable of handling a normal activity plan. *Fortune* also highlights some very successful programs thriving in several large corporations.<sup>9</sup>

Dr. Alexander Rush, of the Benjamin Franklin Clinic in Philadelphia, comments that, "Clinics catering to businessmen have been swamped with a surge of examinations in the past two years."<sup>10</sup> *Business Week* carried an article listing top clinics catering to businessmen.<sup>11</sup> An article in *Government Executive* points up the lack of governmental agency interest in fitness even though the efforts of one sister group (the President's Council on Physical Fitness and Sports) have successfully assisted businesses in developing group activity programs.<sup>12</sup>

As was expected, the rapid escalation of interest in exercise has brought forth critics and skeptics. Although many skeptics have been convinced, a more important outcome has been the number of improvements and controls fostered by valid criticism. Perhaps most important has been the demand for a thorough medical exam, including an exercise stress test, prior to beginning an activity program. The American College of Sports Medicine believes these tests should be required for any person over age 35. The College feels so strongly about the importance of proper screening prior to beginning an exercise program that it has published a book containing guidelines for exercise testing and prescription.<sup>13</sup> The *Reader's Digest* published an article<sup>14</sup> in which several prominent cardiologists advocated the use of stress testing in predicting future heart problems. The article emphasized that stress testing not only

helps predict problems but helps control or minimize them. Dr. Sam Fox, past president of the American College of Cardiology, states, "The evidence is very strong that exercise stress testing is a powerful predictor of future coronary disease."<sup>15</sup>

As shown earlier, industry has attempted to insure the best medical safety for its programs. The country has witnessed a concomitant interest in exercise stress testing. Ironically, a recent publication highlighting fatalities related to jogging admitted that exercise stress testing might have prevented those deaths.<sup>16</sup> Dr. Loring Brock, director of a cardiac rehabilitation center in Denver, states that stress testing is "probably the most dependable predictor of the potential heart attack of all tests we have available to us."<sup>17</sup> In summary, the nation's response to emphasis on cardiovascular fitness has brought about a profitable merger of medical personnel, professional researchers, and the business world.

Unfortunately, the Air Force has neglected to cultivate this relationship. Additionally, aerobics has slowly eroded into another annual requirement. I would suggest that the reason for this declining interest is more a subtle case of misplaced emphasis than a matter of inadequate administration.

THE lesson to be learned from successful programs in the business community is that medical supervision and interest must be closely tied to cardiovascular fitness programs. The remainder of this article will be dedicated to applying this lesson to the Air Force environment. Its thrust will be to show why control of the Air Force Aerobics Program should be shifted from the unit commander to the Office of the Air Force Surgeon General. This management change would provide improvements in *testing, monitoring, and education*. These three areas of concern

are not without their present problems.

Perhaps testing is the most maligned aspect of the current aerobics program. One major criticism is the danger of testing personnel without proper medical screening or on-site medical supervision. This disagreement with Air Force testing procedures is not simply a complaint from the ranks but was also voiced by Dr. Herman K. Hellerstein at a national conference on exercise and heart disease.<sup>18</sup>

A second criticism of testing is the unrealistic passing level of Category II. Dr. Cooper's original plan delineated Category IV as a desired minimum-fitness level (a level in consonance with several other sets of norms), but the present acceptable level, as previously shown, is far below the desired minimum and therefore is meaningless as a fitness standard. For example, it seems implausible that any 35-year-old man running a mile and a half in 17 minutes and 30 seconds could really believe himself to be physically fit.

Quite naturally, the problems in monitoring are related to the ones in testing. All personnel testing Category II or III are considered fit, and thus their susceptibility to coronary heart disease does not receive the attention it deserves. Or, more precisely, the aerobics screening tool is not being used to advantage in searching for prospective heart attack victims. Finally, as mentioned earlier, educational programs designed to include cardiovascular fitness (aerobic fitness) in the total health picture have not been developed. Such education must come from a source the majority of individuals consider knowledgeable and reliable.

Medical control of aerobics would certainly not constitute an instant panacea, but it could go a long way toward solving some of these problems. Ancillary to this in-house improvement would be the opportunity to return to a position of leadership and innovation in this national concern.

*Testing.* Specifically, Surgeon General control could improve the testing problem in two related ways. First, medical adequacy of the program could be facilitated by having medical specialists present at all testing centers. These supervisory personnel, whether medics or not, should be trained to recognize symptoms of undue stress in individuals taking the test. Next, control by the Surgeon General's office should facilitate raising the passing standard to the more realistic Category IV. Support for this standard could be advanced by the improved educational program.

*Monitoring.* These changes in testing actually set the stage for the more important reason for Surgeon General control, the monitoring of specific individuals. Monitoring of cardiovascular fitness involves close evaluation of the physiological responses of individuals who exhibit substandard capability. Two progressive methods of accomplishing this type of monitoring are increased exercise stress testing and the development of coronary profiles. Let us look at each of these methods in more detail.

In an earlier discussion of exercise stress testing, it was established that this approach provides an excellent safety check and evaluation mechanism for the field of cardiovascular fitness testing. Although it is not feasible to use this test on all military personnel, exercise testing should be more widely used within the Air Force. A combination of the following two factors could be used to determine its increased use: one, if an individual had over ten years' service or was beyond age 35; two, if his medically supervised aerobics test showed Category III or lower.

The age/length-of-service requirement is important in that it places a cost-effectiveness control into the program. Essentially, it does this by predicting coronary problems in personnel who have indicated that they will be in the Air Force during the

high-coronary-risk period and upper-level-management years. Thus, the proposal developed here would read: All personnel over age 35 or with more than ten years' service who score Category III or lower on their annual aerobics test will be required to complete a maximal exercise test.

Immediate questions might include: What is the cost to develop this capability? can we get enough medical personnel? and why a maximal test? Each question deserves a lengthy response, which cannot be included within the purview of this article. However, a short reply is provided to indicate that the problems have been considered.

The cost of developing a maximal exercise testing capability should not be great since portable bicycle ergometers are available for approximately \$500. Many military hospitals already have the preferable motor-driven treadmill. The remaining required medical equipment is routinely used in administering annual physicals.

Availability of medical personnel is obviously a problem in the military today, but specialized training could alleviate this situation. The American College of Sports Medicine guidelines mentioned earlier outline specific procedures for using allied medical professions in combination with physicians to increase the availability of safe exercise stress testing. Although this would assist in collecting data, the problem of providing cardiologists to interpret the results must be considered.

One approach to utilizing available cardiologists effectively would be to develop a centralized ECG computer center similar to that of the Seattle Heart Watch Program.<sup>19</sup> This group emphasizes the need for exercise testing for early detection of coronary artery disease and has established a network of 15 test centers which are "all linked by dataphones to a computer for analysis of electrocardiographic responses

to maximal exercise . . ." <sup>20</sup> Program leaders believe this project proves the feasibility of developing a working network of exercise test centers tied to a centralized computer. Expansion of this concept by the Air Force would allow a central agency to read all electrocardiograms, thus limiting the number of specialists required at base level. However, proper methods of counseling and exercise prescription would have to be developed congruent with the centralized computer concept.

Dr. Victor Froelicher and associates from the Clinical Sciences Division, USAF School of Aerospace Medicine at Brooks Air Force Base, have demonstrated a tremendous interest and capability in the detection of latent coronary artery disease through exercise testing. A recent report completed for NATO summarizes their work in this area.<sup>21</sup> In discussing computer analysis of electrocardiograms, they conclude, "The present study demonstrates both the feasibility and the desirability of automated analysis of the electrocardiographic response to exercise testing."<sup>22</sup> Thus, it is evident that the capability for centralized analysis of exercise ECG's is already present in the Air Force Aerospace Medical Division. Development of this centralized processing concept is certainly an area where the Air Force could show innovation and provide national leadership in an emerging aspect of group health care.

The third question is why do we need a maximal exercise test? Maximal exercise tests are presently preferred over the easier submaximal tests because of their ability to show a significantly greater number of cardiac arrhythmias; Dr. Froelicher and his associates also dealt with this aspect of exercise testing.<sup>23</sup> Thus, the capability is already present in the Aerospace Medical Division to investigate which type of stress test would best suit Air Force needs.

The second major proposal within the

concept of medical monitoring is the development of a coronary profile. This profile would include the major coronary heart disease factors of cholesterol levels, percent body fat, and smoking habits, as well as a fitness level and other medical inputs. The profile would become part of an individual's record and could be used in evaluating that person's chances of providing high-quality service in the crucial supervisory or management portions of his or her career. It seems logical that a coronary profile would be a reliable tool in helping provide a high-quality force.

*Education.* Medical supervision and monitoring of aerobics, like any large program change, would require preliminary and follow-on education. However, the mere placement of cardiovascular fitness in the medical environment establishes an inherent credibility base not presently enjoyed. This advantage should be maximized in overcoming present biases against the program. The role of exercise in preventive medicine must be stressed, not separately but entwined with other factors of coronary heart disease. Doctors W. V. R. Vieweg and

D. A. Lee have written an excellent article in the Naval Institute *Proceedings* emphasizing the necessity for increased military education regarding heart disease,<sup>24</sup> and more such articles should be appearing in military and professional journals.

Despite the value of publications of this type, the emphasis must be more personal and far reaching. This approach could include briefing teams, pamphlets, movies, and seminars. The role of exercise in preventive medicine should be discussed at intermediate and senior staff schools as well as at noncommissioned officer academies. The media should approach aerobics from its physiological base and as a major contribution to prevention of coronary heart disease.

IN CONCLUSION, it is my opinion that placing the aerobics program under the Air Force Surgeon General, with the suggested improvements, will greatly enhance the contributions of this program to the Air Force community.

*Armed Forces Staff College*

#### Notes

1. Frank Vitale, *Individualized Fitness Programs* (Englewood Cliffs, New Jersey: Prentice-Hall, 1973), p. 4.
2. Kenneth Cooper, "Flying Status Insurance," *Aerospace Safety*, March 1966, pp. 8-10.
3. Jere Mitchell and Gunnar Blomquist, "Maximal Oxygen Uptake," *New England Journal of Medicine*, May 6, 1971, pp. 1018-22.
4. Kenneth Cooper, "A Means of Assessing Maximal Oxygen Intake," *Journal of the American Medical Association*, April 1968, pp. 134-38. (Hereafter referred to as Cooper, "A Means.")
5. Bruno Balke and Ray Ware, "An Experimental Study of Air Force Personnel," *U.S. Armed Forces Medical Journal*, 1959, pp. 675-88; Edward Fox, et al., "Fitness Standards for Male College Students," *Internationale Zeitschrift für angewandte Physiologie einschliesslich Arbeitsphysiologie* (Berlin), 1973, pp. 231-36, Cooper, "A Means."
6. "Staying Trim, Productive . . . and Alive," *Nation's Business*, December 1974, pp. 28-28.
7. *Ibid.*, p. 28.
8. Susan Margetts, "Executives and Heart Attacks," *Dun's Review*, October 1972, p. 95.
9. "Keeping Fit in the Company Gym," *Fortune*, October 1975, pp. 136-43.
10. "The New Rx for Better Health," *Business Week*, January 5, 1974, pp. 69-71.
11. *Ibid.*
12. John Judge, "Business Moves . . . Government Lags," *Government*

*Executive*, April 1974, pp. 32-33, 36.

13. American College of Sports Medicine, *Guidelines for Graded Exercise Testing and Exercise Prescription* (Philadelphia: Lea & Febiger, 1975), p. 7.

14. Arlene and Howard Eisenberg, "The Heart Test That Could Save Your Life," *Reader's Digest*, September 1974, pp. 115-17.

15. *Ibid.*, p. 116.

16. Parker Hodges, "Joggers Get Physically Fit for a Fatal Coronary," *Moneysworth*, April 18, 1975, p. 21.

17. Eisenberg, p. 117.

18. Herman K. Hellerstein, "Techniques of Exercise Prescription and Evaluation," *Journal of the South Carolina Medical Association*, December 1969, pp. 46-56.

19. Robert A. Bruce, et al., "Seattle Heart Watch: Initial Clinical, Circulatory and Electrocardiographic Responses to Maximal Exercise," *American Journal of Cardiology*, April 1974, pp. 459-69.

20. *Ibid.*, p. 467.

21. Victor Froelicher, et al., "Treadmill Exercise Testing at the USAF School of Aerospace Medicine: Physiological Responses in Aircrewmen and the Detection of Latent Coronary Artery Disease," North Atlantic Treaty Organization, AGARDograph No. 210, 1975.

22. *Ibid.*, p. 35.

23. *Ibid.*, pp. 4-10.

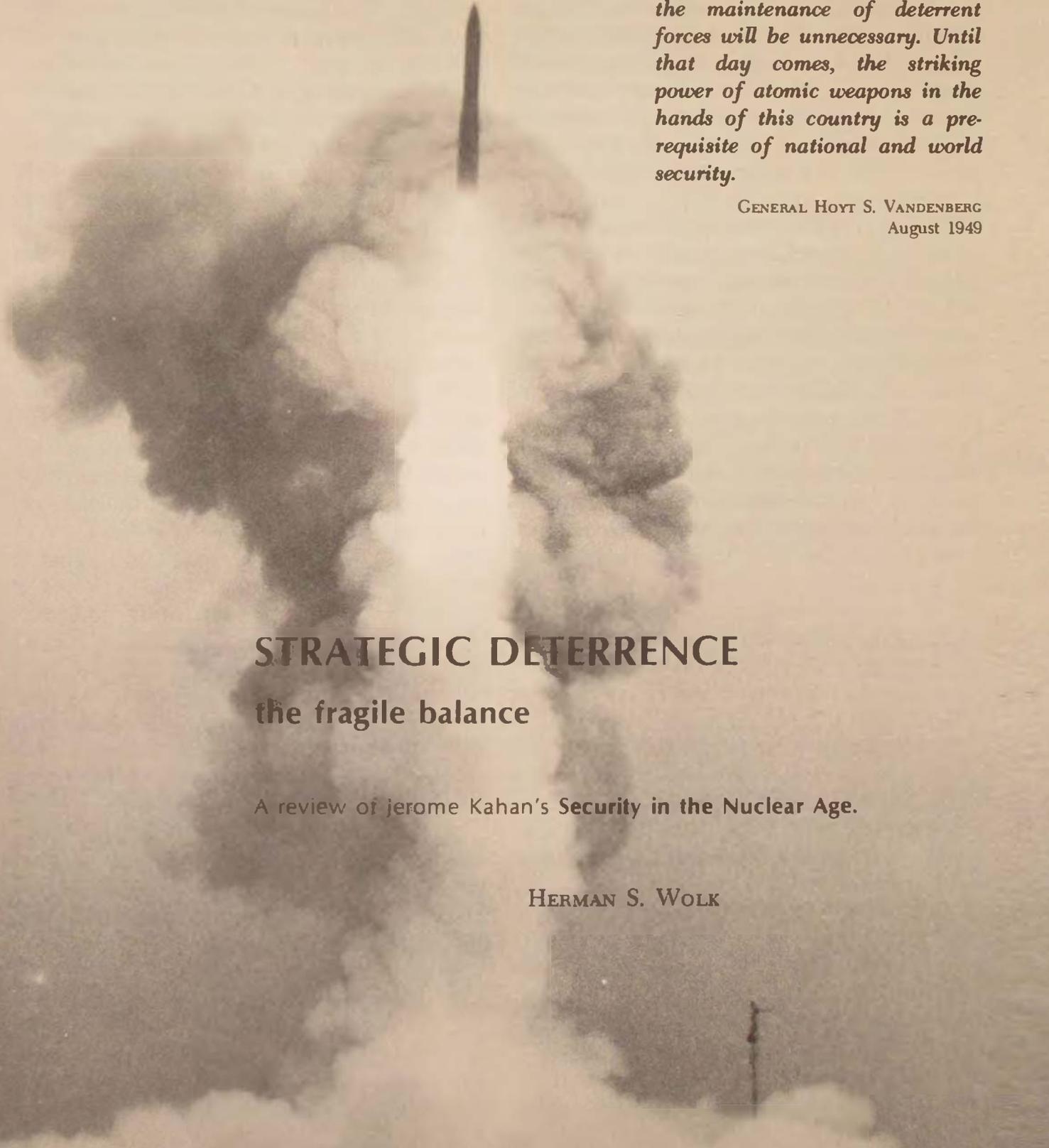
24. W. V. R. Vieweg and D. A. Lee, "CHD—The Heart of Military Readiness," *U.S. Naval Institute Proceedings*, June 1973, pp. 49-55.



**books  
and  
ideas**

*. . . the only war a nation can really win is the one that never starts. When reason, good will, and the accommodation of competing national interests give assurance of keeping the peace, the maintenance of deterrent forces will be unnecessary. Until that day comes, the striking power of atomic weapons in the hands of this country is a prerequisite of national and world security.*

GENERAL HOYT S. VANDENBERG  
August 1949



**STRATEGIC DETERRENCE**  
the fragile balance

A review of Jerome Kahan's **Security in the Nuclear Age**.

HERMAN S. WOLK

THE timing of the publication of Jerome Kahan's book *Security in the Nuclear Age*† could hardly have been better. Now that the United States is involved in strategic arms negotiations with the Soviet Union and the Russians are in the process of another strategic arms buildup, there is desperate need for a sound historical consideration of strategic weapons competition. Kahan provides this and his own recommendations for American arms policy.

The first part ("Historical Perspectives") of the book provides a needed corrective to much nonsense that has been published over the years by self-styled "experts." As one who participated in several "great debates" on strategic weapons, I find that this section of Kahan's book is one of the best comprehensive discussions of the subject in many years.<sup>1</sup> It will be recalled that among the first significant books to generate a prolonged strategic dialogue were W. W. Kaufmann (editor), *Military Policy and National Security* (1956); Henry Kissinger, *Nuclear Weapons and Foreign Policy* (1957) and *The Necessity for Choice* (1960); Bernard Brodie, *Strategy in the Missile Age* (1959); Herman Kahn, *On Thermo-nuclear War* (1960); Thomas C. Schelling, *The Strategy of Conflict* (1960); and Oskar Morgenstern, *The Problem of National Defense* (1961).<sup>2</sup> A torrent of books, articles, and discussion ensued, but these works charted the path that so many others were to follow.

Kahan begins after World War II, during the few years of America's atomic monopoly, when the U.S. atomic delivery capability was very limited. In August 1949 the Soviet Union broke the American

monopoly. For the United States, this was a traumatic experience that many people thought would not happen for at least several more years. Yet, despite this event—General Curtis E. LeMay, SAC Commander, said it was equal in urgency to the start of World War II—there was little strategic movement in the Truman administration and no immediate increase in the military budget, a situation that figured prominently in Secretary of the Air Force Stuart Symington's decision to resign. Even promulgation of NSC-68 in April 1950, calling for a substantial defense buildup, failed to budge the administration. It took the outbreak of the Korean War in June 1950, and subsequently the Red Chinese intervention, to shake the United States out of its lethargy. One result was a \$50 billion defense budget.

Another consequence of Korea was President Dwight D. Eisenhower's determination to place more reliance on nuclear forces. Eisenhower was determined to end the war in Korea—having made it a campaign issue in 1952—and in May 1953 he had directed Secretary of State John Foster Dulles to inform the Red Chinese (through Indian diplomats in New Delhi) that to continue the war would be to risk America's taking the war to the Chinese mainland, perhaps including atomic attack. In late July 1953 the war ended. Kahan correctly infers that Eisenhower's goal of achieving "security with solvency" was not new; the idea of "maximum safety at minimum cost" had been articulated before, notably by President Truman and Secretary of Defense James V. Forrestal. Moreover, Eisenhower's view of the Soviet threat was similar to Truman's

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† Jerome Kahan, *Security in the Nuclear Age: Developing U.S. Strategic Arms Policy* (Washington, D.C.: The Brookings Institution, 1975, \$5.50, paper), 361 pages.

—Soviet power was much to be feared. The Eisenhower administration's defense policy would emphasize the strategic nuclear deterrent (an idea early and forcefully advocated by George M. Humphrey, Eisenhower's influential Secretary of the Treasury) and also tactical nuclear weapons.<sup>3</sup>

Though early formation of an American-Soviet adversary relationship clearly can be traced to the Truman years, Kahan notes that the major lines of weapons competition were formed during the Eisenhower administration. The 1950s marked the U.S. buildup in long-range bombers, development of ICBM's, and the Polaris submarine. Also, at the end of the decade the Joint Strategic Target Planning Staff (JSTPS) was created at Strategic Air Command Headquarters, integrating all U.S. strategic weapons in a common targeting plan. Secretary of Defense Thomas S. Gates termed his decision to establish the JSTPS the most important he had made as Defense Secretary. This view was perhaps correct since the decision had been forced by the development and operation of the Polaris and came after a long period of friction between the Navy and Air Force over control of strategic targeting.

Kahan's opinion that New Look strategic programs "had many provocative and destabilizing effects that clouded the international political climate, increased the risk of nuclear war, and contributed to subsequent Soviet efforts to redress the nuclear balance" (p. 73) is a judgmental view that in specifics can neither be proved nor disproved. My own view is that whether Eisenhower had become President or not, whether there was a New Look or not, American technology would have developed long-range bombers and ICBM's; development, of course, had started during the Truman administration, and a speculative case can be made that had events been

different and had Truman remained as President, a policy similar to the New Look would have evolved. Moreover, the Soviets had started an atomic program long before the New Look. They tested an atomic device in August 1949 and made a hydrogen test in August 1953. Their bomber and missile programs were primarily conceived and developed independently of decisions made by U.S. administrations. The point is that for too long some have assumed an influence for U.S. defense policy on Soviet programs that is probably vastly overemphasized and, moreover, unknown as to specifics.

A conviction that American defense officials—by a combination of weapons restraint and various strategy signals—might be able to influence Soviet defense programs was honed with mixed results by the Kennedy-McNamara administration. As Kahan observes, the Kennedy and Johnson administrations "sought to diminish the political importance of nuclear power and the military utility of nuclear force." (p. 77) However, at the same time, Kahan emphasizes the "paradoxes" that Kennedy initiated an ICBM buildup and the Johnson administration procured MIRV's.

Evidence is abundant, Kahan infers, that Kennedy-McNamara came to power determined publicly to downgrade the utility of nuclear weapons—as Kennedy said, to put "the nuclear genie back in the bottle." In order to demonstrate this policy, conventional weapons would be emphasized. However, nasty things have a way of happening. In October–November 1962, President Kennedy was faced with the Cuban missile crisis. Commentators and historians are doomed forever to discuss whether U.S. conventional or nuclear power tipped the scales to the American advantage and thus persuaded Khrushchev to remove the missiles from Cuba. Kahan comes down toward the middle, noting

that conventional and nuclear strength complemented each other. Nonetheless, he appropriately quotes McNamara that "Khrushchev knew . . . that he faced the full military power of the United States, including its nuclear weapons. . . . that is the reason, and the only reason, why he withdrew those weapons." And Kennedy himself warned the Soviet Premier that a missile fired from Cuba at the United States would call for "a full retaliatory response" against the Soviet Union. This made Khrushchev uncomfortable.

The Kennedy-McNamara resolve to demonstrate utility of conventional power to the Communists ran aground in Vietnam. Encouraged among others by General Maxwell Taylor (the only Chief of Staff to retire, then be appointed a Presidential advisor, and subsequently Chairman of the Joint Chiefs of Staff), Kennedy and McNamara wanted to use Vietnam as an example of how to defeat Communist insurgency. In so doing, the Kennedy administration underestimated the determination and capability of the North Vietnamese and Viet Cong. Within the restraints of its own policy, it overestimated the ability of U.S. forces to influence the conflict. The result was disastrous.

President Nixon came to power determined gradually to phase out American forces in Vietnam and to enter SALT negotiations carefully, first making a comprehensive review of national security policy. For the Nixon administration, potential strategic arms accords were tied to the President's resolve to move "from an era of confrontation to one of negotiation." The Moscow and Vladivostok accords as well as the "opening" to China must be seen in this general framework.

On January 27, 1969, at his first press conference, Nixon announced his policy of strategic "sufficiency." In historical context, it recalled the doctrine of sufficiency

explained in August 1956 by Secretary of the Air Force Donald Quarles. His exposition ("we must make a determination of sufficiency") publicly marked the start of change by the Eisenhower administration away from so-called superiority towards sufficiency, induced primarily by insistent pressure for increased economy within the administration itself. Superiority, Quarles stated, could not guarantee immunity from nuclear attack. The important thing was the American ability to launch a retaliatory strike against the U.S.S.R. By the late 1950s assured destruction was already on the way to becoming the linchpin of U.S. nuclear strategy. Interestingly, despite the desire and attempt of succeeding administrations to frame "new" defense policies, a study of the record indicates substantial legacy from one to the next.

Considering U.S.-Soviet strategic arms competition, what programs does Jerome Kahan recommend for the United States in the 1970s? First, he properly stresses that neither can deny its opponent a retaliatory capability. This would require weapons "capable of destroying a substantial proportion of the adversary's weapons in a first strike, combined with defensive systems capable of blunting strikes from remaining forces." (p. 328) This cannot be accomplished by either side. Both sides have accepted the idea that security must be based primarily on deterrence.

For the 1970s, Kahan advocates "stable deterrence." He thinks the U.S. should base its strategic policy on three principles: (1) Maintaining a confident retaliatory deterrent posture comparable in effectiveness and size to that of the Soviet Union; (2) Avoiding weapons and doctrines that pose a threat to the U.S.S.R.'s deterrent and seeking security through negotiated arms limitations; and (3) Reducing the relative reliance on nuclear weapons in U.S. defense and foreign policy.

How do these basic principles translate into weapons programs? Jerome Kahan proposes a "survivable" diad instead of the present triad, recommending eventual elimination of land-based ICBM's. "The first principle of stable deterrence," emphasizes Kahan, "is that preservation of a secure retaliatory capability against the Soviet Union should be the cornerstone of our strategic doctrine and the major determinant of our force posture and budget." (p. 330) An "unacceptable" level of damage to the Soviet Union is calculated at a minimum of 20-25 percent of the U.S.S.R.'s population and more than 70 percent of its industrial base. The prospect of this level of destruction, according to Kahan, should deter the Soviets.

Each part of the American strategic deterrent should be survivable enough to withstand attack. Also, the United States should be certain that the strategic numerical equation "does not tilt to our disadvantage." Kahan acknowledges that conflicts may arise between these objectives. Based on his conviction that vulnerable systems create instability, he recommends that, as the Minuteman ICBM's become vulnerable to Soviet counterforce attack, they be reduced and eventually eliminated, "thus removing any incentive for the USSR to attack our land-based missiles." (p. 331) Somehow, Kahan neglects to mention Titan II ICBM's, although it is clear he suggests gradual elimination of all land-based ICBM's.

However, recognizing that unilateral action could upset the numerical balance, if mutual missile reductions could not be negotiated, he recommends additional survivable systems such as submarine-launched missiles. Trident I missiles should be procured and, eventually, an entirely new submarine system. He does reject the "blue water" option, the concept of relying only on a sea-based deterrent, citing the possibility of a breakthrough in antisubmarine

technology and the fact that submarines have less reliable command control communications than land-based ICBM's. Moreover, a blue water concept "would permit 'clean' counterforce wars to be fought at sea without collateral damage to populations," thus weakening deterrence "by making a nuclear conflict more likely." (p. 220) What about strategic bombers? The author favors retention of bombers as a survivable deterrent and thus recommends procurement of a suitable replacement for the B-52—the B-1 or a "less costly system."

Generally opposed to developing a strong counterforce capability, Kahan argues that the U.S. should not

permit the desire to improve the flexibility of its strategic forces to dominate its military doctrine or to lead to "warfighting" strategies and the acquisition of a counterforce capability against Soviet ICBM's through the development of hard-target kill capabilities for missile systems carrying . . . MIRV's or the procurement of accurate maneuvering re-entry vehicles. (p. 333)

Thus, Kahan's proposed "stable deterrence" also depends on the negotiation track and on the premise that the U.S. should not take steps "that threaten or appear to threaten the Soviet Union's retaliatory capability." (p. 334) This leads to downgrading counterforce weapons, such as ICBM's with MIRV's, while emphasizing Polaris and strategic bombers. Further, the author observes that strategic forces should be complemented by conventional forces "adequate to minimize situations in which nuclear weapons might be used." (p. 336)

As to SALT accords, Kahan notes that the Moscow and Vladivostok agreements do not remove the Soviet threat. The Russians continue quantitative and qualitative strategic programs: "Unless Soviet restraint or follow-on SALT agreements eliminate or significantly alleviate these dangers, the United States must pursue programs needed to maintain

an assured destruction capability, keeping current forces effective and replacing them when necessary." (p. 341)

The author's program for "stable deterrence" is of course debatable, in its rationale and in its weapons recommendations. The ongoing Soviet strategic buildup has focused attention on the U.S. strategic deterrent and brought into question the rationale and force structure for assured destruction. The present Soviet buildup is cause for deep concern. In historical terms, it can be seen as part of the Soviet strategic thrust for over thirty years since the immediate post-World War II period. Successive Soviet leaders have convincingly demonstrated their ability to hold down consumer production to build up defense industry.

As to specifics, the case for the present strategic triad is well known. A combination of bombers, submarines, and land-based ICBM's makes a pre-emptive assault against the U.S. nuclear force tremendously complex. And even increasing vulnerability of the Minuteman force fails to shake this complexity. There is also the possibility of modifying the Minuteman force to give it increased survivability (this would be costly).<sup>4</sup> Further, the Air Force is working on the concept for "MX," the "next generation ICBM." The important point remains that with a triad, Soviet leaders know they would have to attack U.S. missile sites and bomber bases in this country. They have to assume that such an attack would guarantee a response. Even Kahan admits that eliminating ICBM's "would diminish the benefits of full diversity and, in some respects, weaken the credibility of our deterrent." (p. 222)

The question of a credible, efficient deterrent is vastly complicated. It involves strategy, budget, weapons, politics, public opinion, and, perhaps most important, perception. The basis for deterrence is the

enemy's perception of the certainty of American retaliation. Though Kahan emphasizes potential instability of possible future programs, one cannot dismiss the possibility of instability should the United States *fail* to develop future systems and/or improve present ones. What might be the consequences should Kremlin leaders *perceive* their growing nuclear force as superior to the American deterrent? At the least, this image of superior strength would work to U.S. disadvantage in many ways throughout the world. Even these possibilities that fall short of nuclear war are many and painful to contemplate. Instability, it should always be remembered, might conceivably evolve from American inaction in the face of important Soviet qualitative advances.

SOME TIME AGO, Walter Lippmann noted that the really important thing was to maintain the strategic balance between the United States and the Soviet Union. This is because we cannot allow a total war to happen. Nothing is more important than credibility of the U.S. strategic deterrent. The deterrent must claim first priority on our defense resources. It "will have to remain as the Constant Monitor," Bernard Brodie has written, "and its efficiency in that role should never be subject to doubt."

Historically, U.S. restraint has not been matched by the Soviets. Mutual restraint remains one of the great hopes of mankind. The United States cannot afford to establish strategy and forces based on hopeful premises. Jerome Kahan has provided a balanced history of the arms race and has presented the crucial issues. They remain urgent and complex. There are no panaceas. The credibility of the American strategic nuclear deterrent is fragile. There is no room for critical judgmental error.

Silver Spring, Maryland

## Notes

1. For a consideration of some earlier works on arms competition, see Herman S. Wolk, "Deterrence under Fire," *Air Force Magazine*, March 1962, and "The Great Deterrent Dialogue," *Air Force Magazine*, March 1963.
2. For an interesting discussion of those involved in the strategic debate of the late 1950s and early 1960s, see Robert A. Levine, *The Arms Debate*,

Harvard University Press, 1963.

3. For an assessment of the New Look defense policy and its impact on the U.S. Air Force, see Herman S. Wolk, "The New Look in Retrospect," *Air Force Magazine*, March 1974.

4. See Paul Nitze, "Assuring Strategic Stability," *Foreign Affairs*, January 1976.

## POTPOURRI

**Can America Win the Next War?** by Drew Middleton. New York: Charles Scribner's Sons, 1975, index, x + 271 pages, \$8.95.

To Drew Middleton, the military editor of the *New York Times*, "Can America win the next war?" is no rhetorical question. Challenging American reluctance to "think about the unthinkable," he has produced a workmanlike survey of the status of American armed forces and their ability to sustain American interests and independence in the post-Vietnam era.

Middleton's book differs from many recent works that focus on the moral deterioration of the armed forces. Drug abuse, racial tension, indiscipline are now under control in the author's view; and the armed forces are well on their way to restoring discipline, integrity, and spirit. Rather, he concentrates on forces and weapons, tactics and doctrine, and the issue of public support for military preparedness. In a series of discursive chapters he surveys American military responsibilities; the Soviet threat; the current status of the Army, Navy, Marine Corps, and Air Force. He also discusses prospects for the success of American arms

in three levels of conflict: general war (which he predicts may be conventional), a mid-intensity conflict over the status of another state (e.g., Israel or Yugoslavia), and a low-intensity war. Throughout the work he considers Europe as the critical theatre in any future conflict.

Middleton discusses at length the important weapon systems now being considered for development. He argues that the United States *must* maintain adequate force levels and develop advanced weapons to sustain its military power. At the same time, however, he questions military "conventional wisdom": Army expectations of the nature of combat in Europe, Air Force belief in manned bombers, the Navy's over-reliance on aircraft carriers.

Middleton presents little material that is new or especially revealing. Informed Air Force officers, I believe, are aware of most of the issues he raises about the service, though they need to ponder well his challenge to establishment thinking. On the other hand, most officers are less well informed on the problems of sister services and will find Middleton's discussion both informative and thought-provoking.

This book was not written for military professionals. Middleton's style and analysis are those of a reporter, and the book is aimed at the American public. Middleton's most important conclusion is that America's national will is insufficient to maintain the military forces necessary to win wars, and his book is an attempt to increase awareness of the serious military issues confronting the nation. The author realizes that his conclusions will be "unpalatable" to many readers. He says, however, "I have written about things as they are, not as we would wish them to be."

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**The Uses and Methods of Gaming** by Martin Shubik. New York: Elsevier Scientific Publishing Co., 1975, 208 pages, \$12.00.

As is more or less explicitly stated on the jacket and in the introduction, this book does not attempt to provide the theoretical background for gaming. It is really two books: one descriptive of uses and problems, one bibliographical.

The problem with this approach is that,

if the book is read by someone lacking the requisite background, then I fear most of the technical treatment in the first section will prove extremely difficult; the author plugs his own *Games for Society, Business, and War* as providing that necessary background information. On the other hand, the moderately sophisticated or experienced gamer will profit little from the book's relatively superficial treatment.

The second section is a veritable gold mine of sources, including some short bibliographic essays on particularly recommended works; it will be especially useful for the neophyte gamer. Indeed, there is something here for everyone. One chapter emphasizes business, management, and operations research applications. Another deals with experimental gaming. A third covers political science, international relations, and military games.

On the whole, this book should be quite useful for anyone considering involvement in gaming over a wide range of the possible applications, especially if he already has some basic knowledge of the subject.

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## Books Received

The books listed herein are those received since the last issue was published. Some of them

have already been sent to various scholars, and their reviews will be printed later.

### I. AIR POWER

Polmar, Norman. *Strategic Weapons*. New York:

Crane, Russak, 1976. \$7.50 hardbound, \$3.95 paper.

Quanbeck, Alton H., and Archie L. Wood. *Modernizing the Strategic Bomber Force*. Washington: Brookings, 1976. \$2.95 paper.

## II. AVIATION: TALES, TECHNIQUES, AND TECHNOLOGY

Bach, Richard. *A Gift of Wings*. New York: Dell, 1975. \$1.75 paper. A collection of flying stories and articles.

Cain, C. W. *Aircraft in Profile*, vol. 1, 4th ed. New York: Doubleday, 1976. \$11.95.

Carter, Kit C., and Robert Mueller. *The Army Air Forces in World War II: Combat Chronology, 1941-45*. Washington: Government Printing Office, 1973. \$14.30.

Gunston, Bill. *Early Supersonic Fighters of the West*. New York: Scribner's, 1976. \$10.95.

Leary, W. M. *The Dragon's Wings, The China National Aviation Corporation and the Development of Commercial Aviation in China*. Athens, Georgia: University of Georgia Press, 1976. \$12.00. On commercial aviation in China before World War II.

Parsons, Ian, editor. *The Encyclopedia of Air Warfare*. New York: Crowell, 1974, \$17.95.

Stevens, Bob. *There I Was . . . Flat on My Back*. Fallbrook, California: Aero Publishers, 1975. \$9.95. Book of cartoons on Air Force flying.

Taylor, John W. R., and Gordon Swanborough. *Military Aircraft of the World*. New York: Scribner's, 1976. \$6.95.

United States, Library of Congress. *Astronautics and Aeronautics, 1973*. Washington: Government Printing Office, 1975, \$4.90. A yearbook on the subject.

## III. MILITARY AFFAIRS

Asprey, Robert. *War in the Shadows*, 2 vols. New York: Doubleday, 1976. \$35.00. Comprehensive history of guerrilla warfare.

Brown, Anthony C. *Bodyguard of Lies*. New York: Harper & Row, 1975. \$15.95. On the deception that preceded the invasion of France in 1944.

Ellis, John. *Social History of the Machine Gun*. New York: Pantheon, 1975. \$4.95, paper.

Haley, James L. *The Buffalo War*. Garden City, N.Y.: Doubleday, 1976. \$7.95. On the Red River uprising of 1874.

Higham, Robin, editor. *A Guide to the Sources of United States Military History*. Hamden, Connecticut: Archon, 1975. \$27.50.

Moskos, Charles C., Jr. *Peace Soldiers*. Chicago: University of Chicago Press, 1976. \$11.00.

Weems, John E. *Death Song*. New York: Doubleday, 1976. \$10.95. On the final stages of the Indian wars of the nineteenth century.

## IV. INTERNATIONAL RELATIONS

Brown, Weldon A. *Prelude to Disaster*. Port Washington, N.Y.: Kennikat, 1975. \$15.00. U.S. in Vietnam, 1940-63.

\_\_\_\_\_. *The Last Chopper*. Port Washington, N.Y.: Kennikat, 1976. \$15.00. Sequel to previous entry and covering the period from 1963-75.

Cline, Ray S. *World Power Assessment: A Calculus of Strategic Drift*. Washington: Georgetown University, 1976. \$4.95, paper.

Gonzalez, E., and D. Ronfeldt. *Post Revolutionary Cuba in a Changing World*. Santa Monica, California: Rand, 1975. \$5.00, paper.

Landis, Lincoln. *Politics and Oil: Moscow in the Middle East*. New York: Dunellen, 1973. \$15.00.

Vladimirov, Peter. *The Vladimirov Diaries*. New York: Doubleday, 1975. \$10.95. Experiences of the Soviet author while stationed at the Chinese Communist headquarters late in World War II.

Wu, Yuan-li. *US Policy and Strategic Interests in the Western Pacific*. New York: Crane, Russak, 1975. \$14.50.

Zartman, William I. *The 50% Solution*. New York: Anchor, 1976. \$3.95, paper. On international negotiations.

## V. GENERAL

Bonnie, Richard J., and Charles H. Whitebread, II. *The Marihuana Conviction*. Charlottesville: University Press of Virginia, 1976. \$12.50. A history of marijuana prohibition.

Speer, Albert. *Spandau, The Secret Diaries*. New York: Macmillan, 1975. \$13.95.

Wieczynski, Joseph L. *The Modern Encyclopedia of Russian and Soviet History*, vol. I. Gulf Breeze, Florida: Academic International, 1975. \$27.50.

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The Air University Review Awards Committee has selected "Communication: The Key Element to Prisoner of War Survival" by Lieutenant Colonel Bobby D. Wagnon, USAF, as the outstanding article in the May-June 1976 issue of *Air University Review*.

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