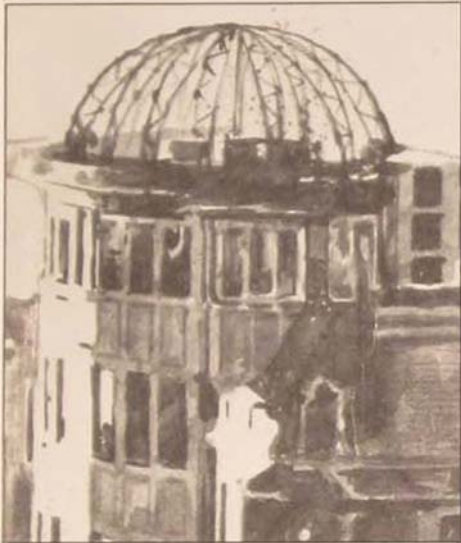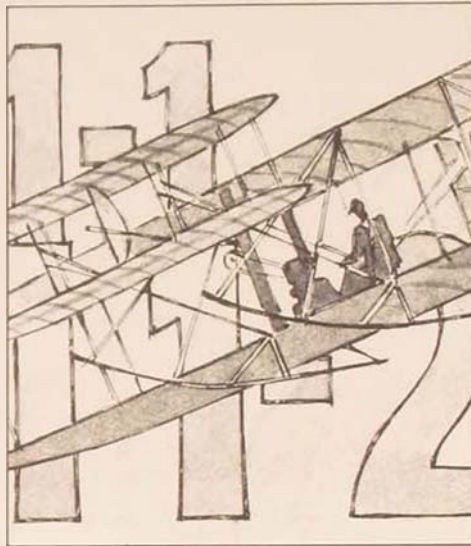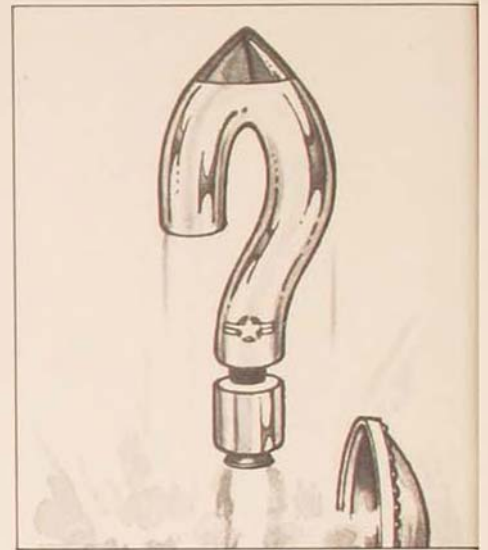# AIR UNIVERSITY
# review

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# AIR UNIVERSITY review

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# OFFENSIVE DOCTRINE IN A DEFENSE-DOMINANT WORLD

DR. GARY L. GUERTNER

I T is easy to agree with proponents of strategic defense who argue that it is better to protect the American people from nuclear attack than to avenge them. There is a danger, however, that oversimplified appeals may detract from important issues of military strategy in a defense-dominant world. Deterrence can never rest on defense alone. Without offensive teeth, failure becomes the only penalty for aggression. The threat of offensive retaliation in some form will and should remain part of U.S. strategic doctrine. The strategic defense debate has raised serious questions about what form the offensive component of U.S. strategic doctrine may take in the twenty-first century.

New technology is not likely to be a substitute for offensive strategy or even for the classical theories of war. Clausewitz, for example, in his study of war, which has become a standard text in the curriculum of American war colleges, devoted extensive effort to the analysis of defense. He concluded that defense was a stronger form of war than the attack. But defense was not purely passive. In his view, defense consisted of two phases: waiting for a blow and parrying it. The latter and sometimes forgotten action was intrinsic to Clausewitz's whole concept of defense. An army took up defensive positions in order to fight from them. A defense was a shield, but an active shield, one "made up of well-directed blows."[1]

Clausewitz's defensive strategy consisted of finding a proper balance between defense and
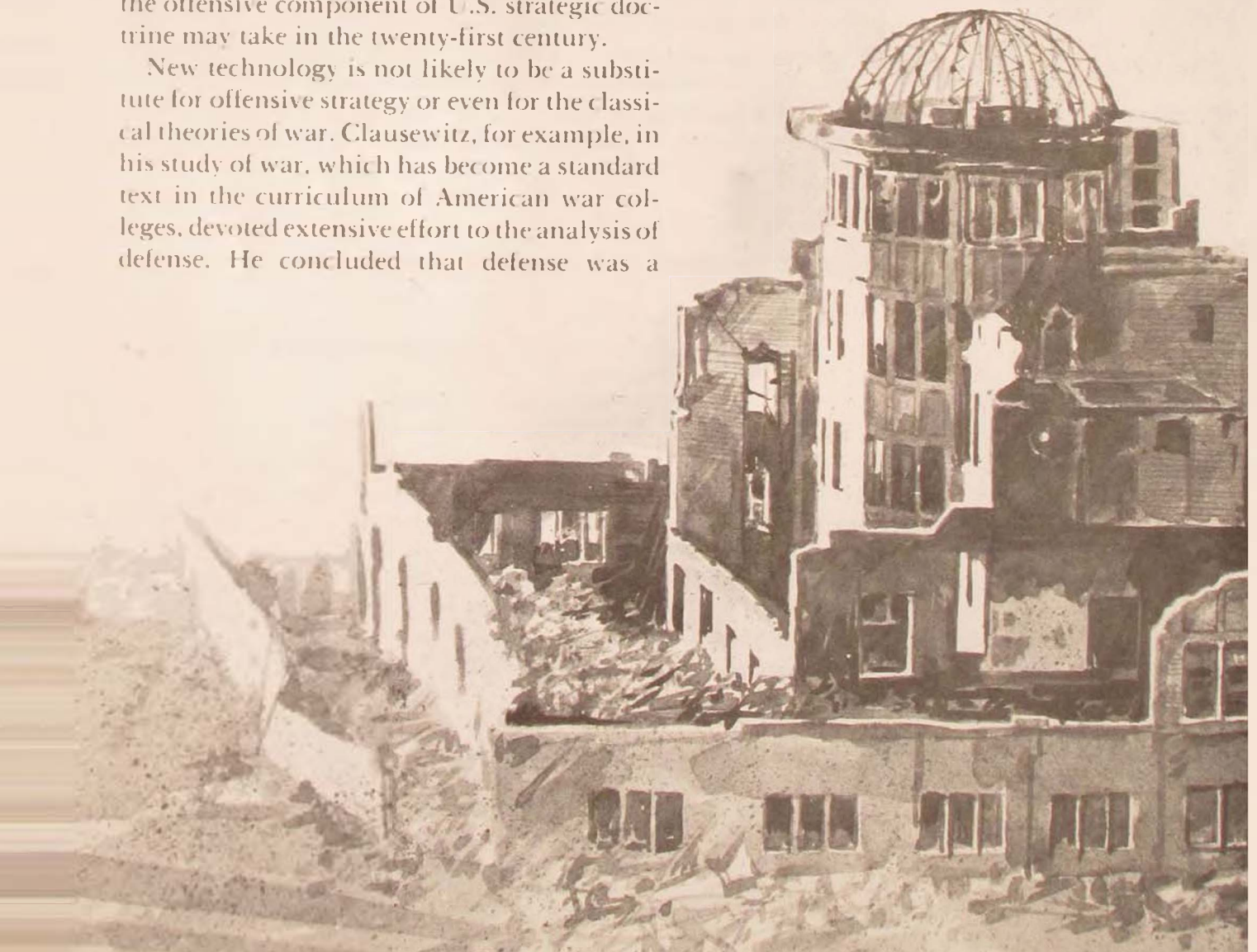
offense, waiting and countering appropriately, and choosing the right time and place to unleash that "flashing sword of vengeance," which he described as "the greatest moment for the defender."[2]

The Strategic Defense Initiative (SDI) debate has reflected very little of this kind of thinking. Rhetorical excesses have created the impression that new technologies may become so reliable that the United States will be able to sheathe its strategic sword and rely on its shield. Beating our swords into satellites will not free us from the threat of nuclear war. Offensive forces will remain in one form or another. Before we jump enthusiastically on the SDI bandwagon, it is important that we examine these realities and the offensive-defensive relationship during the projected transition period to a "defense-dominant" world. We need to know where that bandwagon is headed and what other items are in the parade.

## The Evolution of Strategic Offense

Classically, deterrence of war and strategic nuclear weapons employment policies have a paradoxical relationship in that deterring nuclear war has required policies and credible plans and strategies for fighting and, if not winning, at least assuring that potential adversaries could not win. While "winning" a nuclear war has little meaning in view of the major destruction that would accompany the use of nuclear weapons, it still seems clear that to be deterred, potential aggressors must be denied confidence that they could achieve their war aims.

The strategic doctrines of the United States and the Soviet Union have evolved from this paradox with important differences in emphasis.[3] U.S. force structure and declared employment policies have evolved to deter, through assured retaliation by survivable American nuclear forces, Soviet execution of large-scale war plans or aggression in Western territory. Increasingly, this strategy has included "damage limitation" through preferential attack options against Soviet military targets, accompanied by the threat of escalation to urban—industrial targets if aggression continues. (*Damage limitation* has two distinctly different meanings. One use of the term refers to selective attacks that limit collateral damage to the enemy. A second, more common use refers to preemptive attacks, i.e., attacks against enemy forces before they can be used against you. The latter definition is used in this discussion.) The most salient feature of this doctrine has been the evolution of graduated and flexible responses that incorporate limited nuclear attacks to maintain options for intrawar bargaining, escalation control, and prompt conflict termination.

Soviet doctrine places greater emphasis on warfighting and damage limitation through large-scale, preemptive attacks against military targets. The Soviets' force structure and declaratory policy emphasize that the better their armed forces are prepared to fight a nuclear war, the better their society is equipped to survive its effects; moreover, the more clearly the adversary understands this preparedness, the more he will be effectively deterred. This doctrine is sometimes called "deterrence through denial" — that is, seeking to deny the opponent the prospect of military victory. It covers all of the Soviets' strategic bases since it rests on well-established war-fighting doctrines and capabilities in the event deterrence fails. American strategists who favor war-fighting options against Soviet military targets also argue that *denial* of military victory is a far more credible strategy than threats to *punish* an attacker by retaliating against civilian populations.

Although Soviet and U.S. strategic doctrines are partially converging in their emphasis on hard-target counterforce and damage-limiting capabilities, potentially destabilizing doctrinal differences remain. The most obvious is the apparent Soviet rejection of limited nuclear

war concepts, including escalation control and intrawar bargaining. The Soviets view these concepts as attempts at political intimidation rather than as elements in a strategy conceived by those who take war seriously. For the Soviets, denial of military victory requires robust preemption when war appears imminent and attacks of greater magnitude than those prescribed by U.S. limited nuclear war strategy.

The credibility of both doctrines is sensitive to the evolving relationships between offensive and defensive forces and is complicated by the fact that nothing in nuclear strategy is purely defensive in the sense that it does not directly support or lend credibility to offensive operations. Any calculation of a first-strike or preemption is conditioned in part by active (ballistic missile defense) and passive (civil defense) capabilities to absorb residual second-strike

forces. Any realignment of offensive and defensive strategic capabilities—as in the President's new concept of strategic defense—must be examined carefully for its impact on the quite different offensive doctrines of the Soviet Union and United States.

A strategy incorporating strategic defense may or may not add to stability or to the evolving limited nuclear war capabilities of U.S. forces. Those outcomes will depend not only on the success and reliability of developing technologies but also on the Soviet Union's willingness to negotiate offensive limitations rather than to embark on new strategic initiatives of its own.

Precisely which general combinations of negotiated offensive-defensive constraints would degrade Soviet capabilities most is debatable because of operational uncertainties. On bal-

ance, offensive reductions would affect the Soviets' robust style of preemption damage limitation more than they would the evolving U.S. strategy of limited attack options and escalation control. Defensive constraints affect both American and Soviet strategic doctrine. When combined with offensive limits, however, they degrade the effectiveness of Soviet forces more than those of the United States, since defensive constraints make the execution of limited nuclear options more credible than a Soviet strategy based on massive preemption.

Defensive advantages by either side will greatly enhance the credibility of that side's strategic doctrine. Neither side is therefore likely to accede to a posture of defensive inferiority. Failing arms control remedies, the disadvantaged party will seek to reestablish its strategic position through offensive countermeasures, defensive countermeasures, or both. In the Soviets' case, these measures could also include doctrinal modifications. For example, the Soviets could seek compensation for perceived offensive shortfalls by moving toward a "softer" strategic target set, including greater emphasis on countervalue targets to compensate for the rapidly declining penetrability of their strategic forces.

Arms control remedies that result in equal offensive force levels, equal sublimits, or offsetting asymmetries (e.g., U.S. bomber or SLBM advantages for Soviet ICBM advantages) may satisfy domestic political requirements, but they do not necessarily support the operational effectiveness of U.S. nuclear forces if deterrence fails. This is not to suggest that war-fighting plans and strategies should drive arms control policy. Nevertheless, Americans must realize that strategic force levels codified by treaty will shape war-fighting options for the future, and

our credibility to deter war will depend to a large degree on the relationship between offensive tradeoffs and defensive systems that may or may not be constrained by arms control agreements. For example:

• Strategies designed to negotiate higher U.S. bomber limits to trade against Soviet ICBMs must take into account offensive threats to bomber bases and defensive (air defense) threats to bomber penetration.

• To remain viable, submarines must be able to survive both offensive threats to their home ports and antisubmarine warfare (ASW) at sea, while their missiles must be able to penetrate enemy missile defenses.

• Because space-based ballistic missile defenses can be attacked by antisatellite(ASAT) weapons and possibly ABMs, space-based ballistic missile defense (BMD) systems must be able to defend themselves and therefore must have the ability to destroy ASATs. Limitations on ASATs may enhance the survivability of space-based defenses, but either side could circumvent treaty limitations by labeling an ASAT weapon as a BMD system or component. Conversely, BMD constraints could be circumvented by labeling a BMD weapon as an ASAT system or component. Because of their dual capabilities, both or neither should be constrained by treaty, but not one or the other.

• Similarly, space-based defenses could attack other space-based defenses. War in space could, therefore, begin with preemptive attacks by "defensive" systems against defensive systems.

• New technologies that may emerge from an unconstrained SDI could further obscure offensive-defensive relationships. If, for example, space-based "defenses" acquired a dual capability to destroy offensive weapons in flight and surface-based targets (e.g., ICBMs, ABMs, ships), then "defensive" systems could support the offense not only indirectly by limiting a retaliatory attack but also directly through preemptive attacks against many types of targets.

These examples illustrate why nuclear arms control negotiations require a comprehensive, long-term approach to Soviet-American strategic capabilities. Treaties cannot embrace every possible threat or contingency, but neither should they result in vulnerable force structures because negotiators failed to comprehend the offensive-defensive relationships among strategic forces. It may also be worth noting that potential unilateral remedies or countermeasures (e.g., hardening systems, improving C³I assets, incorporating Stealth technologies more broadly, increasing the numbers of defensive weapons, etc.) could be taken outside the context of an arms control treaty to shore up U.S. defenses against evolving vulnerabilities or to strengthen our deterrent capabilities independent of treaty constraints. No treaty locks all the doors to potential countermeasures.

## Strategic Defense and Nuclear Targeting

The offensive-defensive debate includes arguments from an earlier period in the evolution of American strategic doctrine. The new debate finds the administration repeating many of the same arguments made during the Nixon years by advocates of limited nuclear war and flexible response. Nixon administration spokesmen argued, also, that the U.S. President needed options to simple retaliation against Soviet cities, especially if Soviet reserve forces could retaliate against previously spared American cities.

Reviewing the evolution of offensive strategy and nuclear targeting options is essential to the assessment of a future defense-dominant world. For the past two decades, there has been a continuous official effort to increase the range of strategic nuclear targeting options available to the President in a crisis. Options to mutual assured destruction (MAD) have been developed in the documents, strategies, and force structures of every administration since

1970, including the Reagan administration. Not since the Kennedy administration has a president been confronted with a choice between no nuclear response or the massive unleashing of our strategic forces. These changes have been characterized by plans that concentrate against military targets through limited and selective attack options that, in theory, make it possible to control escalation short of attacking cities, to bargain with the Soviets during a nuclear war, and to terminate nuclear conflict at the earliest possible time.

The first official public discussions of these issues came in President Nixon's foreign-policy message to Congress on 18 February 1970:

> Should a President, in the event of a nuclear attack, be left with the single option of ordering the mass destruction of enemy civilians, in the face of the certainty that it would be followed by the mass slaughter of Americans? Should the concept of assured destruction be narrowly defined and should it be the only measure of our ability to deter the variety of threats we may face?[4]

A series of studies and directives followed, providing political guidance on structuring more flexible preplanned nuclear responses in the U.S. war plan or SIOP (single integrated operational plan). Secretary of Defense James Schlesinger publicly announced the change in targeting strategy. Assured destruction and the old policy of initiating a suicidal strike against the cities of the other side "were no longer adequate for deterrence." He would, therefore, implement a set of selective options against different sets of targets on a much more limited and flexible scale.[5]

The *Nuclear Weapons Employment Policy* (NUWEP) signed by Schlesinger in 1974 set forth the planning assumptions, attack options, targeting objectives, and predicted dam-

*The antisatellite missile launched from the F-15 is a new factor in the always complex equation that hopefully results in deterrence.*

age levels needed to satisfy the political guidance developed by the administration. Targets were divided into four principal groups:

- Soviet nuclear forces,
- Soviet conventional military forces,
- military and political leadership targets (e.g., command posts), and
- economic and industrial targets (including transportation and energy).[6]

In response to this policy, changes were made in the SIOP, which further divided these four groups into specific categories and offered "packages" of strike options that could single out or combine various target categories within the four general groups.[7] Only two of these categories—leadership and economic targets—are associated with mutual assured destruction, and many of those (dams, rail junctions, leadership bunkers) are located outside major population centers. Military targets were given top priority. By adopting the strategy of limited nuclear options, planners reasoned, escalation might be averted short of attacking target categories in major urban-industrial centers.

The Carter administration refined the limited nuclear war strategy by deemphasizing Soviet economic targets (moving still farther away from MAD) and stressing the importance of survivable strategic forces and $C^3$ (command, control, and communications) systems required to execute a limited nuclear war.[8]
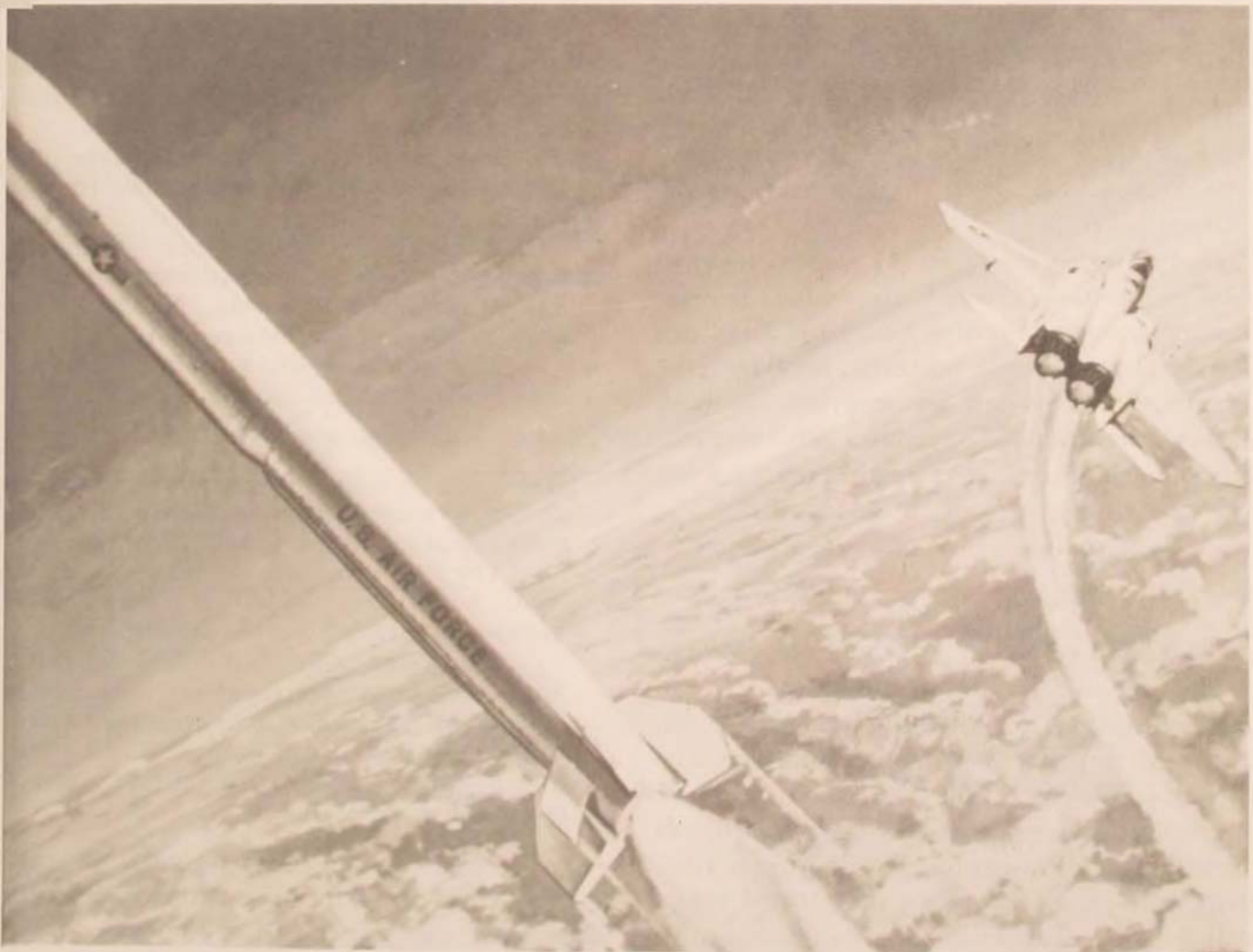
Subsequently, the Reagan administration produced a *Nuclear Weapons Employment and Acquisition Master Plan*, which maintained the legacy of limited nuclear warfare and stressed the requirements for strategic modernization including survivable forces and C³I (command, control, communications, and intelligence) systems to execute selective attack options.[9] In fact, considerable controversy during the administration's first term focused on public discussions of fighting and "winning" limited nuclear wars.

The actual conduct of nuclear war could be considerably different from that suggested by the declaratory policies of either the Soviet Union or the United States. Strategic orthodoxy could easily give way to ad hoc strategies based on last-minute military and political judgments or resulting from the chaos caused by a disrupted national command authority. Escalation, collateral damage, and the delayed effects of nuclear weapons (radiation and societal disruption) could drive casualties quickly to "unacceptable" levels or bring about unforeseen consequences even if cities were not directly attacked.

There are no quick technological fixes to these dilemmas. However, the impact of strategic defense on offensive forces and targeting policies that will remain in effect for at least the remainder of this century, requires far more scrutiny than it has received in a debate which, thus far, has focused on public diplomacy, technical problems, and budgeting.

## The New Strategic Concept: Build Down to Security

The "new strategic concept" of the Reagan administration links the Strategic Defense Initiative to long-range arms control proposals. Its goal is to make deep cuts in offensive weapons with the development of strategic defenses over a long, carefully phased transition period. During the next ten years, the United States will seek a radical reduction (build down) in

offensive nuclear arms, followed by a period of mutual transition to effective nonnuclear defense forces as technology makes such options available. In a final "ultimate period," strategic defenses may make it possible to eliminate all nuclear weapons.

Ambassador Paul H. Nitze, reportedly the author of the new concept, described the three envisioned phases in detail during testimony before the Senate Foreign Relations Committee:

### The Near Term

— For the near term, at least the next ten years, we will continue to base deterrence on the ultimate threat of nuclear retaliation. Today's technology provides no alternative.

— That being said, we will press for radical cuts in the number and power of strategic and intermediate-range nuclear arms. . . .

### The Transition Period

— Should a transition be possible, arms control would play an important role. We would, for example, seek continued reductions in offensive nuclear arms.

— Concurrently, we would envisage the sides beginning to test, develop, and deploy survivable and cost-effective defenses, with particular emphasis on nonnuclear defenses. *Deterrence would thus begin to rely more on a mix of offensive nuclear and defensive systems, instead of on the threat of offensive nuclear arms alone.*

— The transition would continue for some time, perhaps decades. . . .

### The Ultimate Period

— Given the right technical and political conditions, we would hope to be able to continue the reduction of all nuclear weapons down to zero.

— The total elimination of nuclear weapons would be accompanied by widespread deployments of effective nonnuclear defenses. . . .

— Were we to reach the ultimate phase, deterrence would be based on the ability of the defense to deny success to a potential aggressor's attack —whether nuclear or conventional. The strategic relationship could then be characterized as one of mutual assured security.[10]

Assuming that the Soviets could be persuaded to cooperate in a transition to a defense-dominant world (a position they now pub-

licly reject), it is important not to lose sight of the continued, long-term role of offensive weapons. During the "near-term" phase, for example, deterrence would continue to be based on the threat of nuclear retaliation. Offensive modernization programs would continue even if arms control agreements succeed in driving down total force levels.

The "transition period" calls for a "mix of offensive and defensive systems" that could be maintained (and modernized) for "decades." Nuclear weapons, offensive strategies, and targeting policies would be required well into the next century. It is essential, therefore, that strategic planners carefully assess the probable impacts of such strategic shifts on U.S. and Soviet targeting policies. Would the transition to strategic defense make us more secure, or would each side alter its nuclear employment policies in such a way that cities and population centers face even greater danger than they have in the recent past?

## The Irony of Strategic Defense

If arms control agreements succeed in reducing the levels of offensive nuclear weapons, there will still remain a visible trend toward modernization and qualitative advances in the remaining forces. Maneuverable warheads, Stealth technology, and cruise missiles, to name a few, will be sufficient to create doubts about the effectiveness of defenses. Similarly, technological breakthroughs in defenses will increase the uncertainties for offensive operations. Together, offensive and defensive uncertainties may precipitate targeting policies that are as threatening as any in the past. Cities and their civilian populations could again become primary targets in a nuclear war. This outcome would be the ultimate irony of strategic defense.

Table 1 illustrates the relationship between current U.S. strategic doctrine based on limited attack options and the evolution toward a defense-dominant world. The phases are based on Nitze's descriptions. During the initial decade, assuming a cooperative adversary, offensive nuclear forces would be reduced (and modernized) to mutually agreed levels. Limited attack options could remain credible throughout this period.

If the United States were to begin deploying interim point defenses in the 1990s, such defenses would be deployed to defend strategic forces and command and control centers. Assuming that the

| Table I. Impact of the New Strategic Concept on U.S. Strategic Doctrine | | | |
|---|---|---|---|
| 1985*-1995 reduced offensive forces | 1990-1995 interim point defense | 1995-2015 territorial defense | 2015 - ? near-zero nuclear offensive forces |
| limited nuclear options remain credible | reduced credibility against<br>• strategic nuclear targets<br>• leadership targets<br>• some conventional targets<br>most credible against<br>• urban/industrial<br>• transportation<br>• energy<br>• population | limited nuclear options not credible | offensive nuclear doctrine not required |
| | | offensive remedies<br>• technological modernization to penetrate/attack defense<br>• increased numbers of offensive forces<br>• attacking high-value, soft targets if deterrence fails | |
| *estimated dates | | | |

| Table II  Strategic Targeting and Strategic Defense | | | | | | |
|---|---|---|---|---|---|---|
| Target Categories | Offensive Reductions and ABM Treaty in Force | | Offensive Reductions and Expanded Point Defense | | Offensive Reductions and Territorial Defense | |
| | United States | Soviet Union | United States | Soviet Union | United States | Soviet Union |
| I  strategic nuclear | less vulnerable | less vulnerable | least vulnerable | least vulnerable | least vulnerable | least vulnerable |
| II  leadership | less vulnerable | less vulnerable | less vulnerable | less vulnerable | least vulnerable | least vulnerable |
| III  conventional military | vulnerable | vulnerable | vulnerable | vulnerable | less vulnerable | less vulnerable |
| IV  urban/industrial | vulnerable | vulnerable | most vulnerable | most vulnerable | less vulnerable | less vulnerable |
| - transportation | vulnerable | vulnerable | most vulnerable | most vulnerable | less vulnerable | less vulnerable |
| - energy | vulnerable | vulnerable | most vulnerable | most vulnerable | less vulnerable | less vulnerable |
| - population | vulnerable | vulnerable | most vulnerable | most vulnerable | less vulnerable | less vulnerable |

Soviets deployed point defenses with the same priorities, a strategy of limited attack options would have significantly reduced credibility against strategic nuclear and leadership targets. Urban/industrial targets would become the most vulnerable target sets during a "transition" stage with extensive point defenses.

As point defenses then expanded to full-scale space-based defenses capable of providing reasonably credible (but less than perfect) territorial defense, the credibility of limited attack options would be degraded against all target categories. As Table I indicates, however, several offensive countermeasures are possible. Ironically, as Table II depicts, urban/industrial targets may become the most vulnerable to attack in a less-than-perfect territorial defense. Offensive planning, unless all war-fighting strategies are foregone, would avoid attacks against high-expenditure/low-payoff military targets, especially those that are hardened and protected by "thick" terminal defenses. Admittedly, a nuclear attack would come only in the most desperate of crises; but if it occurred, targeting plans would likely call for hits on soft targets where a small, surviving force would have high payoff in its destructive effects.

As Table II illustrates, only urban/industrial and nondispersed conventional military targets (of the four categories) meet these criteria. The probability of nuclear war may decline in direct proportion to quantitative and qualitative offensive constraints, but the possibility of war will never reach zero. And, if deterrence does fail, the consequences might well be catastrophic, due to the assumptions that each side might make about the other's defenses. The irony of strategic defense is that cities and population centers very likely could move from the bottom to the top of targeting priorities for both the United States and the Soviet Union.

A STRATEGY for controlling nuclear war short of mass destruction may be a false hope, as critics claim. But there is a world of difference between war plans that deliberately (as in the 1950s) provide no options other than surrender or holocaust and those developed throughout the 1970s and early 1980s, which at least attempt to mitigate the consequences of nuclear war if deterrence fails. The distinctions between MAD and limited nuclear war have been debated

for more than two decades. That debate and whatever wisdom it may have produced should not be ignored as this and subsequent administrations move toward a defense-dominant world that may not provide more security than its predecessors. If we look to the past, we see that nuclear war was planned in the 1950s on the basis of what our bombers could find—Soviet cities. In the 1990s, we may plan war on the basis of what our weapons can hit—again, cities. Like the British and French with limited nuclear re-

sources. American and Soviet planners may be driven toward countercity targeting. We shall then have come full circle at great expense and, in the end, succeeded only in making the world safe for MAD. Given that possibility, our leaders and planners need to consider all plausible contingencies and scenarios carefully and think through the impact of strategic defense on deterrence, crisis management, and offensive targeting now rather than in the midst of a future Soviet-American crisis.

*California State University, Fullerton*

### Notes

1. Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton, New Jersey: Princeton University Press, 1976), p. 357.

2. Discussed extensively by Michael Howard in *Clausewitz* (Oxford, England: Oxford University Press, 1983), pp. 23-26.

3. Studies of Soviet and U.S. strategic doctrine are too numerous to cite. Those that compare and contrast the Soviet and American approaches to strategic doctrine include Fritz W. Ermarth, "Contrasts in American and Soviet Strategic Thought," *International Security*, Fall 1978; Benjamin Lambeth, *Selective Nuclear Options in American and Soviet Strategic Policy*, R-2003-DDRE (Santa Monica, California: Rand Corporation, 1976; and Dennis Ross, "Rethinking Soviet Strategic Policy: Inputs and Implications," *Journal of Strategic Studies*, May 1978. For the evolution of U.S. strategic doctrine, see Fred Kaplan, *The Wizards of Armageddon: Strategists of the Nuclear Age* (New York: Simon and Schuster, 1983); Leon Sloss and Marc Dean Millot, "U.S. Nuclear Strategy in Evolution," *Strategic Review*, Winter 1984, pp. 19-28.

4. Richard Nixon, *U.S. Foreign Policy for the 1970s: A New Strategy for Peace*, a report to Congress, 18 February 1970 (Washington: Government Printing Office, 1970), p. 122.

5. James Schlesinger, Address for Writers Association Luncheon, DOD Public Affairs Office, 10 January 1974, pp. 5-6.

6. Desmond Ball, *Targeting for Strategic Deterrence*, Adelphi Papers (London: International Institute for Strategic Studies, 1983), pp. 23-24.

7. Ibid., p. 24.

8. Ibid., p. 23.

9. Ibid. The radical shift in policy can be seen by comparing the Reagan strategic modernization speech of 2 October 1981 with his "Star Wars" speech.

10. Ambassador Paul H. Nitze, Statement before the Senate Foreign Relations Committee, 26 February 1985, pp. 2-5. Emphasis added.

# coming . . .

## January-February issue

- War, Doctrine, and Air War College
- Innovation and the Military Mind
- Intelligence Rams and Policy Lions
- Seapower and the B-52
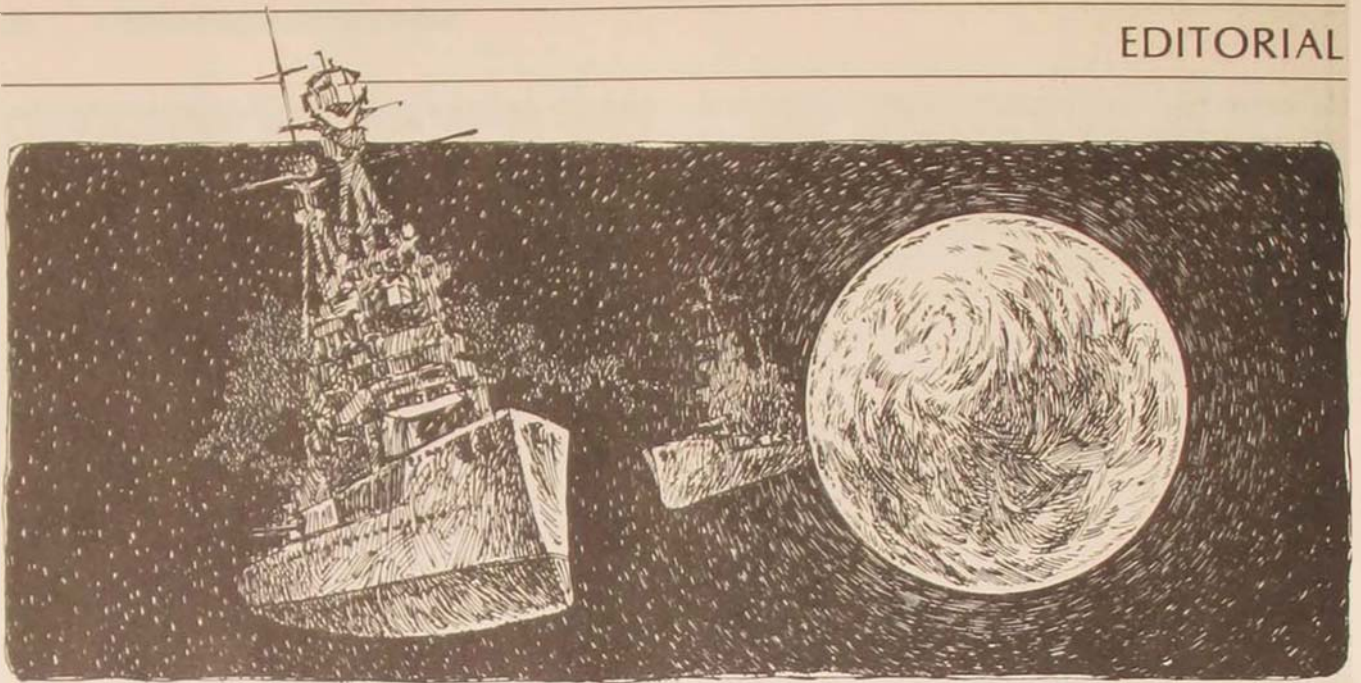
# OUT FROM THE LAND OF NOD

"FEAR God and dread nought" was the motto selected by Sir John Fisher on entering the peerage, a distinction conveyed on the admiral largely for his contributions to the development of the first modern battleship, the HMS *Dreadnought*. When it was christened, everyone assumed that Fisher's battleship was the unsurpassable weapon, the vessel whose power and strength would secure England's supremacy on the seas. Instead, the *Dreadnought* sparked a naval arms race among the powers of the day that culminated in such behemoths as the *Yamamoto* and the USS *Missouri*.

Decades after the *Dreadnought* slid down the ways, Billy Mitchell's flimsy wood-and-fabric bombers sank ships that were far more capable. It seemed that another ultimate weapon had arrived. After Mitchell resigned from service, he touted air power as the decisive element of future warfare, able to lay waste to entire cities. Some air power enthusiasts ventured the opinion that wars would become so destructive as to be unthinkable. At the end of the next great war, after thirty or forty million people were killed, including a quarter of a million Americans, the atomic bomb took its place as the ultimate weapon.

One can indeed argue that nuclear weapons have ushered in an "age of peace." While armed to the teeth and implacably opposed in ideologies and foreign policies, the world superpowers have avoided coming to blows for nearly a half century. During this period the American military establishment has prepared itself for the "big war," confident that, if prepared for a major war, the little wars will take care of themselves. Korea and Vietnam seem to have bankrupted that line of reasoning, and, while being "prepared for the big war," almost a hundred thousand Americans have given their lives in "little ones" in Asia, Middle East, and the Caribbean.

One wonders if Cain thought that the rock, club, or ass's jawbone he may have used in slaying Abel represented the technological breakthrough that would end future conflict. Although banished to the Land of Nod, Cain had, after all, laid low his major rival and eliminated a quarter of the world's population in one blow. Alas, as we humans have progressed from that time to the present, we have punctuated our social and political advances with developments in military technology, ensuring that, in the tradition of Cain, we shall continually subtract a portion from our species even as we multiply.

The development and deployment of a Star Wars-type defensive system is, according to the flow of history, inevitable. If the United States does not pursue this course, the Soviets surely will. Weaponry evolving from the Strategic Defense Initiative will be expensive, complex, and controversial. What it will not be is the device that makes nuclear war—or any other kind of war—passe. Centuries ago, when our ancestors pushed back the frontiers of the New World, entrepreneurs, priests, and soldiers sailed with the explorers. I expect that we shall book the same manifest into space.

E.H.T.

# THE UNIQUENESS OF SPACE DOCTRINE

LIEUTENANT COLONEL CHARLES D. FRIEDENSTEIN
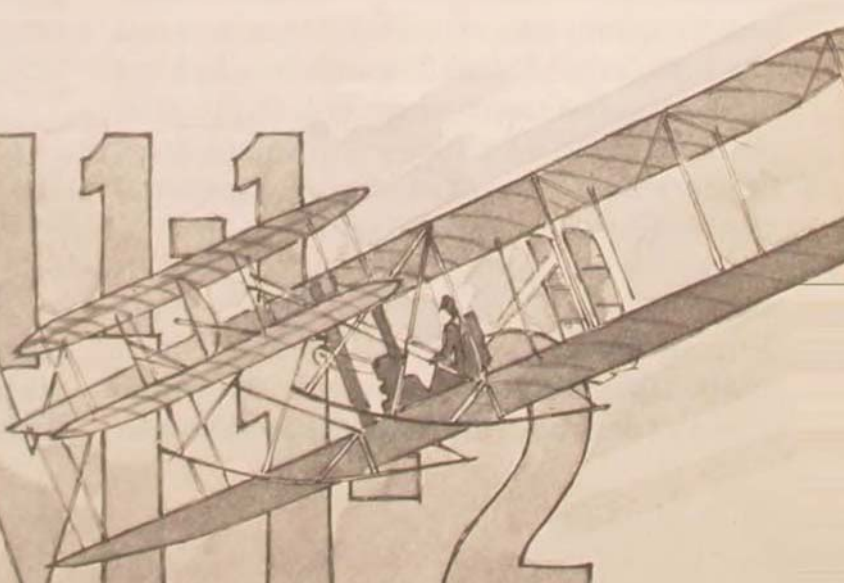
T HE evolution of the term *aerospace doctrine* inappropriately links our air and space doctrines. Space systems have characteristics that are different from air systems, which cause differences in the principles of war as they apply to possible conflict in space. Thus space doctrine is unique.

## Framework for Analyzing Military Doctrine

While there is considerable confusion with regard to the exact meaning of the concept of doctrine, a recent article by Lieutenant Colonel Dennis Drew offers a general view of doctrine that can serve as a basis for analyzing the relationship between air and space doctrine.[1] Colonel Drew claims that there are three categories of doctrine: fundamental, environmental, and organizational.

Fundamental doctrine is grounded in an examination of history, and it applies in all operating mediums in any nation. Instantly recognized as elements of fundamental doctrine are purposes of the military, the nature of war, and the relationship of the military to other na-

tional instruments of power. Since fundamental doctrine is characterized by its timeless significance and universal application, it is rarely, if ever, rewritten in response to technological change.

Environmental doctrine is a compilation of beliefs about the employment of military forces within a particular operating medium; thus, land, sea, and air doctrine fit in this category. Colonel Drew points out that environmental doctrine is narrower in scope than fundamental doctrine because it encompasses only one operating medium. And since it describes military operations in a particular locale, it is strongly influenced by the physical characteristics of the medium. Environmental doctrine is still international in its application and should thus apply equally well to any nation's military force.

Organizational doctrine defines the basic beliefs of a particular military organization about how best to conduct warfare in its operating medium. Soviet and U.S. doctrine would diverge at this point. Organizational doctrine is very dependent on technology and is often tempered by local political constraints. If a statement of doctrine did not apply a decade ago or if it is obviously tied to the capability of a particular weapon system, it is organizational doctrine.

As shown graphically in Figure 1, an important concept of these three divisions of doctrine is that they build on the previous level of abstraction. The reasons for Colonel Drew's choice of the tree are obvious: leaves survive only for a short time on a severed branch or on a tree with decayed roots. Regardless of its place on the tree, military doctrine is defined by Colonel Drew as *"what is officially believed and taught about the best way to conduct military affairs."*[2]

## Aerospace Doctrine:
## Origins of the Concept

The U.S. Air Force has found it difficult to define its doctrine since its days as the Army Air



organizational
doctrine

environmental
doctrine

fundamental
doctrine

military history

*Figure 1. The Doctrine Tree*

Corps, principally because rapidly changing technology creates doubt that the traditional "historical" method can produce doctrine relevant to "modern" battle. One early school of Air Force thought went so far as to claim that it was pointless even to write air doctrine because it would become obsolete so quickly that it would be useless.[3] The fact that the Air Force revised its basic manual on doctrine one year after its first edition in 1953 and then again in 1954, 1955, 1959, 1964, 1971, 1975, 1979, and 1984 reflects the constant fight to keep doctrine current.

The first edition of Air Force Manual (AFM) 1-2 in March 1953 was a very small booklet (4 inches by 6 inches) that contained only seventeen pages. General Hoyt S. Vandenberg may have anticipated the many revisions when he wrote his foreword:

> Basic air doctrine evolves from experience gained in war and from analysis of the continuing impact of new weapons systems on warfare. The dynamic and constant changes in new weapons makes periodic substantive review of this doctrine necessary.[4]

It is difficult to find specific statements in the manual that would not apply to any modern air force. It was clearly environmental doctrine.

The 1954 edition of AFM 1-2 appears identical to the 1953 edition. Interestingly, General Nathan F. Twining's foreword to the manual is identical to General Vandenberg's foreword, except for the deletion of one sentence: "The dynamic and constant changes in new weapons makes periodic substantive review of this doctrine necessary."[5] Apparently General Twining felt that fundamental air doctrine should not change.

In 1959, the word *aerospace* replaced the word *air* throughout the manual, reflecting General Thomas D. White's earlier introduction of the term.[6] Space operations were doctrinally tied to air operations by this significant statement:

> The aerospace is an *operationally indivisible medium* consisting of the total expanse beyond the earth's surface. The forces of the Air Force comprise a family of operating systems-organizations, ballistic missiles, and space vehicle systems. These are the fundamental aerospace forces of the nation.[7]

In 1964, an important change occurred that affected the very nature of Air Force doctrine. The foreword to all previous editions placed no external constraints on the development of doctrine (other than the lessons of history and the impact of technology). But General Curtis E. LeMay's foreword in 1964 formally recognized a constraint by national objectives and policies:

> Basic doctrine evolves through the continuing analysis and testing of military operations *in the light of national objectives* and the changing military environment. Accordingly, the thermonuclear age has created conditions necessitating a rapid advance in the development of new concepts of air warfare. It is probable that new interpretations will continue to be needed if Air Force doctrine is to be responsible to *changing national policy requirements*, the potential military threat, and developments in military technology.[8]

Since 1964, the foreword has consistently included national objectives and policies as constraints on Air Force doctrine. General LeMay's mention of the thermonuclear age was

formal recognition that, although the best way to defeat an enemy may be the unrestricted use of all available military capacity, fear of nuclear escalation had become an undeniable restriction.

Most significant is the change of flavor that permeates the manual published in 1964. Without knowing the title or authors, a reader would instantly recognize that the content is essentially an Air Force discussion of how to deal militarily with aggressive communism. *The manual had become organizational doctrine.*

In 1975, a separate paragraph devoted to space reaffirmed the peaceful desires of the United States:

> The underlying goal of the U.S. national space policy is that the medium of space must be preserved for peaceful use for the benefit of all mankind. National policy and international treaties restrict the use of space for employment of weapons of mass destruction. There is, however, a need to insure that no other nation gains a strategic military advantage through the exploitation of the space environment.[9]

The 1979 version of AFM 1-1, *Functions and Basic Doctrine of the United States Air Force*, was our highest expression of organizational doctrine. It recognized three types of space operations: space support, force enhancement, and space defense. Space support consisted of launching and operating satellites that provide force enhancement to earth-based units through surveillance, command-control-communications, navigation, and weather data. Space defense warned of hostile acts in space and cracked the door on our use of force in space by stating that it should "enhance deterrence by developing the capability to deny or nullify hostile acts in or through aerospace."[10]

Two significant changes mark the 1984 edition of AFM 1-1. First, it takes a refreshing step "back down the doctrine tree," toward the more abstract level of environmental doctrine. Though the concepts are certainly still a product of USAF heritage and today's technology,

much of the presentation is divorced from our specific organizational context. Second, space operations have been deleted from the list of Air Force missions, reflecting their full integration into the remaining nine. The groundwork for this change is laid by a note at the end of the preface, which warns the reader not to construe any residual use of the word *air* as a more limited treatment of the aerospace medium.

In October 1982, the Air Force published the first edition of Air Force Manual 1-6, *Military Space Doctrine*. In addition to its specific doctrinal statements, it permits an assessment of how our space doctrine fits onto Colonel Drew's tree.

Does AFM 1-6 represent constrained or unconstrained doctrine? The very presence of chapter 1 attests that Air Force space doctrine is subservient to national policy. The title, "National Space Policy, Executive Guidance, and Legal *Constraints*" (emphasis added), indicates in no uncertain terms that the doctrine is constrained. Paragraph 1-3 identifies a governing political-military environment:

> Military space-related activities are *authorized by and regulated according to* our nation's laws. They are *affected by* treaty commitments and by this nation's traditional *adherence to* international law. *National policy sets the tone* for military space operations. . . .[11]

Although no one has ever advocated that the Air Force dash into space uncontrolled by civilian policy, there are major arguments for an unconstrained statement of military space doctrine. Lieutenant Colonel Dino A. Lorenzini discussed four such arguments in the July-August 1982 issue of *Air University Review:* First, other directives provide statements of national policy; second, if fundamental tenets are not described in a doctrine manual, they are probably not stated elsewhere; third, an unconstrained doctrine offers more continuity; and fourth, without statements of possible actions, civilian leaders are not aware of lost opportunities.[12] When a futurist doctrine is externally constrained in defining principles, it ceases

to function as doctrine and becomes merely another statement of national policy.

As stated in the review of AFM 1-1, Air Force basic doctrine became constrained about 1964, principally by the fear of nuclear escalation. But air doctrine had decades to mature before this restriction. Space doctrine is still in its infancy. It is one thing to know the best way to conduct military operations and still work under constraints in implementation strategy. (There are always real-world restrictions: civilian policy is but one of them.) But it is a risky matter to allow outside influences to hinder the formulation of basic military truths.

Does AFM 1-6 represent environmental or organizational doctrine? The manual was written to apply only to the United States Air Force and does not apply to other national military forces operating in the medium, so it is clearly organizational doctrine. Thus, if AFM 1-6 were placed on Colonel Drew's doctrine tree, it would appear in the top foliage, beyond AFM 1-1, as shown in Figure 2.



*Figure 2. Organizational Space Doctrine*

Even though the Air Force now publishes only *organizational aerospace* doctrine, environmental air doctrine still clearly supports it. Since *aerospace* is a manufactured word de-

rived from the words *air* and *space*, the question is whether there is *environmental space* doctrine to support the *organizational space* doctrine of AFM 1-6. Examining the origin of the term *aerospace* may help answer the question.

In 1958, General Thomas D. White, then Chief of Staff, introduced the term *aerospace* as a means of conveying his belief that air and space are an inseparable entity. From a technical viewpoint, the several divisions between the upper atmosphere (troposphere, stratosphere, mesosphere, thermosphere, and exosphere) are arbitrary, and wherever the boundary between air and space may fall, it is but one more arbitrary altitude along a continuum of decreasing atmospheric density. General White's view also has strong "support" from the legal community, for its members have been unable to agree on a boundary. Since there is no definite boundary between air and space, such as that between land, sea, and air, General White concluded that there could be no logical division between the two.[13]

General White's conclusion is certainly logical when one considers the developments in weapon systems during the late 1950s. The first successful Atlas flight on 14 December 1957 demonstrated that ICBMs would soon become a major part of the Air Force strategic force.[14] It was widely accepted that manned aircraft and unmanned missiles were complementary systems. Bombers could be recalled after launch, but missiles had better alert potential, greater speed, and reduced vulnerability.[15] More important, the ICBM was a weapon system that *transited the air-space boundary* two times during its mission. And the ICBM mission—striking the enemy's heartland—had been a *unique and formally recognized Air Force mission* since publication of the first manual on basic doctrine in 1953. But doctrine for strategic missiles is now an element of nuclear doctrine, rather than space doctrine. Space doctrine covers only orbital systems: thus, the link between air and space that once existed has been broken.

But perhaps there was more behind the concept of "aerospace." The events of the late 1950s reflect a period of intense debate within the military and between the military and NASA over roles and missions in space. Although General White presented his logic on "aerospace" apart from any stated rivalry among the services, the events of the period suggest that he was also driven by a strong desire to gain control of possible space missions for the Air Force.

## Space Characteristics and Principles of War

If there are reasons to question the thinking that led to coinage of the word *aerospace*, should we not question the adequacy of a space doctrine based on the concept?

In his discussion of fundamental doctrine, Colonel Drew quotes a statement by Dr. I. B. Holley that the principles of war are doctrinal beliefs that have become axiomatic.[16] If the principles of war are the enduring, generalized, and highest expression of military doctrine, they should provide a framework for this examination. One should note that each time these fundamental principles of war are applied to a particular environmental medium, they differ in spite of their common historical origins. The difference lies in the inability of forces in the different media to apply these fundamental principles in precisely the same way.

Characteristics of the aerospace medium covered in AFM 1-1, such as speed, range, maneuverability, flexibility, and responsiveness, have left an indelible "air mark" on the principles of war. But are these characteristics and the resulting aerospace version of military principles that they give rise to a valid basis for space doctrine? If we use our lineage of Air Force basic doctrine manuals to define the aerospace principles of war, do we find that these principles are wholly compatible with characteristics of the space medium? If our aerospace principles do not uniformly apply to space, then

environmental (Air Force basic) doctrine is an insufficient and invalid foundation for space doctrine.

The principle of the *objective* is a central element in the successful conduct of any battle and has been included in all discussions of the principles of war in the Air Force doctrinal manuals. A single objective must be clearly defined so that it can be easily understood. The objective becomes the goal of military strategy and serves as a benchmark through all levels of command to ensure that all subordinate plans contribute directly to the objective.

Any detailed battlefield objective is ultimately traceable to a published doctrinal statement concerning the objectives of military forces. But AFM 1-6 reveals that we have yet to determine our real military space objective. The preface of the manual states:

> The basic philosophy of space doctrine is to preserve free access to, and transit through, space for peaceful purposes by military and civilian sector.[17]

This is certainly consistent with all public statements on space since the passage of the Space Act of 1958. But close examination of AFM 1-6 reveals a wider debate over subordinate strategies to ensure peaceful use of space. Parts of paragraph 3-4 state that space weapon systems not only can directly damage earth-based counterforce and countervalue targets but can suppress earth-based enemy defenses to improve penetration by other weapons.[18] These potential war-fighting missions offer an objective far different from the "space peacekeeper" goal described in the preface. Clearly, the issue over military space objectives has not been resolved.

The principle of the *offensive* for the war-fighting mission in space is closely tied to the principle of the objective because the offense has always been considered essential for victory. The air power concept of the offensive brought a new dimension to war, for it allowed "heartland operations" aimed directly against an enemy's strength without first having to defeat his defensive forces.[19] However, by 1955, advances in air defense technology made heartland operations very costly, and the principle of the offensive was changed to the principle of the initiative. Rather than designating the enemy heartland, AFM 1-2 stated that "air forces also have the power to carry out operations immediately against an enemy at any desired point in time or space."[20] This principle calls for imposing our will on the enemy and forcing him to abandon his plans for the offensive and concentrate on defense.[21]

There is no reason to assume that the principle of the offensive would not apply to space, but the present structure of the orbital force offers little, if any, capability. Few systems can maneuver, and none can "shoot back." The potential for offensive operations in space has been limited only because of technology and policy decisions against being "offensive" in space. This principle should become increasingly important in the future.

The principle of *economy of effort* has at times been treated as a separate item in Air Force doctrinal statements, but, at other times, it has been treated as part of the principle of concentration.[22] Taken separately, economy of effort warns the commander against overkill. Since few commanders have unlimited resources or an overwhelming superiority, a lack of economy in one action can have a severe impact elsewhere.[23]

Economy of effort is particularly important for space operations for different reasons. Each pound placed in orbit is still very expensive. Any evasive maneuvers require fuel, carried at the expense of payload. So any future force projection will undoubtedly be tailored to specific targets with little overkill available. The sheer cost of space operations demands "economy of effort," but too much economy can prove detrimental. In efforts to save money, the United States has built multimission spacecraft, which, because of their high individual cost, must be capable of operating for long

periods. But the Soviet Union has opted for single-mission systems with shorter life. This circumstance gives the Soviets a reserve launch capacity and much freedom of action in a space conflict. Economy of effort in space deserves close scrutiny and some redefinition.

The principle of *control* has sometimes been labeled the principle of cooperation or the principle of unity of effort. Although World War II proved the necessity of placing air forces under a single commander, this concept was not labeled a principle of warfare until the publication of AFM 1-2 in 1955. That manual used the term *principle of entity* in discussing the mandate for centralized control to exploit the versatility of air power. A commander must "concentrate effort at decisive times and places" and avoid "segmenting the forces concerned and diffusing their effort in unrelated, infeasible, or excessively costly undertakings."[24] Entity was changed to *unity of effort* in 1975.[25]

By whatever name, centralized command should certainly apply to operations in space. Lieutenant General Richard C. Henry, USAF (Ret), repeatedly stated that one of the most striking aspects of all our space systems is that they service more than one user.[26] Decentralized control of space would be ineffective today for the same reasons that decentralized control of air power in World War II permitted conflicting requirements on limited assets. AFM 1-6 recognizes this principle in paragraph 4-2, which predicts that a unified command will eventually evolve to control operations in space.[27]

The ability to *concentrate* forces was certainly enhanced by the much greater speed and range of aircraft. The 1955 AFM 1-1 noted that the continuity of the air medium permits concentration both in time and space over the range of the entire globe.[28] Concentration allows a numerically inferior force to gain a local tactical advantage.[29] The 1979 AFM 1-1 points out that concentration is achieved through deception, speed, and maneuverability.[30]

Concentration deserves close examination before it is applied to space because with air forces it has always been achieved by physically moving a number of weapon systems together to achieve local superiority. However, because maneuvering in space requires great amounts of energy, any attack against orbiting spacecraft will probably be a one-on-one engagement against a very predictable target. But if the spacecraft cannot be concentrated, can the support they provide be concentrated? To some degree, yes. Yet because of lengthy development time, we design a specific capability and deploy spacecraft during peacetime. Wartime surge capacity comes at great cost, primarily through orbital spares or replacement. Therefore, the traditional principle of concentration of force apparently has little application to space operations.

From 1955 to the present, the principle of *flexibility* or *maneuver* has been considered a characteristic of air forces because of the unrestricted access to targets offered by the air medium. Maneuver enables a commander to employ selective strength against an enemy's weakness and to withdraw when confronted by superior strength. Maneuver maintains the initiative in battle and allows offensive operations and surprise.[31] Maneuver is only one element of flexibility, but it is the element most often used by the military.

If there is anything that space systems do not have, it is maneuverability. Great care is taken before launch to predict the orbit over the complete life of a satellite because it is essentially fixed forever once achieved. In the move from air to space, the larger medium has in fact reduced access and maneuver.

But what other kinds of flexibility are available? Reconfiguring a weapon system to support a particular need has been a very successful approach with ground, sea, and air forces; but, unlike space, these systems have always allowed routine physical access. Even the space shuttle does not provide the recurring access necessary to reconfigure a spacecraft payload.

Any provision for spacecraft reconfiguring must be made prior to launch and is usually provided to work around anticipated component failures. Flexibility and maneuver are not found in the space medium.

Although the principle of *simplicity* did not appear in AFM 1-1 until 1979, that manual warns that, despite the complexity of a grand strategy, orders to implement this strategy must be clear, concise, and simple. The concept is extended to hardware by implying that simplicity produces reliability and rapid repair.[32]

While the development of air power has certainly taxed any definition of simplicity, space systems represent one of today's highest expressions of complex technology. Merely to survive in the harshness of space, separate subsystems must control temperature, maintain attitude, provide power, and maintain communication with ground controllers—all to support an even more complex mission package. As military space systems are designed to operate more autonomously from ground control in a hostile threat environment, the systems will become even more complex. While space assets can certainly be controlled through simple plans and strategies, spacecraft themselves are highly complex.

*Defense* was discussed as a principle of war in 1975 and 1979. It stated that the defense can inflict significant losses against certain categories of weapon systems.[33] Since today's satellites and their ground stations are almost defenseless, they cannot exploit the principle of defense. They "defend" only in the hope of surviving an attack, rather than inflicting damage on the attacker.

Since a satellite is not physically accessible during hostilities, any defense mechanism must be designed before launch to cope with unknown threats over the life of the system. If an aggressor has enough time to observe and characterize a satellite, he will have a significant advantage because he can tailor his attack to take advantage of the weaknesses of each satellite. Certainly, there will come a day when spacecraft will have defensive firepower, but that time is probably decades away.

The principle of *security* requires two broad activities: denying useful information to an enemy and obtaining and exploiting information about the enemy. AFM 1-2 in 1953 stated:

> Air forces gain security by the exploitation of their extensive capabilities to maneuver in operation and their ability to strike directly at the sources of enemy offensive air action. They also attain security through selective positioning of bases and the active defense of areas.[34]

Space systems have produced a revolution in obtaining information about the enemy. Uninterrupted line of sight from space to earth has removed a great deal of security from earth-based warfare and has made it more difficult to achieve surprise, though surveillance from space is powerless to discern true intent.

Although orbit selection does allow some freedom in "positioning," there is no sanctuary as implied by AFM 1-2. However, the sheer distance and inaccessibility of earth orbits provide some security to satellites. Most disabled ships sink and airplanes crash, but broken satellites continue on their way, creating uncertainty for a target planner. Nevertheless, orbit mechanics have removed the traditional concept of a sanctuary where a force can retreat out of range of the enemy. Low-altitude satellites complete many orbits each day, with most passing over enemy territory, giving the enemy recurring and unavoidable line of sight to the satellite. The principle of security requires reinterpretation for space.

*Surprise*, which is gained through deception, audacity, originality, concentration, and speed, forces the enemy to fight at a time and place not of his choosing.[35] Surprise must not be confused with total unawareness; it requires only that the enemy become aware too late to react effectively.[36]

Where space is concerned, surprise is achieved through deception and by attacks that bypass the restrictions of orbit mechanics. That is, any attack that projects destruction through move-

ment in orbital trajectories is observable and predictable. Only directed-energy weapons and electronic countermeasures, which operate in straight lines at the speed of light, can achieve surprise.

The principle of *timing and tempo* first appeared as a principle of war in 1979. It stated that by operating at a faster pace than the enemy can detect our actions and react, we can gain dominance of the battle.[37] Although this principle should apply to a space conflict, there are some unique constraints on the decision time-line. First, it will not be possible in the near future for a commander to have a constantly accurate picture of the location or status of enemy space systems. The ability to classify a satellite mission and its operational status correctly depends on repeated observations. Even a firmly identified, operational satellite is observable only when it is in line of sight of tracking stations. With the small number of stations, a satellite's true orbit and status are known only over short dispersed periods; between these periods, the satellite possibly may maneuver or reconfigure. Second, even if a commander makes a decision based on currently accurate intelligence, he is not always able to execute his wishes because of the same tracking station restrictions. For some time into the future, any battle in space will feature contestants wearing blindfolds that can be removed only for short (and different) intervals.

In 1984, *logistics* was added and defined as the principle of sustaining both men and machine in combat by obtaining, moving, and maintaining war-fighting potential.[38] The problem of placing, operating, and (with the advent of the space shuttle) repairing assets in orbit has been central to space operations since 1957. Even for civilian space missions, logistics has permeated every decision and operation since the first satellite launch. Advances in launch technology may somewhat ease logistic planning difficulties, but they will forever be a central part of space operations.

*Cohesion* is also new in 1984 and is defined

as establishing and maintaining, through shared experiences and purpose and a sense of common identity, the war-fighting spirit and capability of a force to win.[39] Cohesion pertains to the warrior, not the machine. Though more difficult with dispersed forces, the need for cohesion follows man wherever he may fight—including space.

## The Need for a Separate Space Doctrine

Our current space doctrine is highly constrained by contemporary national policy and the misapplication of air principles to space. As a result, our present space doctrine contains few, if any, statements of unalterable truths regarding the conduct of military operation in space. It is organizational doctrine, unique to space operations of the U.S. Air Force.

Close examination of the principles of aerospace war reveals that the principles do not all fit where military space operations are concerned. The principles of the objective, economy of effort, control, logistics, and cohesion are very general in nature and do apply to space; the principles of concentration, flexibility/maneuver, and simplicity do not apply. The principles of the offense and defense do seem applicable to space but only after space technology reaches a more mature state. The principles of security, surprise, and timing and tempo apply only in a way unknown before the era of space operations.

The environmental principles of aerospace war do not uniformly apply to space because the air and space environments are different. The lack of a clear-cut physical boundary between air and space has caused us to ignore the distinct characteristics of orbital operations. Since there is no doctrinal foundation for the term *aerospace*, we should reapply Major William C. Sherman's advice of 1921:

> In deriving the doctrine that must underlie all principles of employment of the air force, we must not be guided by conditions surrounding

the use of ground troops, but must seek out our doctrine . . . in the element in which the air force operates.[40]

AFM 1-6 belongs on a wholly separate branch of Colonel Drew's doctrine tree, removed from AFM 1-1, as shown in Figure 3. And since the manual has made a statement of organizational space doctrine without first laying the necessary environmental foundation, we have actually produced leaves on a nonexistent branch.

*Figure 3. The Separate Branches of Air and Space Doctrine*



AFM 1-6

AFM 1-1

space

air

land

sea

fundamental doctrine

military history

In 1926, long before the Air Corps had produced a written statement of doctrine, William Mitchell described a pure environmental air doctrine before the House Committee on Military Affairs:

There has never been anything that has come which has changed war the way the advent of air power has. The method of prosecuting a war in the old days always was to get at the vital centers of the country in order to paralyze the resistance. . . . Now, in order to keep the enemy out of that, armies were spread in front of those places and protected them by their flesh and blood. . . . Now we can get today to these vital centers by air power. . . . So that, in the future, we will strike, in case of armed conflict, when all other means of settling disputes have failed to go (sic) straight to the vital centers, the industrial centers, through the use of an air force and hit them. That is the modern theory of making war.[41]

This concept of the role of air power was the basis for all subsequent development of environmental air doctrine. A similar basis is desperately needed for the role that space should play in the conduct of war.

BUT how can we lay aside personal opinion and rely on logic to build this supporting structure for our space doctrine? I propose that the answer again lies in the principles of war. Just as today's aerospace principles provided the framework to test the adequacy of our "aerospace" environmental doctrine, the next step is to take a full set of fundamental principles, examine them in light of the characteristics of the space medium, and produce the principles of space war. The challenge lies before us.

*Air Command and Staff College*
*Maxwell AFB, Alabama*

Notes

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2. Ibid., p. 41.

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6. Major Gene E. Townsend, "The Dynamic Role of Air Force Doctrine," *Air Force*, October 1979, pp. 53-55.

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15. White, pp. 40-41.

16. Drew, p. 44.

17. Air Force Manual 1-6, *Military Space Doctrine* (Washington: Government Printing Office, 15 October 1982), p. iv.

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19. Air Force Manual 1-2, March 1953, p. 11.

20. Air Force Manual 1-2, *United States Air Force Basic Doctrine* (Washington: Government Printing Office, 1 April 1955), p. 5.

21. Air Force Manual 1-1, 14 February 1979, pp. 5-4, 5-5.

22. Air Force Manual 1-1, 15 January 1975, p. 2-2.

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24. Ibid., pp. 4-5.

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26. Lieutenant General Richard C. Henry, "Space Is a Place," *Air Force*, June 1982, p. 38.

27. Air Force Manual 1-6, 15 October 1982, p. 10.

28. Air Force Manual 1-2, 1 April 1955, p. 5.

29. Air Force Manual 1-1, 15 January 1975, p. 2-2.

30. Air Force Manual 1-1, 14 February 1979, p. 5-5.

31. Ibid., p. 5-7.

32. Ibid.

33. Air Force Manual 1-1, 15 January 1975, p. 2-2.

34. Air Force Manual 1-2, March 1953, p. 9.

35. Ibid., Air Force Manual 1-1, 15 January 1975, p. 2-2.

36. Air Force Manual 1-1, 15 January 1975, p. 2-2.

37. Air Force Manual 1-1, 14 February 1979, p. 5-8.

38. Air Force Manual 1-1, working draft dated 16 March 1984, p. 2-9.

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40. Futrell, p. 4.

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## AEROSPACE POWER SYMPOSIUM

The Tenth Air University Aerospace Power Symposium will be held 10-12 March 1986 at Air War College, Maxwell AFB, Alabama. The theme is "The Impact of Space on Aerospace Doctrine." The symposium will be conducted in four interrelated sessions: National Security Policy for Military Action in Space, Military Strategy for Implementing Space Policy, Aerospace Forces for Conflicts Involving Space, and Assessment of Past and Current Doctrine.

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Chief, Aerospace Power Symposium
Air War College
Maxwell AFB AL 36112-5522

# THE STRATEGIC DEFENSE INITIATIVE

## political risks

Dr. Stephen J. Cimbala

THE Strategic Defense Initiative (SDI) proposed by the Reagan administration raises many uncertainties and risks for U.S. deterrence strategy, particularly in the areas of deterrence stability, technology, Soviet reactions, crisis management, and conventional war in Europe. Prospects for SDI are too uncertain for anyone to make decisive assessments of the program's probable success or failure, but the relevant policy issues should be addressed now. Failure to anticipate possible problems could make eventual deployments of U.S. or NATO strategic or theater defenses self-defeating.

### Strategic Deterrence

U.S. strategic nuclear forces are deployed with the primary mission of deterring Soviet attack against U.S. forces or cities. Two kinds of attacks concern U.S. planners. The first is the "bolt from the blue"—an unexpected, premeditated attack against forces on day-to-day rather than generated alert.[1] Although regarded as improbable compared to other scenarios, the sudden, planned attack provides a benchmark relative to which force sizing can be estimated.[2] The second kind of attack is the
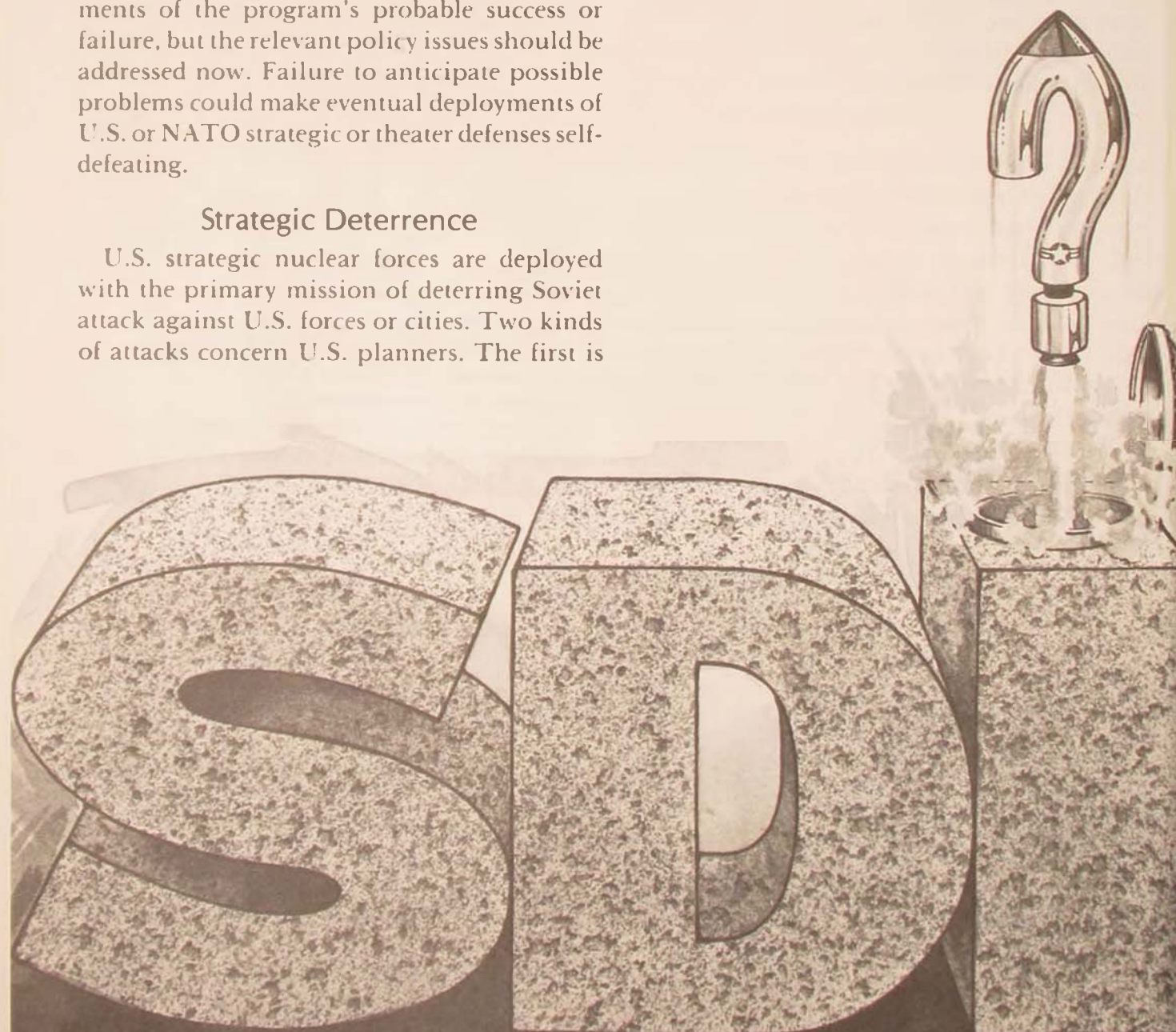
preemptive strike, made during a crisis in which the Soviets fear that war is imminent and strike us first to reduce damage to themselves.[3] Strategic preemption could result either from escalation from theater nuclear or conventional warfare or from Soviet anticipation of U.S. preemption. The authoritative President's Commission on Strategic Forces (Scowcroft Commission) noted in 1983 that U.S. strategic retaliatory forces were synergistically survivable: the strategic Triad of land-based intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and strategic bombers could not be attacked successfully by current or near-term Soviet forces without the subsequent retaliatory destruction of Soviet society.[4] The Scowcroft Commission did recommend that the United States deploy the MX/Peacekeeper ICBM during the 1980s and the Midgetman small, single-warhead ICBM in the 1990s to enhance survivability and to threaten those targets (Soviet ICBM silos and command bunkers) that the commission felt Soviet leaders would regard as most important.[5]

The commission was quite explicit in its concern about the implications of U.S. ballistic missile defense (BMD) deployments for deterrence, crisis, and arms race stability.[6] It noted that the Antiballistic Missile (ABM) Treaty should be regarded as an important milestone and not casually abrogated. This point is acknowledged by most arms control experts.[7] But the treaty is vulnerable to pressure from the President and powerful interest groups to begin deployments of partially effective U.S. theater or strategic ballistic missile defenses. If BMD deployments are in the U.S. interest, the United States should seek to modify the treaty to permit those deployments.[8] The treaty is not sacrosanct because of its symbolism, important as that may be; it is as durable as the political commitments of the superpowers to the principles of deterrence that provided for its creation.

Those principles rested on an assumption shared by the United States and the Soviet Union that although their doctrines might differ, their capabilities had implications for stability apart from those doctrines. The ABM Treaty of 1972 acknowledged that the protection of cities from nuclear attack was not cost-effective, given technology then available. By implication, it also suggested that missile defenses which contributed to perceived first-strike capabilities were destabilizing. Either superpower in a crisis might be tempted to attack the vulnerable forces of the other. Whatever else they chose to do, according to the logic of the treaty, the superpowers must protect the strategic forces of *both* sides from surprise attack.

It is important to note that this tacit mutual acceptance was not purchased lightly. Both the United States and the Soviet Union learned a great deal about each other's approaches and doctrines during the course of the SALT I negotiations.[9] It is an overstatement to say that either adopted the deterrence principles or the prewar political objectives of the other, and neither doctrine has evolved since then as the "mirror image" of its counterpart.[10] But the two sides sprayed each other's doctrinal fences with very visible strategic graffiti, not all of which was subsequently expunged.

One enduring feature of the SALT I (and subsequent SALT II) negotiations was that both sides grew to distrust very complicated and very specific formulas, preferring general rules of thumb as negotiating positions. The ceilings on strategic defenses resulting from SALT I and on offenses from SALT II reflected relatively uncomplicated, verifiable assessment and counting rules rather than statistical elegance. Most important was the mutual denial of the right to interfere with the "national technical means" of verification as codified in Article 12 of the ABM Treaty.[11] It was understood by both sides that "national technical means" was a euphemism for satellites and other high-technology photographic or electronic listening devices. Those technologies would permit monitoring of compliance under

a regime which based restraints on rules of thumb rather than strategic minutia that would be open to perpetual challenge by house card counters.

Another reason for the rule-of-thumb approach had to do with both superpowers' conservatism on the guaranteed survivability of their strategic forces. They wanted not only a plausible case for survivable forces but also an exemplary one. Forces beyond those required for minimum or finite deterrence would be needed to ensure that even a "lucky" opponent could not feel confident about a first strike without equal devastation. For this reason, among others, both parties were willing to abandon BMD.[12] Deployment of BMD would make redundant strategic offensive forces into necessities in order to ensure that survivable strategic forces penetrated to their assigned targets. The United States was concerned enough about penetrability to deploy MIRVs (multiple, independently targetable reentry vehicles) on both ICBMs and SLBMs merely on the assumption that the Soviets might improve their defenses significantly.

The proposed U.S. BMD system (then called ABM in public references) relied on technology that was "second generation" by contemporary standards.[13] The Safeguard (formerly Sentinel) system would not have defeated plausible Soviet attacks against the U.S. ICBM force. It lacked sufficient numbers of interceptors (even before the ABM Treaty) and survivable radars to preclude Soviet destruction of the ABM-BMD itself and much of the Minuteman ICBM force, including the Minuteman launch control centers.[14] Current Soviet BMD deployments around Moscow are being upgraded by modernization of the Galosh system to a capability that appears to be equivalent to our discarded Safeguard.[15]

## Technologies

There has been a great deal of controversy about the feasibility of candidate systems for area defense, as intended by the Strategic Defense Initiative and proposed by the President.[16] Such a system could require four "layers" of boost, postboost, midcourse, and terminal interceptors and their associated surveillance, acquisition, tracking, and kill assessment subsystems.[17] It might have to be at least 90 percent effective in each of its layers to reduce damage to U.S. countervalue targets to tolerable proportions. Technology studies indicate that the boost-phase layer is the most critical in thinning out a Soviet attack of the size and character we could expect by the time a U.S. space-based BMD became a deployed reality.[18]

A study for the Office of Technology Assessment (OTA) by Ashton Carter questioned whether space-based boost-phase defenses could ever provide comprehensive population protection.[19] Carter also contributed to an authoritative study sponsored by the Brookings Institution that cast doubt on the objective of area defense against robust Soviet attacks.[20] The Union of Concerned Scientists has been consistently critical of the President's objective of making nuclear weapons obsolete and has endorsed OTA's assessment that significant population defense might not be attainable even with futuristic technologies.[21]

Former Secretaries of Defense James R. Schlesinger and Harold Brown have evaluated the prospects for BMD technology and found them uncertain and mission-dependent. Schlesinger emphasized the danger in arguments that deterrence is immoral and (by implication) that it can be transcended through new defense technologies.[22] Harold Brown compared three possible BMD deployments (comprehensive area, limited area, and point defenses) and concluded that only the last would be affordable, although he judged it unnecessary at present.[23] The administration is apparently hearing these criticisms. Although the President and Secretary of Defense Caspar W. Weinberger continue to speak of BMD technologies that can provide societal survivability, there is signifi-

cant skepticism at the working levels of the administration. This skepticism has been reported by many in the press, and it has led to some advocacy for limited defenses for U.S. retaliatory forces and some important strategic command, control, and communications (C³) centers. One widely noted article—by Zbigniew Brzezinski, President Carter's Special Assistant for National Security Affairs; Robert Jastrow, space scientist and advocate of missile defenses; and Max Kampelman, a principal U.S. negotiator at the U.S.-Soviet arms control talks in Geneva—called for limited BMD deployments with two layers to provide significant, although less than total, protection for U.S. retaliatory forces and other key targets.[24]

Technology arguments will not be resolved soon, but the relevant policy context is not being clearly specified by many BMD advocates and critics. Two parts of the policy context —probable Soviet responses to U.S. BMD and the policy guidelines for using BMD systems during crisis or war—need particular study and discussion as technological avenues are being explored.

## Soviet Reactions

Soviet assumptions about U.S. policies and the strategic intentions that motivate U.S. BMD deployments (which will be discussed in the next section here) will determine Soviet reactions to proposed and actual deployments. Soviet reactions may vary considerably, depending on the type and scope of U.S. deployment.[25]

First, the United States might deploy BMD in order to protect its deterrence assets, which could include ICBM silos, air bases, and submarine pens, plus critical command and control targets. Undoubtedly, terminal defenses of several kinds could raise the "attack price" that the Soviet Union would have to pay to destroy a U.S. silo or command bunker.[26] Whether the Soviets would be willing to pay that price is scenario-dependent. A race between the con-

struction and deployment of defensive interceptors and the multiplication of warheads on offensive missiles, under present conditions, is a losing proposition for the defense.[27] However, point defenses of silos need not be nearly perfect; if even a small proportion of U.S. ICBMs were to survive a Soviet first strike, it could be used promptly to destroy remaining Soviet ICBMs, other silos, and command bunkers. Estimates of U.S.-Soviet countersilo exchange ratios without missile defenses underscore the uncertainty that already exists in war planners' assessments of the probability of success for any strategic first strike.[28]

The case for defending only retaliatory forces thus has the obvious advantage (compared to comprehensive population protection) of less ambitious objectives, but such a system can be overwhelmed if the opponent is determined to outbuild the defense. At some point, the marginal utility of point defenses by themselves begins to deteriorate against an unconstrained offensive force of the opponent. To forestall such an outcome, either arms control agreements that limit the opponent's force modernization or the amalgamation of point defenses into more enhanced capabilities is required.[29]

The success of arms control depends on Soviet reactions that may be difficult for us to predict, let alone influence. The United States, if it chooses to deploy point defenses for its retaliatory forces, must presumably abrogate or amend the ABM Treaty while our U.S. leaders and negotiators convince the Soviet Union that we seek limited strategic modernization objectives in doing so. The Soviets would have to be convinced that our defenses were designed only for the mission of second-strike retaliation and not as supplements to any potential first-strike capability. To convince them that this indeed was the case, the United States might then have to limit its point defenses to terrestrial deployments, since the Soviets could not regard our space-based defenses as without first-strike potential. The reason why they could not dismiss the first-strike potential of any U.S. space-

based system is that such a system would be a very capable ASAT (antisatellite weapon) even before it provided capabilities in a BMD mission. Thus, our expectation of Soviet reactions might lead us to deploy a less threatening but therefore less capable system. We might then have a system that amended the ABM Treaty, charged the Soviet Union a very modest "attack price" for destroying silos, and created in Soviet minds substantial doubts about our commitment not to expand this limited system into something more comprehensive.

Another U.S. option would be to attempt to provide area defense for U.S. cities, populations, and societal values. This choice could provoke Soviet countermeasures less benign than those provoked by U.S. point defense. Protection for U.S. society implies not only denial of Soviet second-strike capabilities but also counterforce preeminence, given the probable capabilities of U.S. strategic offensive forces by the time active defenses are deployed. It might also appear to the Soviets as a necessary step toward a U.S. first-strike capability.[30]

The Soviet Union could exploit the impression that U.S. population defense would pro-
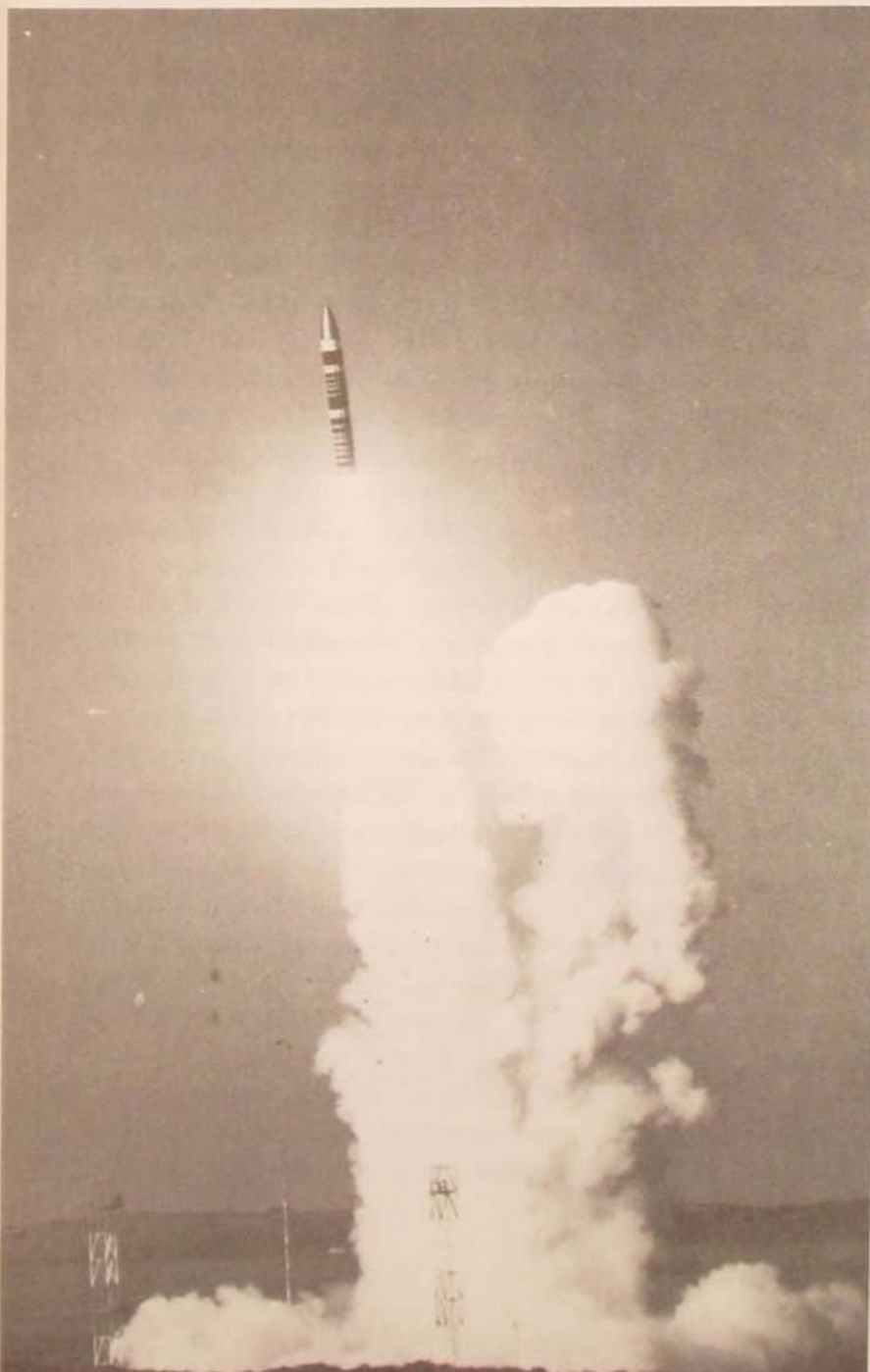


*The MX Peacekeeper missile, shown here on its first test flight, soon will be deployed in existing Minuteman silos. Because this extremely accurate missile will have the same vulnerabilities as the older, less accurate Minuteman, some MX critics predict diminished deterrence stability.*

vide us with first-strike capabilities by a self-serving (though not technically incorrect) interpretation of mutual assured destruction (MAD) doctrine as explained by some past American policymakers.[31] A very "puristic" MAD strategist would argue that the "mutual vulnerability" of U.S. and Soviet societies provided the most stable deterrence, whereas counterforce capabilities must be considered intrinsically destabilizing.[32] The Soviets could point out to Europeans the U.S. BMD was destabilizing according to previously articulated U.S. theories of mutual vulnerability, which formed part of the intellectual backdrop for U.S. interest in, and subsequent adherence to, the ABM Treaty.

Thus, the more comprehensive a U.S. BMD system appeared to be, the more it would un-dermine previously articulated U.S. declaratory policies that have taken root in scientific, academic, and military professional communities. The strategic *zeitgeist* known as MAD theory has a tenacity that has outlasted the drift of presidential and other executive "amendments" to declaratory policy, including those favoring flexible targeting of strategic forces, limited nuclear options, escalation control, and limited, protracted nuclear war.[33] Moreover, firm adherence to assured destruction perspectives among the "attentive public," including the U.S. Congress, creates an alliance of coincidence between U.S. and Soviet elites. Whether Soviet doctrine converges toward U.S. declaratory policy or not, Soviet attentiveness, to American advocates of mutual vulnerability, has been timely. American MAD thinkers want to defeat comprehensive population protection for the American homeland because they are convinced that a viable, deployed defensive system would make deterrence less stable. Their Soviet counterparts are motivated to delay or prevent U.S. population defenses because those defenses might deny Soviet second-strike capa-

*Air- and ground-launched cruise missiles complicate Soviet defense problems by forcing the Soviets to deal with low-altitude penetrators. Because of their relatively slow speed, however, ALCMs and GLCMs do not pose the threat of preemptive strike.*
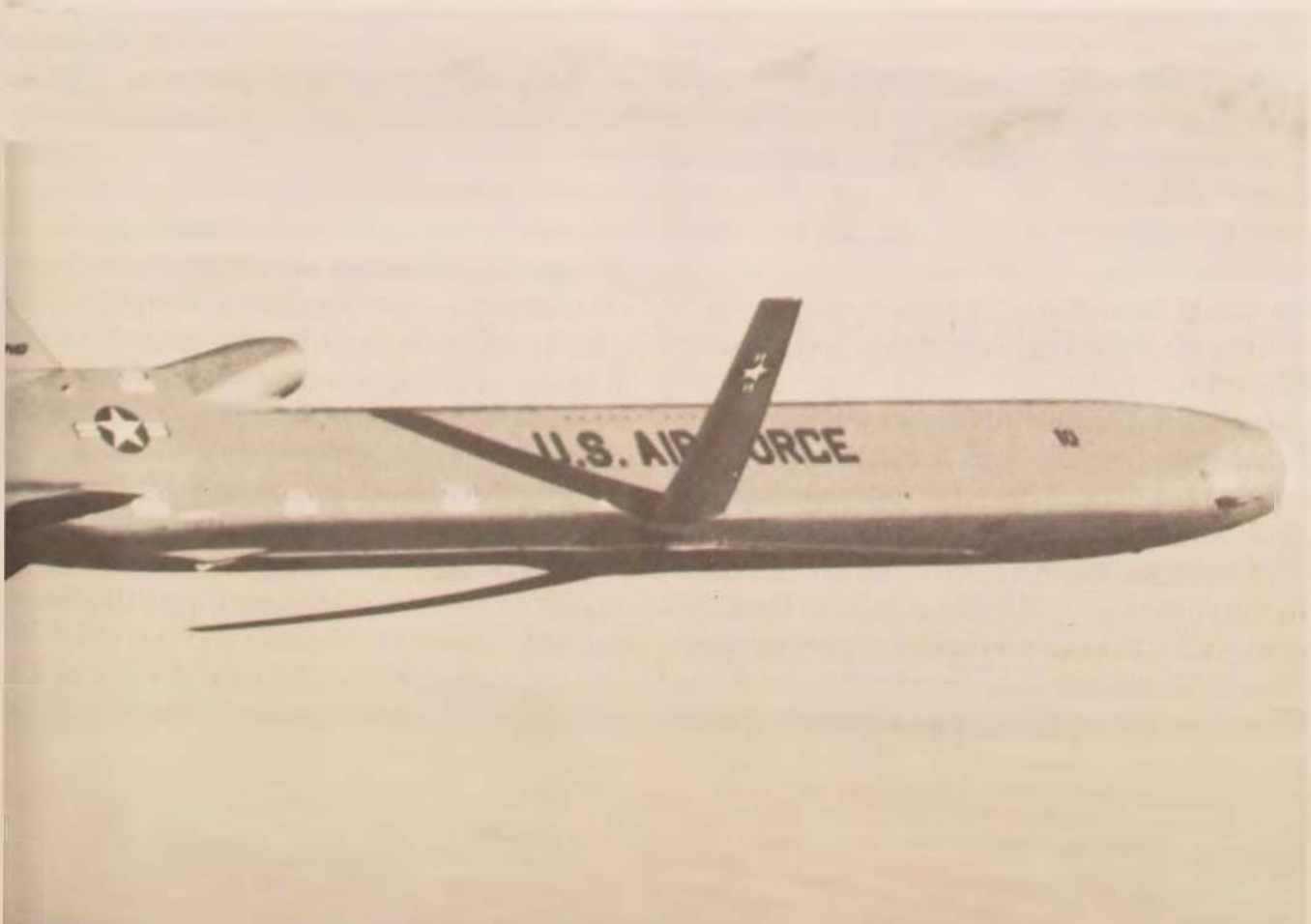
bility or might preclude a "victory denial" or "countervailing" strategy for the Soviet Union. Although Soviet military writers have never endorsed victory denial or countervailing strategies in those words, their anxieties about U.S. declaratory policies so labeled make clear their understanding of the implications of those strategies, were we to succeed in implementing them.[34]

Comprehensive strategic defenses of the kind mooted in the President's Strategic Defense Initiative could fail even if they succeed in creating the appropriate space and terrestrially based technologies. They would fail in the political realm, which is the more decisive (especially in the judgment of Marxist/Leninist Politburo members). Marxist/Leninist rulers of the Soviet Union would continue to judge U.S. intentions by interpreting U.S. behavior through the perspective of international class struggle. Moreover, a preclusive "shield" for the U.S. population would create Soviet expectations about the potential for U.S. coercion, which we demonstrated to the Soviets' dissatisfaction during the Cuban missile crisis. Meanwhile, at least some U.S. arms control experts would fear the destruction of deterrence stability, arms race stability, and crisis stability, while in Britain and France, many who have supported their own nations' nuclear deterrents, which now promise fairly substantial countercity attacks against the Soviet Union by the 1990s if the Soviets do not deploy more effective BMD, would perceive that these weapons could be nullified by the Soviet deployments in reaction to presumably very capable U.S. initiatives.[35]

If this projected sequence of events and outcomes seems unnecessarily pessimistic, it is appropriate to consider the relationship between domestic politics and national procurement policies. The decision to embark on population defenses, however imperfect, could be irreversible. It would require the commitment of budgets, military service roles, and missions that, once adopted, could be abandoned only with the greatest difficulties. The normal inertia of the policymaking process, which feeds like a tapeworm on "incremental" decisions, would require an enormous and complicated set of political bargains and "partisan mutual adjustments" to resolve the bureaucratic and mission malaise attendant to launching comprehensive BMD.[36] Some of those same bargains would have to be struck in the event of point defense deployments, but these would be fewer in number and characterized by less irrevocability.

The policy process, however it performs, must finally confront the third potential set of pitfalls facing U.S. BMD deployments—policy guidelines for employing BMD weapons during crisis or war.

## Strategic Defense and Crisis Management

Freeman Dyson outlines three possible political futures into which BMD technologies might be fitted. The first he calls the "arms controllers" future; the second, the "technical follies" future; and the third, his own preference, the "live and let live" alternative.[37]

As explained by Dyson, the arms controllers' preferred future would involve no BMD deployments and continued reliance on assured destruction for strategic stability. The "technical follies" people would prefer a future marked by unbounded U.S.-Soviet military space deployments, including no restraints on BMD. Proponents of the "live and let live" alternative would permit deployment of nonnuclear BMD in space to accompany reductions in nuclear offensive forces by both superpowers. "Live and let live" would have outcomes comparable to those envisioned in the "defense-protected build-down" proposed by Alvin Weinberg and Jack Barkenbus: nonnuclear defenses would be phased in as nuclear offenses would be phased down or out.[38]

Dyson offers a very hopeful prognosis for deterrence stability achieved through phased

deployments of defenses that would replace reliance on offenses. This hopeful expectation is logically compelling but politically improbable. Very effective U.S. and/or Soviet BMD may not be compatible with more stable deterrence because of the dilution of crisis stability during the interim period until complete deployment by both sides is achieved.

Crisis stability implies that neither side fears preemptive attack and so aligns its forces and its command structure to preclude preemption based on misinformation, accident, or unauthorized launch. Deterrence theorists have noted for many years the importance of aligning forces so that they are crisis-stable. Until recently, they less frequently acknowledged that the command structure and the process of strategic command, control, and communications that direct strategic forces in crisis and war are also very important for stability. In recent years, however, several informative studies on the significant role of command, control, and communications for crisis stability have been published in open literature.[39]

The findings of these and other studies have implications for the relationship between BMD and crisis stability that are not reassuring. First, many U.S. fixed command posts are vulnerable to destruction early in war. Second, command posts may be survivable but not "enduring" as required by U.S. declaratory policies of Presidents Carter and Reagan. Third, the United States has little experience with the alerting of strategic forces under conditions similar to those that might make a contemporary superpower crisis. Fourth, there is no experience in U.S. and Soviet strategic forces simultaneously being alerted to high and comparably precarious (for stability) levels. Fifth, the activation of the command system during crises places almost impossible demands for both "positive" and "negative" control, either sequentially or simultaneously maintained. Sixth, the Soviet system may be worse than ours in many, if not all, of these attributes.[40]

Adding BMD to this picture would uncom-

plicate matters only if we could "leapfrog" into a comprehensive system from scratch. Even advocates of very capable U.S. BMD acknowledge that managing the "defense transition" will be a significant policy challenge.[41] An important part of that challenge is crisis stability. During the transition, it could fail catastrophically. The reasons for this are several.

First, partially effective BMD systems invite preemptive attack. If they are based in space (as they must be in most designs for boost-phase intercept), they are vulnerable to space mines, ASATs, and other countermeasures.[42] U.S. space-based battle stations, for example, would require layers of other "escoi " vehicles designed to defend the battle stations. Space defenses could be based on our experience in naval carrier task forces strategy.

Second, proliferated battle stations and escorts create $C^3$ problems that can be resolved only by automation of response to presumed threats. Computer software will need to be designed to incorporate criteria that define an attack, a threat, and (if necessary) the validated destruction of an opponent's space vehicles. Although the relevant algorithms will allow some capacity for "man in the loop" intervention, the incentives for automated "delegation of authority" increase as space BMD deployments become more crucial. The interaction between even crude BMD and $C^3$ now becomes most problematical for crisis stability. Either side's partially effective space-based BMD is a very effective ASAT, threatening preemptive destruction of the opponent's early warning and attack assessment capabilities based in space.[43]

Third, the reciprocal interactions between Soviet and American $C^3$ during crises could be triggers to war if policy guidelines for the defense of the U.S. BMD system are not clarified in advance. If the Soviets did not deploy BMD but chose to attack the U.S. system to prevent its completion, such an attack would be taken by U.S. policymakers as a *casus belli*. Thus our worst-case analysis of Soviet intentions would

accompany Soviet ASAT deployments in space. The Soviets could deploy space-based DSATs (defensive satellites) to protect their communication and early-warning satellites. U.S. planners would consider the Soviet DSATs as potential ASATs that threatened potential crisis destruction of U.S. BMD. Of course, one can imagine also the reverse situation, i.e., crisis instability prompted by Soviet BMD and U.S. ASAT/DSAT deployments.[44]

If either or both superpowers deploys partially effective BMD, command and control arrangements will have to be weighted toward positive or negative control errors.[45] Either the U.S. space-based ASAT/BMD will attack Soviet ASAT/BMD *automatically* once Soviet ASAT/BMD exhibit certain presumably threatening behaviors, or the ASAT/BMD system will do so only on positive command of political and military authorities. The system, in theory, can be arranged so that presidential or other political intervention is required to *activate* or *deactivate* a U.S. ASAT/BMD within certain threat parameters. It either would attack automatically, with political interference required to stop it, or would not attack unless explicit and specific political authorization is given to do so.

In the first case, the risk is that nonthreatening behaviors will be mistaken for threatening ones. War, which could have been avoided, will be initiated under mistaken assumptions. In the second case, the predominant risk is that the threat is real but political authorization is not forthcoming to activate the system. The first case is analogous to the predicament of national leaders on the eve of World War I. The second case is more akin to Pearl Harbor or Barbarossa.[46]

## Conventional War

Uncertainty or risk associated with the prospects for U.S. BMD have been identified here in the areas of stable deterrence assumptions, technology, probable Soviet reactions, and crisis management. A fifth category of BMD-attendant uncertainties is the impact of any U.S. and/or Soviet missile defenses on the probability of conventional war in Europe.

At first glance, it might seem that SDI would have little to do with the probability of conventional war in Europe. The probability of conflict between NATO and the Warsaw Pact is not judged to be high by expert analysts.[47] The risks of beginning war in Europe without being able to end it short of nuclear war between the superpowers are considerable. However, it is also the case that the very improbability of war on the Central Front might make it more difficult for NATO governments to accept valid indicators that deterrence had failed. This doubt that war will occur would maximize the possibility of surprise if the Warsaw Pact decided to go to war but only ambiguous indicators were available.[48]

U.S. strategic defenses based in the continental United States or U.S./NATO theater ballistic missile defenses (antitactical ballistic missile, or ATBM, system) could affect deterrence stability and crisis management in Europe. They could do this in several ways. Theater or strategic defenses might make more credible the limited nuclear options for the use of U.S strategic forces—options that have been sought by every Secretary of Defense since James R. Schlesinger first called for them in 1974.[49] Active defenses could allow more time for the verification of ambiguous indicators of threat and warning. U.S. and NATO European leaders who were nervous about Soviet surprise attack might be less willing to preempt if European targets, such as airfields, nuclear weapons storage sites, and short- and intermediate-range nuclear forces, were defended.

Each of these potential missions for BMD/ATBM presents difficulties, however, if we assume equally competent Soviet deployments. Soviet/Warsaw Pact ATBM based in Eastern Europe, for example, could provide the necessary ingredients for counterair superiority in the tactical air battle over the Central Front

U.S. Army operational innovations intended to attack pact forces in the so-called second echelons and to disrupt enemy logistics, including AirLand Battle, rely on air superiority that might not be attainable against existing fixed and mobile Soviet air defenses.[50] NATO "follow-on forces attack" as explained by SAC-EUR General Bernard Rogers also implies control of the air for deep interdiction missions.[51]

Warsaw Pact ATBM complemented by Soviet BMD could pose formidable problems for NATO by reducing the importance of factors that now favor the defender. Soviet European theater offensive strategy is said to emphasize surprise, a rapid tempo of operations, and the objective of breakthroughs into NATO's rear to encircle and then destroy those adversary forces caught in the remaining pockets.[52] Soviet timetables would be related closely to perceived requirements for "annihilation" or "neutralization" of the appropriate objectives quickly.[53] NATO active defenses under present deployments could defeat the attack by slowing it down, channeling it into undesirable directions, and turning the conflict into a protracted war of attrition.[54] Soviet political success depends on a short war and a rapid victory, if victory is defined as the subjugation of part or all of West Germany and/or the Low Countries and the bifurcation of NATO Europe from the United States. Conversely, protracted conventional war might favor NATO: stalled Soviet forces might be needed to pacify restless Eastern Europe, and superior U.S. and West European economies could prove decisive.[55]

If Warsaw Pact deployment of ATBM in Eastern Europe could disrupt NATO operations, Soviet BMD could defeat NATO strategy. The possibility of protracted war would

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*Pershing II missiles, recently deployed to Army units in Europe, are extremely accurate and require less support equipment and fewer operational personnel than the Pershing IA missiles they replace.*

no longer automatically favor the West, and the Soviets would not necessarily need to win quickly. One of the most fearful attributes of protracted conventional war for the Soviets is that a NATO counterstroke into Eastern Europe could disrupt their contiguous empire. Samuel P. Huntington has even predicated his proposal for a "conventional retaliatory offensive" on the vulnerability of the pact to early counterattacks into Eastern Europe by NATO conventional forces.[56] With strategic defenses, Soviet fears that NATO might adopt this strategy or improvise it during war would be less pronounced. BMD would provide to the Soviets more survivability for their nuclear and conventionally armed short- and intermediate-range land-based missiles. These forces could disrupt any Western counteroffensive and would be immune from preemption by NATO, since that preemption would require either the use of long-range intermediate nuclear forces (Pershing IIs or GLCMs) or enhanced-technology conventional delivery vehicles and munitions not now available in NATO arsenals.[57]

Both NATO counterair and (ground) counteroffensive strategies would be vulnerable to deployed Soviet BMD/ATBM. But the more ominous implications, particularly in turning current Soviet/Warsaw Pact disadvantages into advantages, are found by considering the effects of Soviet BMD/ATBM deployments on coupling.

Coupling of U.S. strategic and U.S./NATO theater nuclear forces to NATO conventional forces is an important component of Western deterrence strategy. Making credible the linkage between strategic nuclear and theater nuclear forces, on one hand, and conventional forces, on the other, is one facet of the problem. Credible coupling implies that it would be self-defeating to have conventional forces which were self-sufficient (capable of defeating a robust conventional attack by themselves). Conventional forces are considered more deterring if they are adequate to disrupt Warsaw Pact plans and to buy time for NATO to consider

and to implement escalatory options. This paradox—of more credible conventional forces that are actually less capable of conventional combat than idealists might prefer—is much misunderstood by critics of NATO strategy.[58]

The other aspect of coupling that is important for deterrence of conventional war in Europe is the linkage between strategic nuclear and theater nuclear forces. Beginning in December 1983, NATO has sought to make this connection more credible by deploying 108 Pershing II intermediate-range ballistic missiles (IRBMs) and 464 ground-launched cruise missiles (GLCMs) in Western Europe. These long-range intermediate nuclear forces (LRINFs) are the connecting pins between conventional and strategic systems, sharing with NATO conventional forces the paradox of being more credible because they are not "too good" — that is, NATO long-range intermediate nuclear forces are not designed to fight a self-contained nuclear war in Europe but to bring U.S. strategic forces into the deterrent picture as it appears in the war plans of Soviet leaders.[59]

Both the coupling between conventional and theater nuclear forces and that between strategic and theater nuclear forces would be jeopardized by Soviet BMD even if the Soviet deployments are inadequate to nullify a massive U.S. attack against the Soviet homeland. Even partially effective Soviet BMD would threaten to decouple the connections lower and higher on the ladder of escalation from theater nuclear forces. NATO theater nuclear forces are not designed for a self-contained war and thus are not capable of penetrating robust Soviet defenses; nor are Pershing IIs and GLCMs necessarily survivable against either nuclear or conventional preemption.[60] Moreover, the GLCMs have flight times too long for prompt attacks against many highly valued Soviet military targets, while Pershing IIs, which have shorter flight times, could have insufficient mobility to survive once war began.[61] These limitations on the capabilities of Persh-

ing IIs and GLCMs, in the context of present NATO strategy and deployments, are not fatal. NATO theater nuclear forces have ambiguous deterrent rather than credible war-fighting roles. Soviet BMD would change that equation, making only survivable, prompt, and highly penetrating LRINFs valuable and reducing the likelihood that NATO LRINFs can meet any of those necessary criteria. Soviet BMD would also diminish the importance of the 400 Poseidon warheads assigned to SACEUR for theater missions and the significance of British and French strategic forces.[62] Those regionally based strategic forces add to the uncertainties facing Soviet attack planners and to the credibility of ambiguously deterring NATO theater nuclear forces.

FIVE sets of reasons why SDI might add to the risks and uncertainties in U.S. strategy do not make the case for SDI impossible but do reveal some of the particular difficulties facing SDI advocates. The more general problem—not new to U.S. military decision makers—is that the more capable that U.S. systems are assumed to be, the more they motivate responsive Soviet deployments that may leave us worse off.

The credibility of U.S. deterrence strategy for conventional war in Europe could be at particular risk after U.S.-Soviet BMD or ATBM deployments. If there were mutual and offsetting Soviet and American systems, U.S./NATO theater nuclear forces could be decoupled from U.S. strategic forces and from NATO conventional forces—a situation that would leave NATO with the unpalatable alternatives of a regional nuclear deterrent for Europe or a conventional war-fighting capability so imposing as to be threatening to deterrence stability.

None of the problems delineated here should generate pessimism about the military uses of space for navigation, reconnaissance, early warning and attack assessment, and other measures that contribute to deterrence of preemptive attack. Nor is there any doubt that new technologies will make possible at least partially effective space or terrestrially based missile defense systems. But SDI must adapt new technologies to new missions. If that adaptation is misbegotten, deterrence could be weaker rather than stronger.

*Pennsylvania State University*

S.J.C.

**Notes**

1. The term *bolt from the blue* could apply to accidental outbreak of war, although usually it refers to a deliberate attack. See Herman Kahn, *On Escalation: Metaphors and Scenarios* (Baltimore: Penguin Books, 1968), pp. 206-07. On accidental war, see Paul Bracken, "Accidental Nuclear War," in *Hawks, Doves and Owls*, edited by Graham T. Allison, Albert Carnesale, and Joseph S. Nye, Jr. (New York: W. W. Norton and Company, 1985), pp. 25-53.
2. Richard K. Betts, *Surprise Attack: Lessons for Defense Planning* (Washington: Brookings Institution, 1982), p. 229.
3. Raymond L. Garthoff, "BMD and East-West Relations," in *Ballistic Missile Defense*, edited by Ashton B. Carter and David N. Schwartz (Washington: Brookings Institution, 1984), pp. 275-329 (especially pp. 309-10, on Soviet shift from emphasis on preemption to launch under attack or on warning of attack).
4. This is an important finding of the President's Commission on Strategic Forces (Scowcroft Commission), *Report* (Washington, 1983).
5. Scowcroft Commission, *Report*, p. 6.

6. Leon V. Sigal distinguishes deterrence (strategic) stability, crisis stability, and arms race stability in *Nuclear Forces in Europe* (Washington: Brookings Institution, 1984), pp. 9-10.
7. See Thomas K. Longstreth and John E. Pike, "U.S., Soviet Programs Threaten ABM Treaty," *Bulletin of the Atomic Scientists*, April 1985, pp. 11-15.
8. For an overview, see Alan M. Jones, Jr., "Implications of Arms Control Agreements and Negotiations for Space-Based BMD Lasers," in *Laser Weapons in Space*, edited by Keith B. Payne (Boulder, Colorado: Westview Press, 1983), pp. 36-105.
9. That they learned does not necessarily mean that they agreed; indeed, it would be surprising if the United States and the Soviet Union understood strategic doctrine in the same way. On Soviet interpretations of U.S. doctrine, see Jonathan Samuel Lockwood, *The Soviet View of U.S. Strategic Doctrine: Implications for Decisionmaking* (New York: National Strategy Information Center, 1983).
10. See Benjamin S. Lambeth, "How to Think about Soviet

Military Doctrine," in *The Defense Policies of Nations*, edited by Douglas J. Murray and Paul R. Viotti (Baltimore: Johns Hopkins University Press, 1982), pp. 146-53.

11. Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, 26 May 1972, reprinted in *Détente and Defense: A Reader*, edited by Robert J. Pranger (Washington: American Enterprise Institute, 1976), p. 120. Strictly speaking, national technical means (NTM) allow monitoring of compliance or noncompliance; verification implies a political judgment. The author is indebted to Gary L. Guertner for this clarification.

12. A summary of the fate of BMD in U.S. debates appears in Freeman Dyson, *Weapons and Hope* (New York: Harper and Row, 1984), pp. 73-84.

13. John Pike, "Is There an ABM Gap?" *Arms Control Today*, July/August 1984, pp. 2-3, 16-17.

14. For a historical perspective, see the essays in William Schneider, Jr., Donald G. Brennan, William A. Davis, Jr., and Hans Ruhle, *U.S. Strategic-Nuclear Policy and Ballistic Missile Defense: The 1980s and Beyond* (Cambridge, Massachusetts: Institute for Foreign Policy Analysis, April 1980).

15. Sayre Stevens, "The Soviet BMD Program," in *Ballistic Missile Defense*, edited by Ashton B. Carter and David N. Schwartz (Washington: Brookings Institution, 1984), pp. 182-220, especially pp. 211-12.

16. The White House, *The President's Strategic Defense Initiative* (Washington, January 1985).

17. James C. Fletcher, "The Technologies for Ballistic Missile Defense," *Issues in Science and Technology*, Fall 1984, pp. 15-29.

18. Stephen Weiner, "Systems and Technology," in *Ballistic Missile Defense*, pp. 49-97.

19. Ashton B. Carter, *Directed Energy Missile Defense in Space*, Background Paper (Congress of the United States, Office of Technology Assessment, April 1984).

20. Carter and Schwartz.

21. Union of Concerned Scientists, *The Fallacy of Star Wars* (New York: Random House, 1984).

22. James R. Schlesinger, Banquet Address, National Security Issues Symposium 25-26 October 1984, *Space, National Security and C³I* (Bedford, Massachusetts: The MITRE Corporation, 1985), pp. 55-62. I am grateful to Richard L. Garwin for calling this to my attention.

23. Harold Brown, "The Strategic Defense Initiative: Defensive Systems and the Strategic Debate," unpublished paper, 1984. Brown's study has been widely reported in the press.

24. Zbigniew Brzezinski, Robert Jastrow, and Max M. Kampelman, "Defense in Space Is Not Star Wars," *New York Times Magazine*, 27 January 1985, pp. 28-29, 46-51.

25. For a very visible and pessimistic assessment of probable Soviet reactions, see McGeorge Bundy, George F. Kennan, Robert S. McNamara, and Gerard Smith, "The President's Choice: Star Wars or Arms Control," *Foreign Affairs*, Winter 1984-85, pp. 264-78, especially p. 271.

26. The concept of an "attack price" is discussed in Ashton B. Carter, "Applications," in *Ballistic Missile Defense*, pp. 109-20.

27. Multiplication of offensive warheads is only one of a number of potential offensive countermeasures. See Union of Concerned Scientists, *The Fallacy of Star Wars*, pp. 119-28, 137-40.

28. Matthew Bunn and Kosta Tsipis, "The Uncertainties of Preemptive Nuclear Attack," *Scientific American*, November 1983, pp. 38-47.

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30. Bundy et al., p. 271.

31. For a discussion of U.S. doctrine, see Lawrence Freedman,

*The Evolution of Nuclear Strategy* (New York: St. Martin's Press, 1982).

32. U.S. employment policy has not actually followed such formulations of MAD, at least since the beginning of single integrated operational plans in the 1960s. See Aaron L. Friedberg, "The Evolution of U.S. Strategic 'Doctrine'—1945 to 1981," in *The Strategic Imperative: New Policies for National Security*, edited by Samuel P. Huntington (Cambridge, Massachusetts: Ballinger, 1983), pp. 53-99; and Desmond Ball, "Counterforce Targeting: How New? How Viable?" *Arms Control Today*, February 1981, reprinted with revisions in *American Defense Policy*, edited by John F. Reichart and Steven R. Sturm (Baltimore: Johns Hopkins University Press, 1982), pp. 227-34.

33. Leon Sloss and Marc Dean Millot, "U.S. Nuclear Strategy in Evolution," *Strategic Review*, Winter 1984, pp. 19-28. In addition to amendments to declaratory policy, some changes in employment policy (war plans) also took place.

34. Lockwood, pp. 140-67.

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36. Charles E. Lindblom, *The Policy-Making Process* (Englewood Cliffs, New Jersey: Prentice-Hall, 1980), pp. 18-25, 64-70. See also Leslie H. Gelb and Richard K. Betts, *The Irony of Vietnam: The System Worked* (Washington: Brookings Institution, 1979).

37. Dyson, pp. 65-72.

38. Alvin Weinberg and Jack N. Barkenbus, "Stabilizing Star Wars," *Foreign Policy*, Spring 1984, pp. 164-70. See also Keith B. Payne and Colin S. Gray, "Nuclear Policy and the Defensive Transition," *Foreign Affairs*, Spring 1984, pp. 820-42.

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40. In addition to sources listed in note 39, see Ashton B. Carter, "The Command and Control of Nuclear War," *Scientific American*, January 1985, pp. 32-39; and Bruce Blair, "Solving the Command and Control Problem," *Arms Control Today*, January 1985, pp. 1, 6-9.

41. Payne and Gray, "Nuclear Policy and the Defensive Transition," passim.

42. Union of Concerned Scientists, *The Fallacy of Star Wars*, pp. 119-28. I also appreciate the opportunity to review a related unpublished paper by Kurt Gottfried and Richard Ned Lebow, Cornell University.

43. Richard L. Garwin, "Star Wars: Shield or Threat," paper for the Second International Scientific Congress, "Earth and Space: How to Defend Them," 12-13 October 1984, Rome, Italy. Provided by the author.

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53. John Erickson, "Soviet Ground Forces and the Conventional Mode of Operations," *RUSI Journal*, June 1976, pp. 45-49; John Erickson, "Soviet Breakthrough Operations: Resources and Restraints," *RUSI Journal*, September 1976, pp. 74-79. Present and foreseeable resources would enable the Soviet command to mount eight to ten breakthrough operations using Soviet forces in East Germany and Czechoslovakia, supported by forces from the Northern Group (Poland) and the western military districts of the Soviet Union. See Erickson, "Soviet Breakthrough Operations: Resources and Restraints," p. 75.

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Phillip A. Karber, "In Defense of Forward Defense," *Armed Forces Journal International*, May 1984, pp. 27-50.

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58. On this point, see Karber, "In Defense of Forward Defense," passim.

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# MILITARY USES FOR SPACE

MAJOR GENERAL THOMAS C. BRANDT

**I**F the media is the measure, there is a growing perception that a major initiative is under way directed toward the militarization of space. But what is meant by *militarization of space*? The term as used these days is clearly pejorative. What is often overlooked is that the military has been involved in the medium of space since the end of World War II and has played an important role not only for military but also for many of the civil activities that have occurred in space during the last four decades. The current publicity associated with the military use of space comes from the increasingly important role, and consequent higher visibility, that satellites play in enhancing the national security of the United States, our allies, and the Soviet Union.

Wнат is the military space role? Let's briefly examine some of the past military space-related activities. Few would argue that current space capabilities evolved rapidly because of the pioneering work of men who demonstrated revolutionary foresight. Consider two: a Russian, Konstantin E. Tsiolkovsky, and an American, Dr. Robert H. Goddard. While Tsiolkovsky never built a rocket, he developed many of the theories for artificial satellites, liquid rocket engines, and manned space flight. Dr. Goddard subsequently built the world's first liquid rocket, developed operational guidance and control systems, and performed much of the early work that took theoretical ideas and turned them into practical engineering solutions.

While the achievements of these two brilliant civilians went largely unnoticed by most of the world, a number of Germans of the late 1930s recognized the military potential of what they had done. Beginning then and throughout World War II, German scientists, under the leadership of Dr. Wernher Von Braun, developed the A-4 rocket, which later became known as the V-2. The A-4 provided a major breakthrough in the design of space boosters.

On the evening of 3 October 1942, the first V-2 was launched successfully at Peenemüende. The project director, Major General Walter Dornberger, called his chief assistants together and presented one of the first policy statements on the use of space for military as well as civil purposes:

> The following points may be deemed of decisive significance in the history of technology: we have invaded space with our rocket and for the first time we have used space as a bridge between two points on earth; we have proved rocket propulsion practical for space travel. To land, sea, and air may now be added infinite empty space as an area of future intercontinental traffic, thereby acquiring political importance. This third day of October, 1942, is the first of a new era of transportation—that of space travel. So long as the war lasts, our most urgent task can only be the rapid
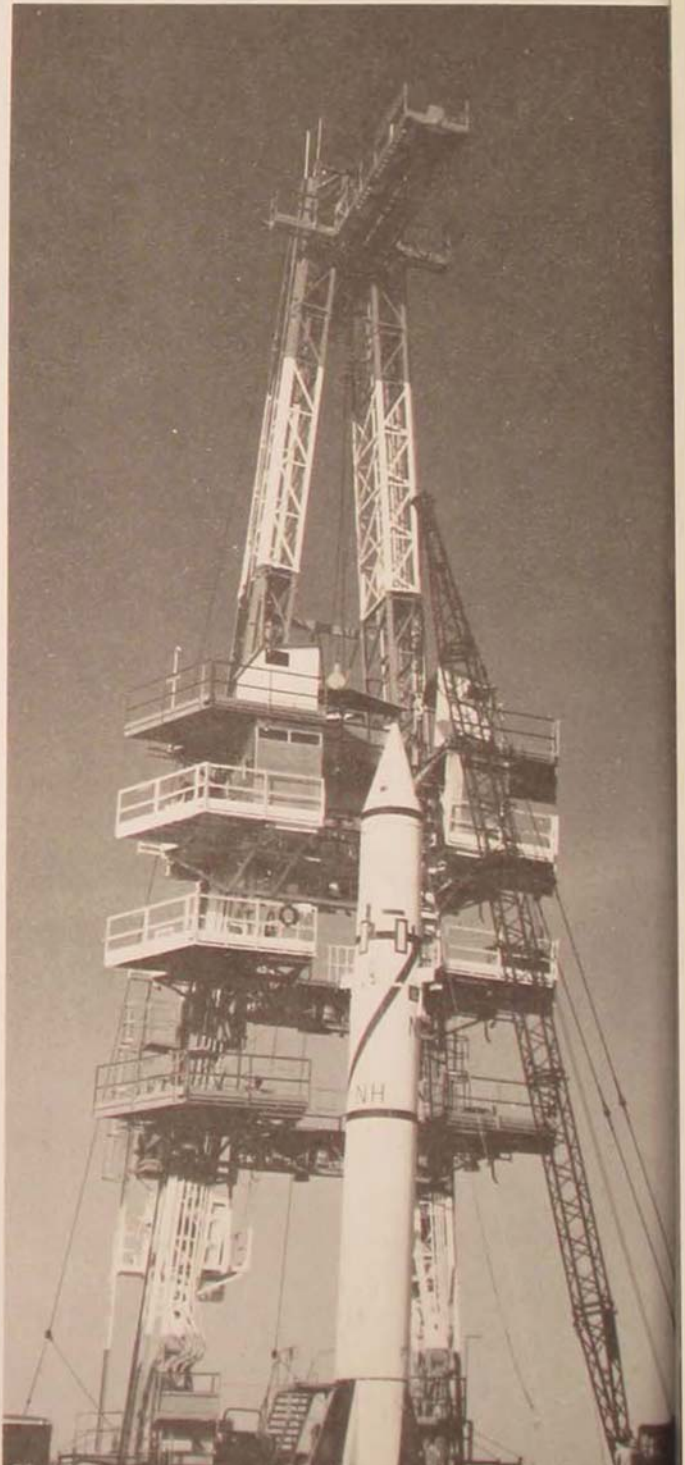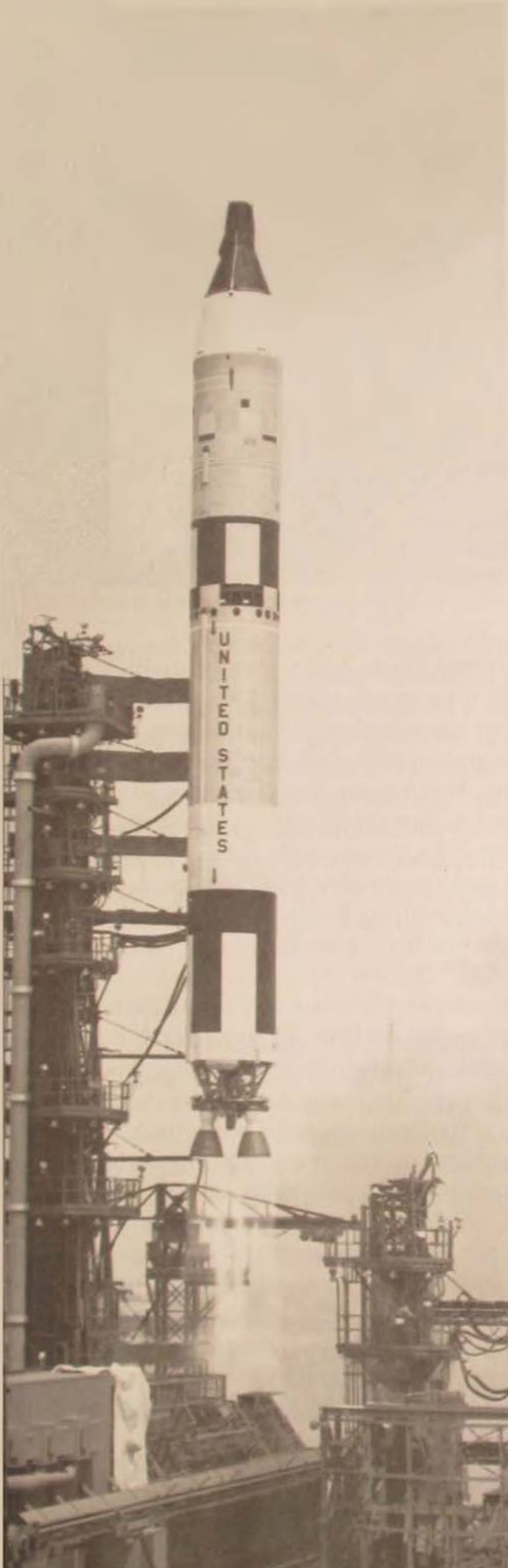
The relationship between military and civilian uses of space has been synergistic. Converted Atlas and Titan ICBMs, for instance, launched the first Mercury and Gemini space capsules. . . . The U.S. Navy's Subroc (above), on the other hand, was built for the sole purpose of destroying enemy submarines.
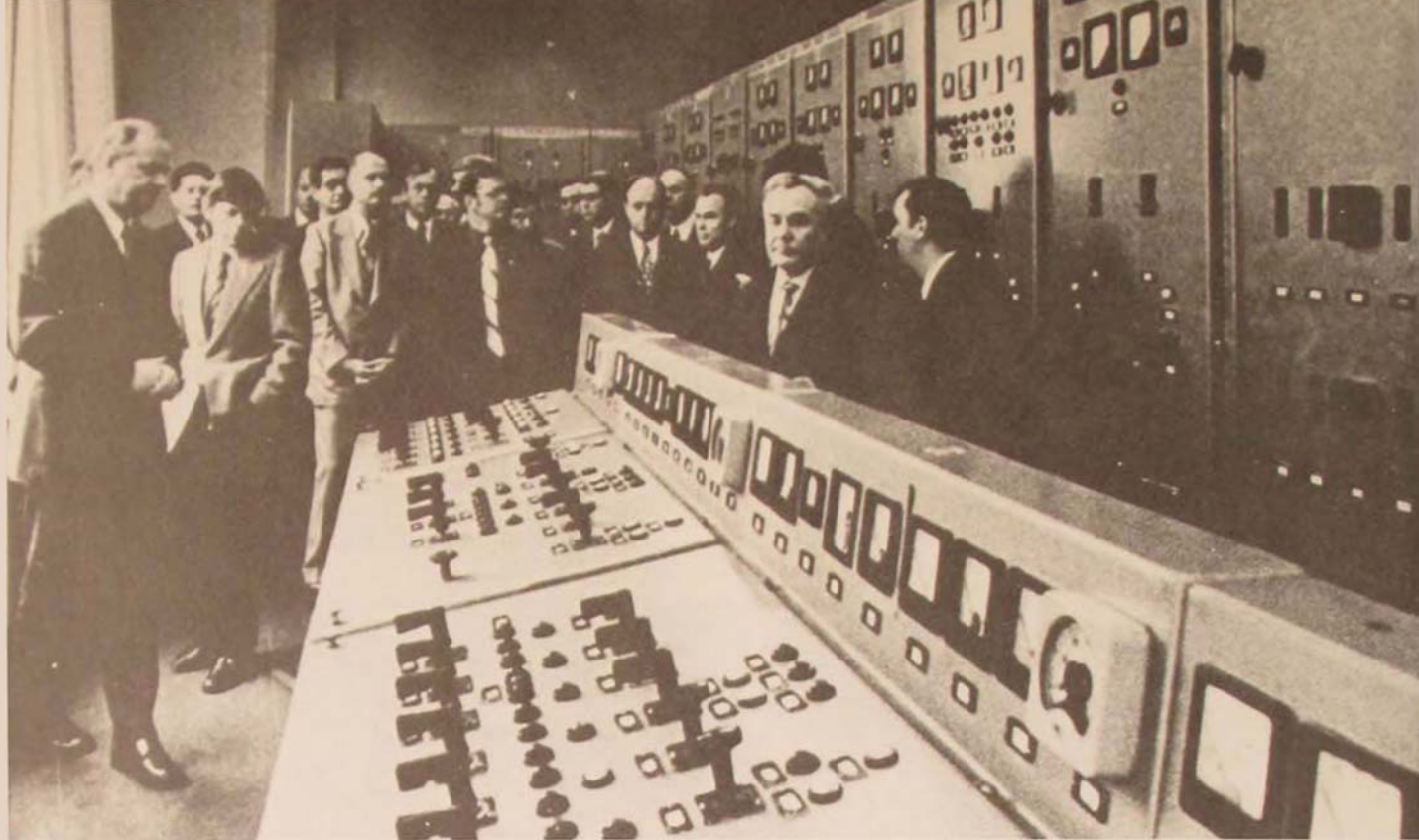
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perfection of the rocket as a weapon. The development of possibilities we cannot yet envisage will be a peacetime task. Then the first thing will be to find a safe means of landing after the journey through space.[1]

By the close of World War II, it was clear that rocket technology had significant military potential. In the final days of that war, both the United States and the Soviet Union were eager to capture the engineers and hardware of Hitler's rocket program. Dr. Von Braun, General Dornberger, and many other key scientists and engineers who had assembled at Peenemünde were able to get to the American lines and surrender. These rocket experts went on to work for the U.S. Army and later became the nucleus of America's civil space program when the National Aeronautics and Space Administration (NASA) was formed in 1958.

During the late 1940s and early 1950s, the United States had a small missile and space R&D program; primary emphasis was on further development of air power and nuclear weapons. Although Von Braun predicted that his Army team could successfully launch a rocket that could place a satellite in orbit by late 1955, President Dwight D. Eisenhower opposed the endeavor because he believed that using military hardware for any space activity violated his "space-for-peace" policy.

On 4 October 1957, the Soviet Union stunned the world with the successful launch of the *Sputnik I* satellite. This remarkable event signaled the beginning of a new era as man stretched his reach into space. Access to this new medium was to have profound effects on national security, equal in impact to the introduction of aircraft earlier in the century.

The United States answered the Soviet challenge three months later with the successful launch of *Explorer I*, which was placed in orbit on 31 January 1958. *Explorer I* was launched on a Jupiter C booster that was designed, developed, and launched by the U.S. Army.

Then, at 6:02 P.M. EST on 18 December

1958, Atlas 10-B lifted off its launch pad at Cape Canaveral, Florida, for what all but eighty-eight people believed was a routine research and development test of our new intercontinental ballistic missile. Several minutes into a normal ballistic trajectory, it "veered off course" and would not respond to corrective commands. A short time later, a startled world discovered the Atlas's true mission from President Eisenhower, but they did not read it in the newspaper. His message came from space and was in the form of a Christmas message to the world, which said:

> This is the President of the United States speaking. Through the marvels of scientific advance, my voice is coming to you from a satellite circling in outer space. My message is a simple one. Through this unique means, I convey to you and to all mankind America's wish for peace on earth and good will toward men everywhere.[2]

This payload, Project SCORE (signal communications by orbiting relay equipment), developed by the Department of Defense's Advanced Research Projects Agency, was the first military satellite launched by the United States. During the thirteen days that SCORE operated, it demonstrated reliable around-the-world transmission of military teletype communications. This fledgling start led the way for space systems that today are the backbone of civil and military communications.

T HE 1960s saw a continuation of the U.S. policy of emphasizing the peaceful uses of space. President John F. Kennedy challenged the nation to place a man on the surface of the moon and return him safely before the end of that decade. While viewed as a nonmilitary venture, the military was very much a part of the NASA effort. The Mercury and Gemini programs used converted Atlas and Titan ICBMs. The first group of astronauts were military test pilots. Military personnel worked closely with their NASA counterparts on NASA's launch pads and control centers.

This close relationship between the United States military and NASA continued with the development of the space shuttle. The decision to develop a reusable launch vehicle was based on the assumption that a national system could be established to satisfy both civil and military requirements. It was decided that NASA would develop the space transportation system and Eastern Shuttle Launch Site, while DOD would develop a new higher-energy upper stage and the Western Shuttle Launch Site. This division of responsibilities is working well. In October 1985, the West Coast Shuttle Launch Facility at Vandenberg AFB, California, was activated to support launch operations.

During the 1960s, the military was developing space systems that today enhance our warfighting capabilities significantly. Experimental satellites evolved into operational systems in such functional areas as communications, weather, mapping and geodesy, navigation, and surveillance. These space systems were developed because they were the most cost-effective way of performing a national security function and in some cases offered the only way of performing that function.

It is interesting to note that the two superpowers envisaged the military potential of space in sharply contrasting ways. U.S. planners generally viewed space as a sanctuary unsullied by military interactions and as offering a means of communicating and transporting items from one point on earth to another. The Soviets, in contrast, viewed (and continue to view) space as a fundamental strategic operating medium, one providing unparalleled opportunities and fulcrums for applying national power to achieve permanent advantage. They see space as geopolitical high ground.

T HE Soviet space program is a dynamic and expanding effort, resulting in approximately 100 launches per year. Some 90 percent of these launches are exclusively military or joint military/civilian missions. The
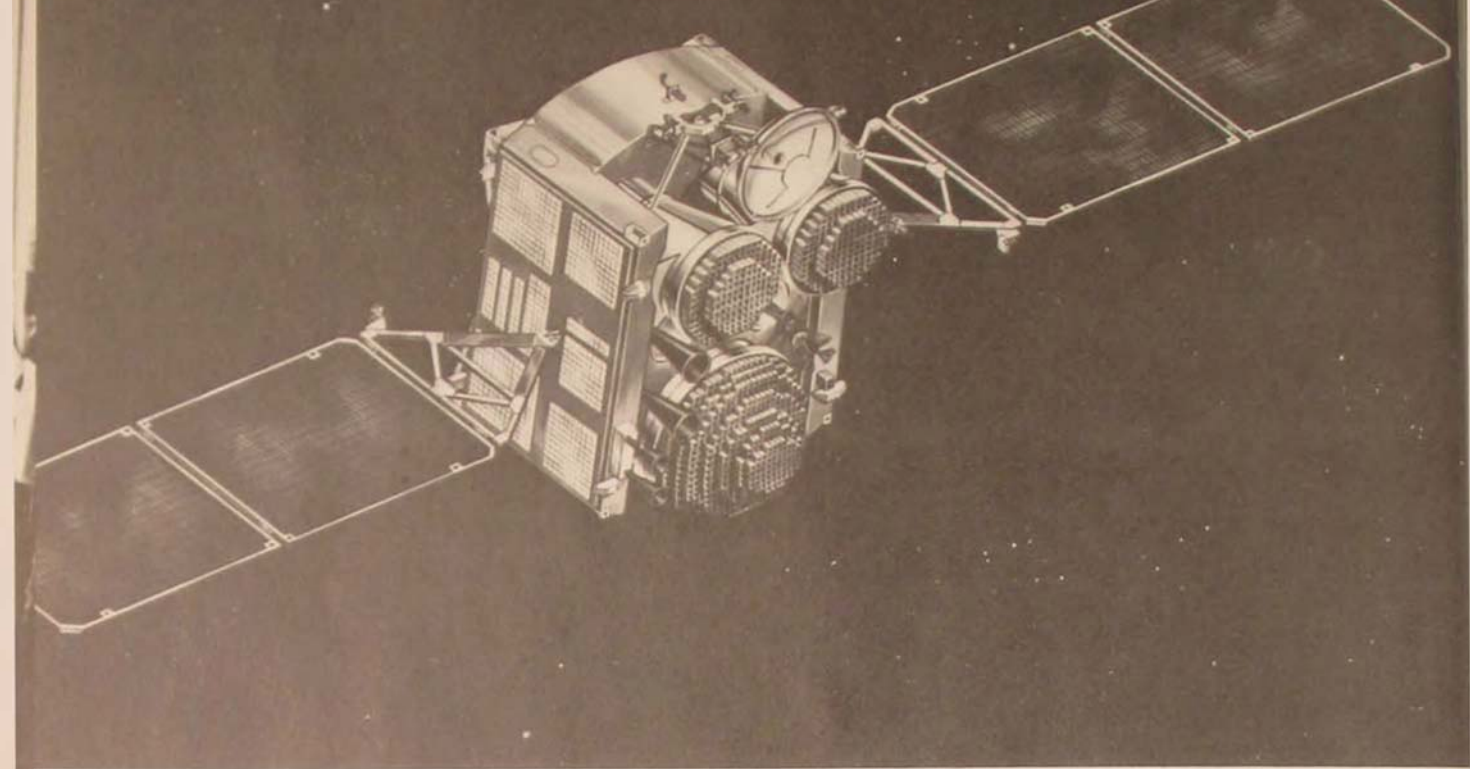
annual Soviet payload weight placed in orbit is even more impressive — 660,000 pounds — ten times that of the United States. Soviet military and military-related space programs include meteorological, commmunications, navigational, reconnaissance, surveillance, targeting, and extended manned missions. Furthermore, with the development and employment of an orbital ASAT weapon more than a decade ago, the Soviet Union clearly signaled its recognition of space as an arena for weapons.

The Soviets have a formidable inventory of space launch vehicles. Of greatest interest is their development of a new generation of space boosters. These boosters include a Titan-class expendable booster and a Saturn V-class heavy-lift launch system that will probably be used to launch the Soviet version of the space shutttle and other heavy payloads.

The likely mission for these new heavy-lift launch systems is to launch and support a large manned space station by the 1990s. Such a space station could weigh more than 200,000 pounds and be capable of supporting a large crew for extended periods without replenishment. This objective would be consistent with the increasingly complex nature of current So-

viet manned space missions, which constitute the single most extensive element of the Soviet space program. Since 1971, the Soviets have placed seven space stations in orbit. In 1977, the Soviets launched *Salyut 6*, which was equipped with a second docking collar to accommodate the unmanned *Progress* cargo vehicle and the *Soyuz* cosmonaut ferry. These features provide the Soviets with the capability to resupply and exchange personnel on their *Salyut* space stations. On three occasions, the Soviets have conducted manned missions lasting as long as six months. With the completion of the 237-day mission on board *Salyut 7* in 1984, the Soviets set a new space endurance record.

While the Soviets did not take advantage of geostationary communication satellites as early as Western nations did, recent filings for communication satellite placement and frequencies indicate their intentions to do so. The Soviets have also embarked on an ambitious ex-

pansion of their communication satellite program, which will add immeasurably to their global command, control, and communications capability. During the next ten years, the Soviets should develop and deploy an even more advanced series of communication satellites, some of which might relay transmissions from manned orbital command and control platforms to ground, sea, and air elements.

The Soviet military space program also reflects an ever-increasing use of space for worldwide surveillance and attack warning. Using satellites that include an ICBM launch detection system and an ocean surveillance system, the Soviets have a number of U.S. and allied military forces under surveillance. Soviet efforts in the surveillance field are expected to lead to a multisatellite detection, surveillance, and attack warning system against ballistic missiles and possibly bombers also.

The Soviets have also steadily increased their space photographic and electronic reconnaissance effort since the early 1960s. Each year, more than fifty of these satellites are launched to provide continuous support to military forces. The several different satellite systems in use provide target location, target identification and characterization, order of battle, force monitoring, crisis monitoring and situation assessment, geodetic information for improving the accuracy of ICBM targeting, and mapping for military forces.

Clearly, the Soviets have grasped the military advantages that will accrue to the nation which is able to gain and maintain control over space. They are the only nation in the world with a dedicated ASAT weapon designed to destroy low-orbiting satellites. They are conducting a very large directed-energy research program, which, we believe, may result in the development and deployment of a space-based laser system. We estimate that the Soviets could launch the first prototype of a space-based laser ASAT during the late-1980s. An operational system capable of attacking other satellites within a range of a few thousand kilometers

might be possible in the 1990s.

The Soviets also maintain the world's only operational ABM system, which is designed to protect Moscow. They have an improving potential for large-scale deployment of modernized ABM defenses well beyond the 100-launcher ABM Treaty limitation. Widespread ABM deployment to protect important target areas in the Soviet Union could be accomplished in the next ten years. The Soviets have developed a rapid deployable ABM system that could be operational in months rather than years. The new, large phased-array radars under construction in the Soviet Union, along with the Hen House, Dog House, Cat House, and possibly the Pushkino radars, appear to be designed to provide support for such a widespread ABM defense system. The Soviets seem to have placed themselves in a position to field a nationwide ABM system rapidly should they decide to do so.

TODAY'S U.S. space systems are used predominantly to provide communications, early warning, navigation, and weather support to our land, sea, and air forces.

Currently more than two-thirds of our long-distance military communications are sent via satellites. Military space communications systems are designed to ensure dependable and timely command, control, and communications functions on a global basis. The two systems carrying most of the workload are the Fleet Satellite Communications (FLTSATCOM) and the Defense Satellite Communications System (DSCS). By the early 1990s, the MILSTAR communications satellite will become operational and advances will be made to DSCS that will significantly improve the ability of the National Command Authority to communicate with strategic and tactical forces under all wartime conditions.

Early-warning and surveillance satellites monitor ballistic missile launches and detect nuclear detonations on a global basis. Early-
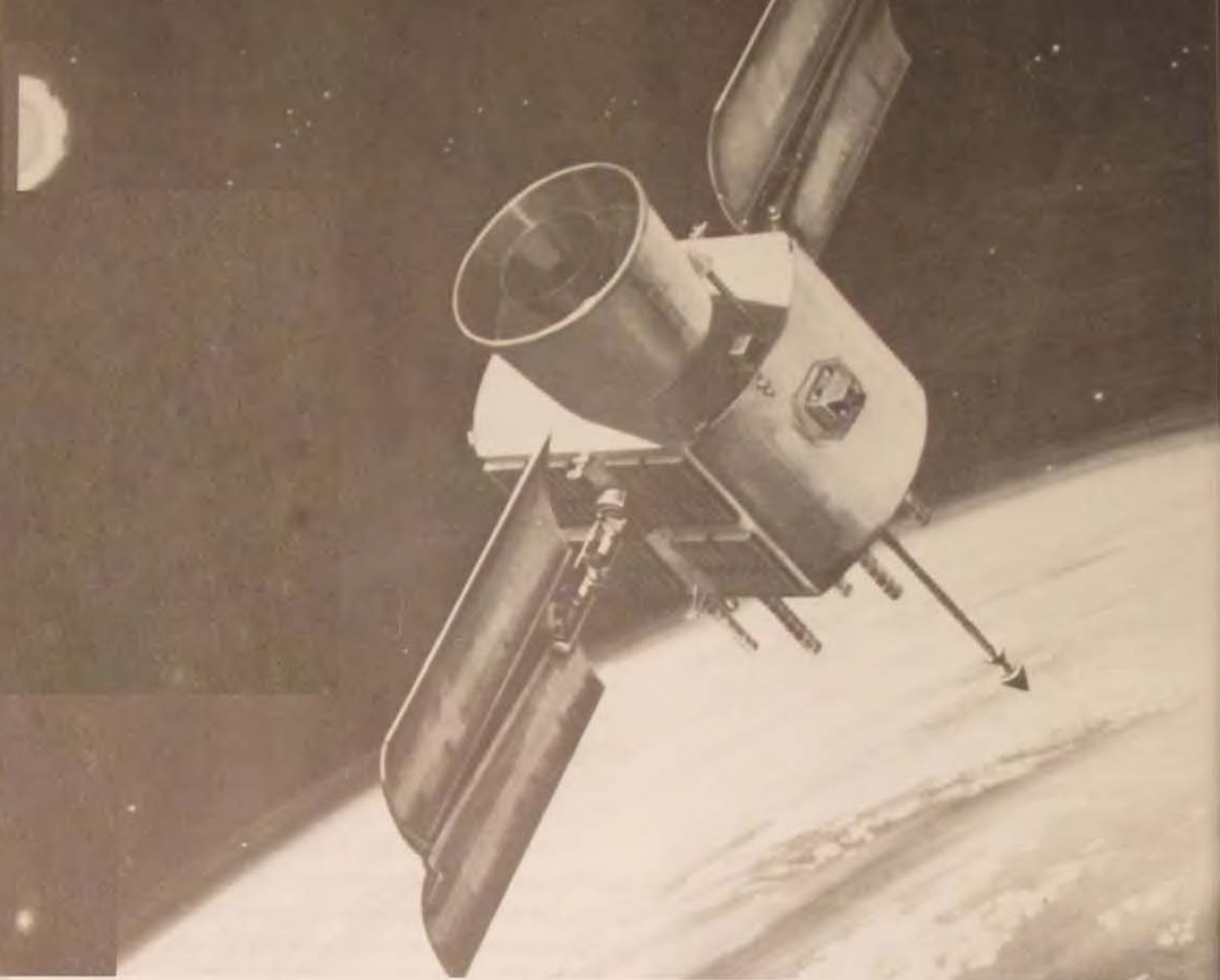
*The NAVSTAR Global Positioning Satellite (GPS) system will provide our military forces with three-dimensional position and timing information no matter where they are located. It will help us deliver munitions with unprecedented accuracy, thus increasing both our flexibility and effectiveness.*

warning satellites provide the first indication that the United States or our allies are under ballistic missile attack. A reliable, enduring, and survivable early-warning system is our first line of defense and a vital element of deterrence. Consequently, we are increasing our efforts to enhance the survivability of these systems by enhancing both the ground and space elements. Nuclear detonation sensors not only monitor our potential adversary's compliance with test ban agreements but also would provide our force planners with vital information on surviving friendly resources and enemy target destruction in time of war.

We also use space systems to provide our forces with precise navigation data. Today, we are in the process of deploying the NAVSTAR Global Positioning Satellite (GPS) system, which will provide users in all services with three-dimensional position and timing information on a twenty-four-hour global basis under all types of weather and visibility conditions. GPS precision navigational data will increase the probability of damage to enemy targets and enhance our flexibility under a strained combat logistics environmental by en-
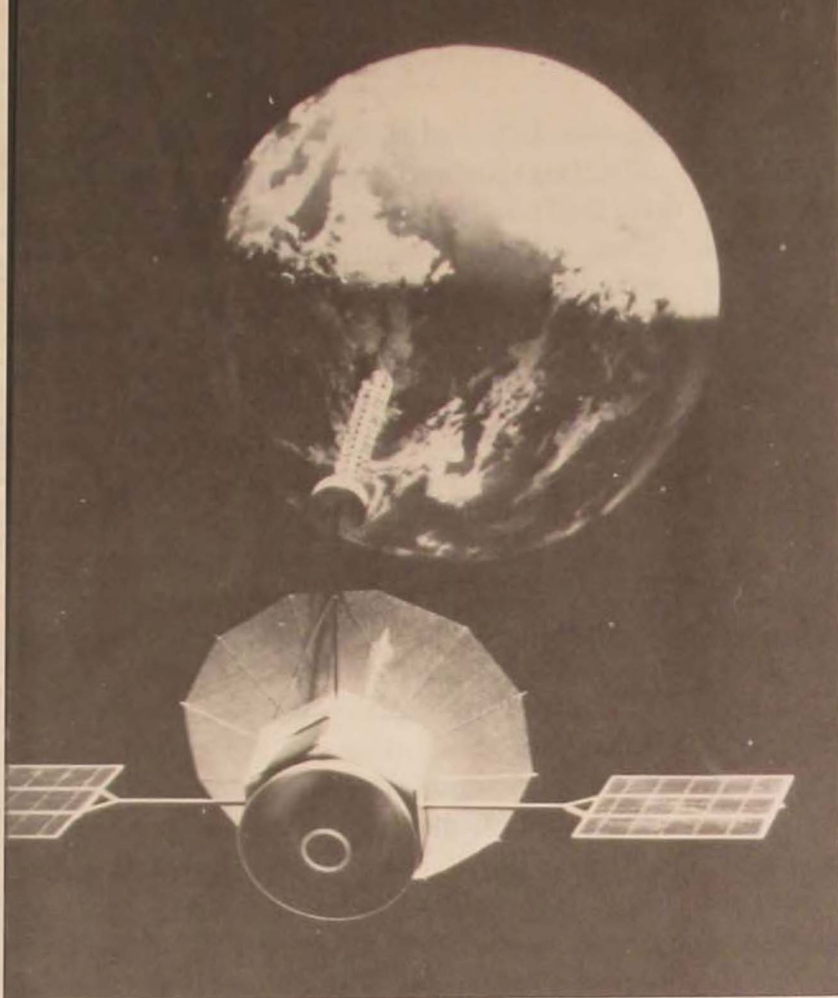
*The Fleet System, using satellites like that depicted on the left, provides dependable and timely command, control, and communications to our forces throughout the world. . . . The Defense Meteorological Support Program systems, such as the one pictured below, comprise DOD's single most important source of weather data.*
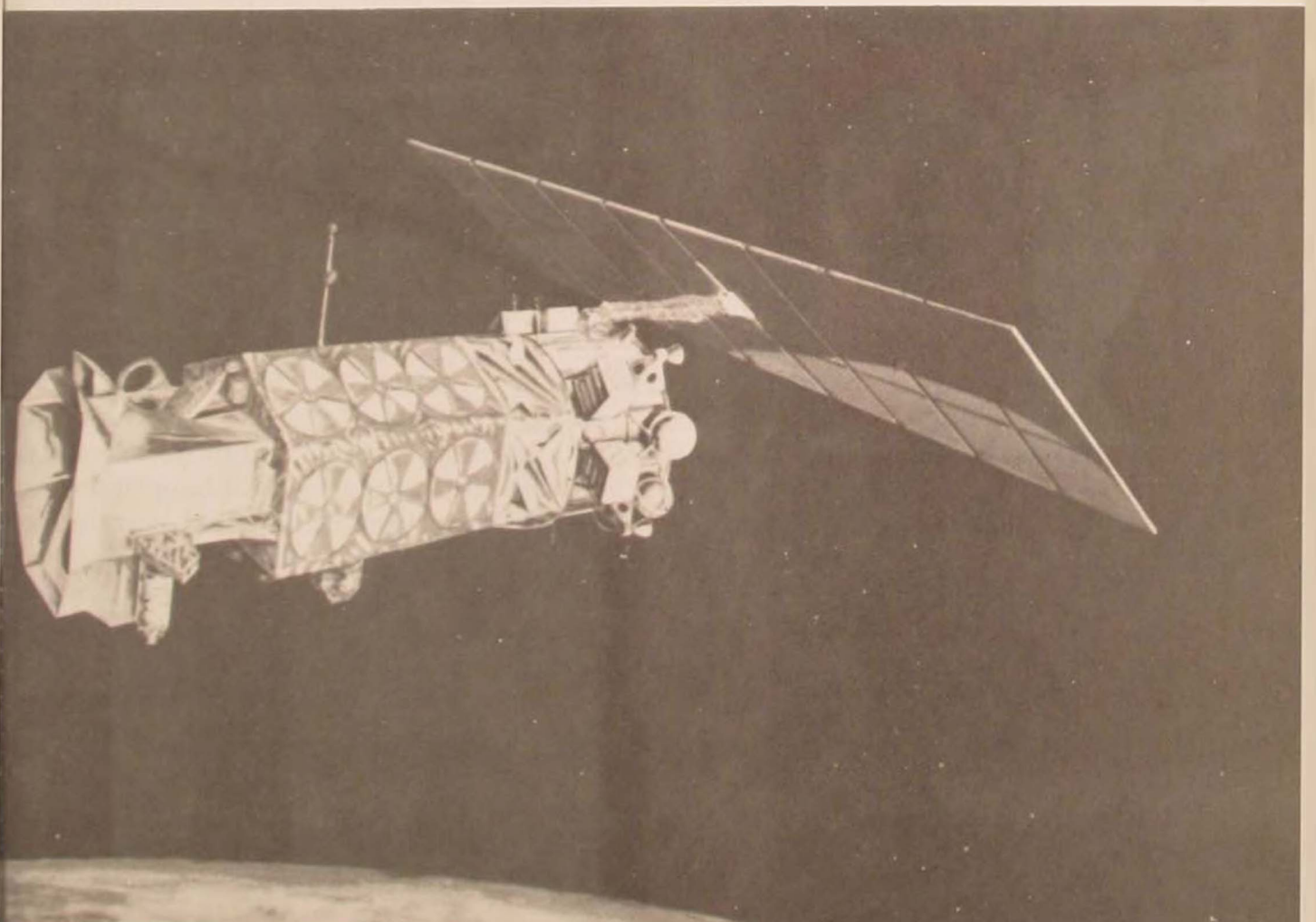
abling the delivery of iron bombs with an accuracy approaching that of smart weapons. GPS will allow low-level ingress/egress for flexible routing, as well as totally passive operations for increased survivability.

The GPS will also provide accurate navigational data to the civil community—a prime example of the overlap of benefits that often occurs between the civil and military uses of space. In so doing, it serves as a significant reminder that all U.S. space systems, whether military or civil, contribute to our national interests by supporting policies and activities that are important to our society.

The Defense Meteorological Support Program (DMSP) provides accurate and timely weather data that is vital to successful military operations. The DMSP is DOD's single most important source of weather data. Efforts are under way to harden the DMSP spacecraft and sensors against possible laser attacks and to improve the hardness of the DMSP ground operations center.

Because of the importance of space systems to our nation's defense, it is necessary that we protect these systems from enemy threats, while denying adversaries the use of their space systems during hostilities. It is clear that the potential for space to become a hostile environment for both the United States and Soviet Union is increasing for two reasons: space systems are becoming increasingly important in support of military forces, and technology that makes space conflict possible is maturing.

To deter threats to our space systems and, within limits imposed by international law, to counter certain satellites that provide direct targeting support for hostile military forces, we are continuing the development of an ASAT system. Unlike the existing and often tested Soviet system, which is a ground-launched co-orbital intercept satellite, the U.S. ASAT is a miniature vehicle on a two-stage SRAM ALTAIR booster carried aloft and launched from a specially modified F-15 aircraft. This ASAT system will correct the basic imbalance between U.S. and Soviet capabilities.

DOD is also involved with launch and recovery, orbital transfer, and on-orbit control of space assets. During the 1980s, major improvements are being made to improve our capabilities to launch and control military satellites. By the end of the decade, most DOD satellites will have completed their transition from expendable launch vehicles to the space shuttle. However, DOD is concerned about relying totally on a single launch system. Considering the importance of space systems to our national security, DOD will develop and procure ten new expendable launch vehicles through the early 1990s to complement the shuttle.

To enable us to place even heavier payloads in high-altitude orbits, we are working with NASA to develop a more capable upper stage, based on the Centaur cryogenic stage used since the early 1960s, which will be available for shuttle use by 1986.

Once satellites are on orbit, DOD operates a worldwide ground station network under the control of the USAF Satellite Control Facility in Sunnyvale, California. To enhance the command and control of space assets during the 1980s, the Consolidated Space Operations Center (CSOC) is being built in Colorado. Once operational, the CSOC will share the Satellite Control Facility workload as well as provide a centralized, secure, and more survivable facility for planning and conducting DOD space missions.

LOOKING out ten years or so can be very stimulating. It can also be risky for your neck as you speculate on the future. Indeed, it is difficult to predict what will happen during the next hour. I am reminded of General John Sedgwick's last words just before he was killed at the Battle of Spotsylvania Courthouse, when he said, "Don't worry, men; they couldn't hit an elephant at this distance."

Aren't we today often just as shortsighted as General Sedgwick? Space-based systems will

expand beyond those of today. The Soviets have already experimented with weapons in space, testing their fractional and multiple orbital bombardment systems two decades ago.

In March 1983, President Reagan offered the hope of making the world safe from the threat of nuclear ballistic missiles. While the President did not specifically state that his antiballistic missile (ABM) defense system would be space-based, many of the potential solutions rely heavily on space-based defensive weapons. Both *Time* and *Newsweek* quickly had cover stories that referred to the President's initiative as "Star Wars." I have little doubt that any comprehensive ABM system will need some type of space-based support platforms to attack incoming targets.

Regardless of the solution, years of research will be required before a decision can be made concerning the feasibility of a comprehensive ballistic missile defense. As we pursue ballistic missile defense research, there inevitably will be many ideas and advocates for deploying weapons in space.

I am very optimistic that the future use of space for military operations will continue to take on added significance in enhancing the security of the United States and our allies. History has often been changed by the nation that first grasped the advantages offered by developing the military potential of the newest medium. Certainly, the Soviets have recognized the value of space systems in support of military operations. The United States cannot and will not ignore the value of the military use of space and allow Soviet domination of the "ultimate high ground."

WE must have the foresight to recognize emerging technologies and their potential military applications, and we must be prepared to seize these opportunities when it is our national interest to do so. Military requirements and the technology to satisfy those requirements are changing continuously, and we must be perceptive enough to recognize those changes. Although he was speaking about the military potential of air power, Giulio Douhet summed it up best when he said, "Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after changes occur."

*Office of the Joint Chiefs of Staff*

**Notes:**

1. Walter Dornberger, *V-2* (New York: Viking Press, 1954).
2. Kenneth Gatland, *The Illustrated Encyclopedia of Space Technology: A Comprehensive History of Space Exploration* (New York: Harmony Books, 1981).

# THE AIR FORCE AND ITS MILITARY ROLE IN SPACE

MAJOR GENERAL ROBERT A. ROSENBERG

I N considering the military potential for space, we in the Air Force should focus our attention on three concerns. First, it is necessary that we help our fellow Americans to understand the significance of space systems for U.S. troops in the trenches, ships at sea, and tactical and strategic air forces. Space platforms are currently supporting the U.S. Armed Forces by helping us maximize our military potential through intelligence and command and control. It is important for the future of our space efforts that the American people understand what we are doing and why. Second, space is important to our developing technologies and ultimately should enhance our strategic deterrent posture. Most of us in the Air Force understand that, but how well are we doing in making the public understand the synergism between space and technological progress? And third, we must consider carefully and decide how we should be organized to employ these vital assets effectively today and in the future.

Our space systems will be, in effect, force multipliers. Success in warfare in the future may well depend on the capabilities provided by space-based navigation, surveillance, and communications systems. Space programs in place currently already provide a high-tech edge for our forces. We must work to keep abreast with the rapidly changing technological frontier.

From a historical perspective, we can consider how important a meteorological satellite like our DMSP, with a direct down-link for data to ships at sea, would have been to General Dwight D. Eisenhower in June of 1944. As D-day approached, the weather began to turn bad. Eisenhower had to decide either to postpone the invasion or to go ahead with it despite the weather. He had no DMSP to help him make his decision. Eisenhower guessed, and the invasion proceeded. Think how important a DMSP satellite could have been in ensuring that he did not make the wrong decision.

A more devastating historical example occurred during the watch of Admiral William F. Halsey in the Pacific in 1945. Halsey's fleet was hit full force by a typhoon as it was maneuvering into position to attack Okinawa. Six destroyers were sunk, and seventy-five ships were damaged, including the cruiser *Pittsburg*, which had 110 feet broken off its bow. A DMSP could have saved many ships and lives.

More recently, the performance of our troops in Grenada was enhanced significantly by the availability of our communications satellite constellations. While our commanders would have liked to have had even better communications, they did as well as they did because of the extraordinary capabilities at their disposal. Still, we can and will do better in the future. Space communications was an important capability that contributed to the success of that particular operation, and it will be a key factor in future operations.

Our military dependence on satellite platforms that provide our forces with a high-tech edge is growing at such a rate, and the trend is

becoming so well established, that we must ask ourselves, "At what point can any adversary engage American forces and not afford to hold satellites at risk?" That is a sobering proposition for us to ponder. There is no great drive on the part of the U.S. Air Force or the Department of Defense to militarize space. We do not want to spread the arms race to the heavens. The simple fact is, however, that our national security depends on our high-tech edge and that advantage is dependent on our exploration of space for the support of our forces.

Furthermore, the reality is that the Soviets have deployed an antisatellite (ASAT) weapon system that can threaten satellites in near-earth orbits. Soviet proposals to ban all ASAT tests and future deployments of ASAT weapons would put the United States at a disadvantage in this area. If we are truly to deter attacks on our satellites, we need a capability that puts Soviet satellites at risk just as ours are even now endangered.

In the summer of 1984, the Soviets proposed an ASAT treaty that did not prevent the development and deployment of advanced ground-based antisatellite systems. These weapons would include high-energy lasers. It is in the directed-energy weapons area that the Soviets have invested a great deal of effort. It is, therefore, not surprising that they would be reluctant to incorporate limits on such systems into any proposed treaty.

An antisatellite system meets three types of requirements: operational, political, and deterrent. The ASAT will ensure that the United States will not be denied access to space and to the space-based systems on which our security depends. We must have the kind of space program that ensures our continued free access to and passage through space. The United States is a signatory to several space-related treaties that clearly establish the principle that satellites are sovereign territory—much as ships at sea. On the oceans we have a strong navy to protect American shipping. We need the same kind of protection in space. Conversely, the

Weather, a perpetual and until recently unpredictable element in warfare, almost thwarted the Allied invasion of Europe in June 1944 (below). . . . In February 1966, the United States used a Thor-Delta rocket (right) to launch its first operational weather satellite.
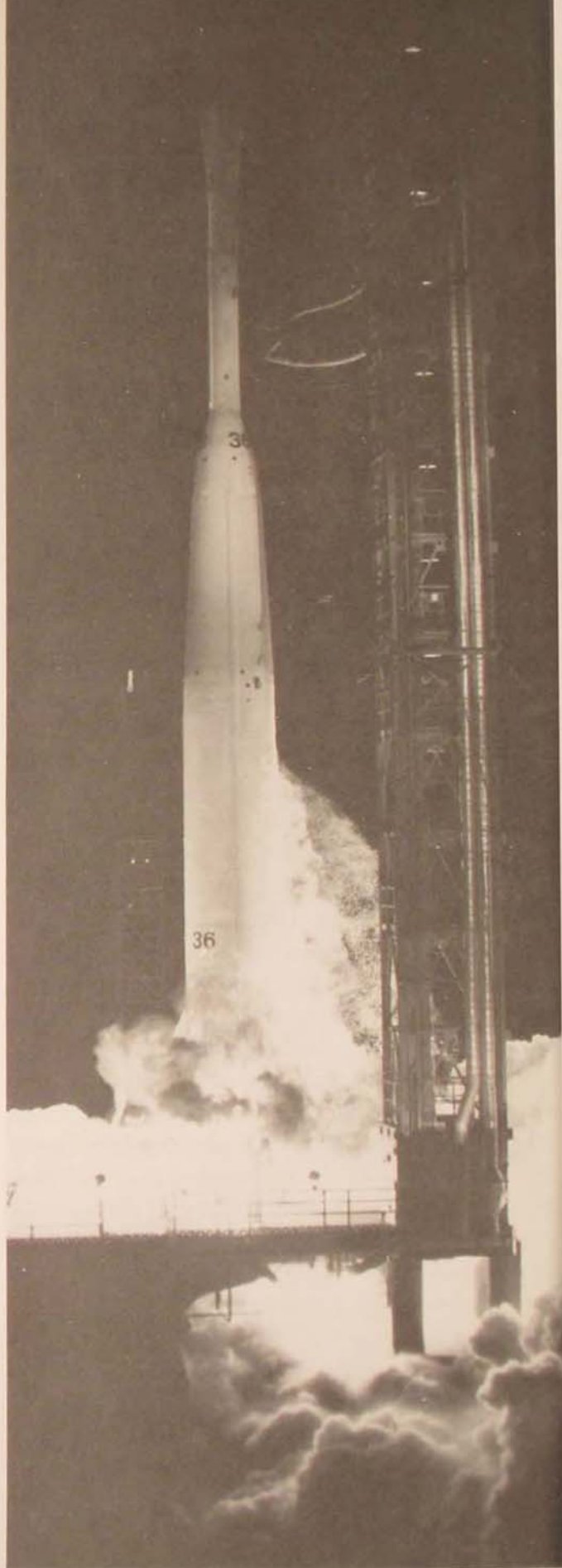
U.S. Navy serves not only to protect American vessels but also to provide a potential threat to our enemies. Similarly, the ASAT would put the satellites of our adversaries at risk.

## Exploring New Technologies

The Strategic Defense Initiative (SDI) has become more controversial than anyone could have expected when President Reagan proposed it. That outcome is unfortunate and due, in part, to the fact that few people understand what the SDI can do to preserve the peace. There is nothing new or "star warish" about exploiting technology for the purpose of enhancing our strategic defenses, and the SDI involves exactly that. The SDI is simply a concentrated program designed to exploit technology for one particular defined area.

Ballistic missile defense systems are nothing new. The United States started building a missile defense in the 1960s. Even then, we found that the Soviet threat was formidable enough to warrant efforts at defending our nation from attacks by ICBMs. During our research in the sixties, we discovered that the technologies we needed were not readily available. Their development and maturing were years away and would have been extremely expensive to acquire. After spending $5.7 billion of the so-called then-years dollars on the Safeguard system, we decided that the system was too expensive. There were many other imperatives in those days. We were still developing and deploying the Triad. The Vietnam War required a major commitment of money as well as effort. Additionally, President Lyndon Johnson's Great Society programs competed for funds. Therefore, we decided to rely, almost totally, on mutual assured destruction for deterrence. As a result, we reduced our ballistic missile defense programs to maintaining a warning capability, with continued research and development funded at a lower level.

As President Reagan said last year, our technologies have matured to the point that we can begin exploiting them to build a defense against ballistic missile attack. Furthermore, such a defense is economically feasible and will not lead to fiscal ruin. Through a combination of technological resourcefulness and creativity, we may be able to produce a defense against ICBM attack that will significantly reduce the threat that missiles now pose to our continued existence. Many people were already at work on the technologies associated with the SDI. Now we are organizing to ensure that the available fiscal resources will not be lost to other areas and to continue examining our technological advances so that in six or seven years we shall be in a position to make a decision about full-scale development.

Many voices have been raised concerning the Strategic Defense Initiative. We need to be skeptical of those who say that strategic defense cannot be attained. Let me provide you with a few examples of judgments about the future that turned out to be totally false.

- In 1903, just before the Wright brothers flew, an American astronomer named Simon Newcomb announced that the laws of physics proved that man could never fly.

- Robert H. Goddard was the father of American rocketry. The *New York Times* ran these comments about him in a 1920 editorial: "We hope the professor from Clark College is only professing to be ignorant of elementary physics if he thinks a rocket can work in a vacuum."

- Dr. Moulton, an astronomer from the University of Chicago, made this pronouncement in 1932: "There is no hope for the idea of reaching the moon because of the insurmountable barriers to escaping the earth's gravity."

- Finally, Dr. Vannevar Bush, president of MIT, writing on the possibility of intercontinental missiles in 1949, stated, "People who have been writing about a 3,000-mile rocket shot from one continent to another carrying an atomic bomb . . . I think we can leave that out of our thinking."
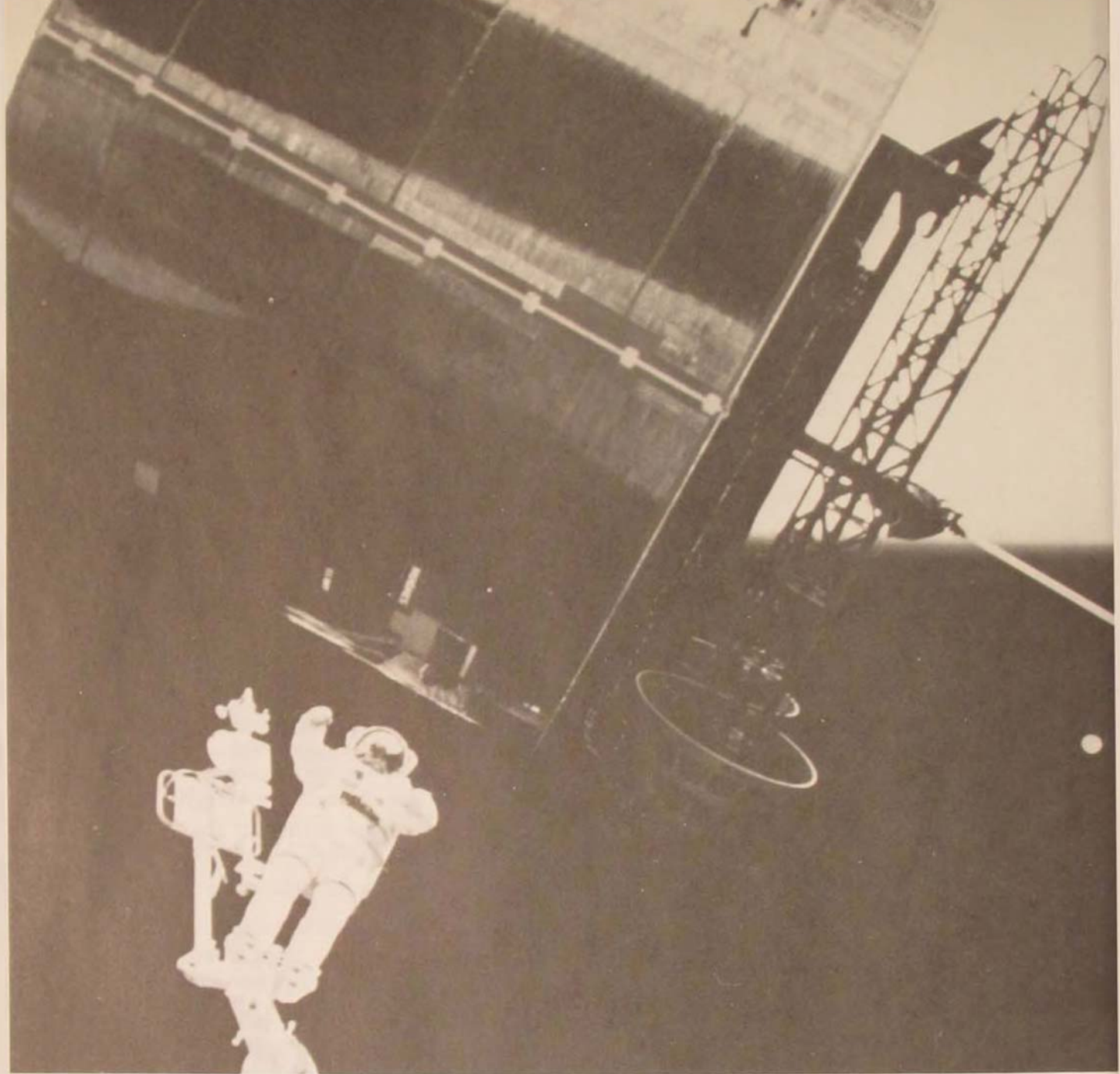
The Soviets have undertaken a major strategic defense initiative of their own. They are not characterizing their efforts as "star wars." Instead, they have been working diligently and carefully to develop an SDI capability since 1957.

Our strategic aerospace defense capabilities will enhance this country's deterrent posture. The SDI program, with its exploration of new technologies, holds great promise. Its contri-butions to our overall strategic aerospace defenses will be absolutely crucial.

## A Unified Space Command

Very careful consideration must be given to organizing our unified space command, as this command will be responsible for ensuring that our critical space resources are employed effectively. Earlier I discussed the extent to which

*The Space Shuttle program heralds a new era in exploration and technological achievement. On a mission last August, Astronaut James D. Van Hoften worked outside the Shuttle* Discovery *to repair the Syncom IV-3 satellite.*

Defense to the Joint Chiefs of Staffs to the systems operators. In the future, there will be additional space systems, which will complicate management and employment even further. A single manager is needed to optimize their utilization for our combat forces.

One reality must be considered. Today, there are two commands in existence—the North American Aerospace Defense Command (NORAD) and the Aerospace Defense Command (ADCOM)—that already have strategic defense missions, including responsibility for part of our space operations. NORAD has responsibility for warning and assessment of aerospace attack. ADCOM has a broader charter, which includes missile and space defense. Currently, our space operations are so fragmented that we are limited in performing our space defense mission under the aegis of our strategic aerospace defense charter. A unified command will provide a peacetime organization that is capable of preparing for and functioning effectively in crisis and war. What is needed, in effect, is a unified space command having two missions: operational space activities and strategic aerospace defense.

IN SUMMARY, we must bear in mind three major points as we move into the space age. First, and foremost, the American people must understand fully the importance of space and support U.S. space activities. Second, our efforts in space will, through the development and exploitation of technologies, enhance our strategic deterrent posture. Finally, a unified space command is the most effective organizational pattern for developing and employing our vital space forces today and in the future.

*Hq Space Command*
*Peterson AFB, Colorado*

we have become dependent on space platforms for the support of our operational forces. It is also necessary for us to consider the consequences associated with having a variety of government and DOD agencies managing, operating, and employing the many space platforms and assets that we possess. Currently, there is no operational direction or focus to tie them to our forces. There is no single operational chain of command running through the Secretary of

# ARMS CONTROL IN SPACE

## preserving critical strategic space systems without weapons in space

DR. ROBERT M. BOWMAN

THE United States is unquestionably the world leader in space technology. Currently, however, Americans are debating about how to use this advantage to enhance U.S. national security. At the center of this debate is a renewal of the whole question of
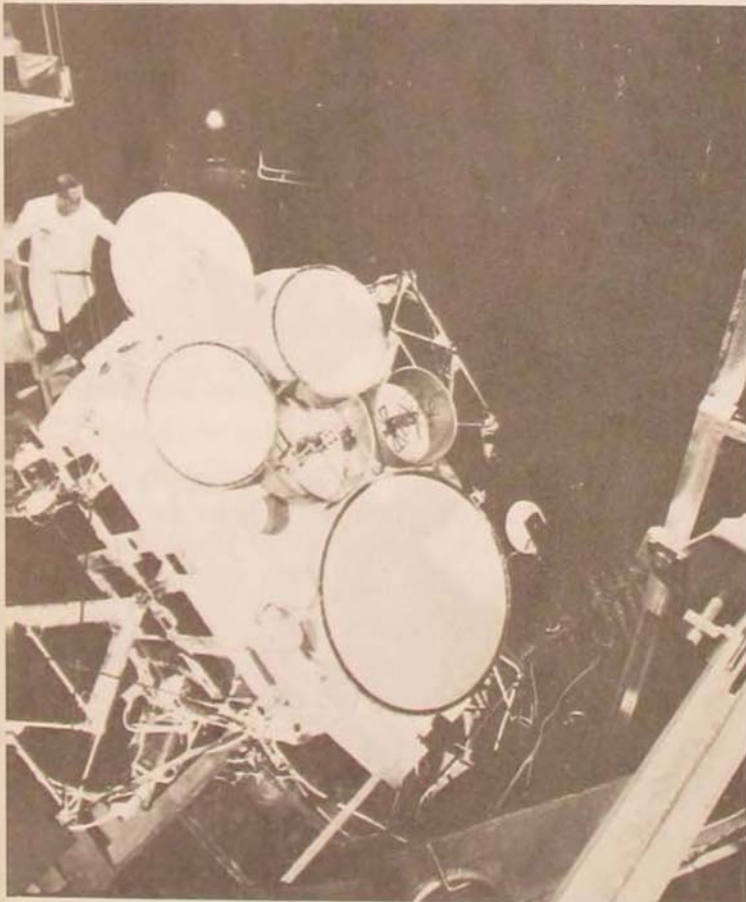


*The Defense Satellite Communications System (DSCS III), shown at the left, will be a vital part of our military satellite system through the 1990s. . . . The Space Shuttle Challenger (right) rises from its Cape Canaveral launch site, carrying its crew toward a mission in earth-orbit.*
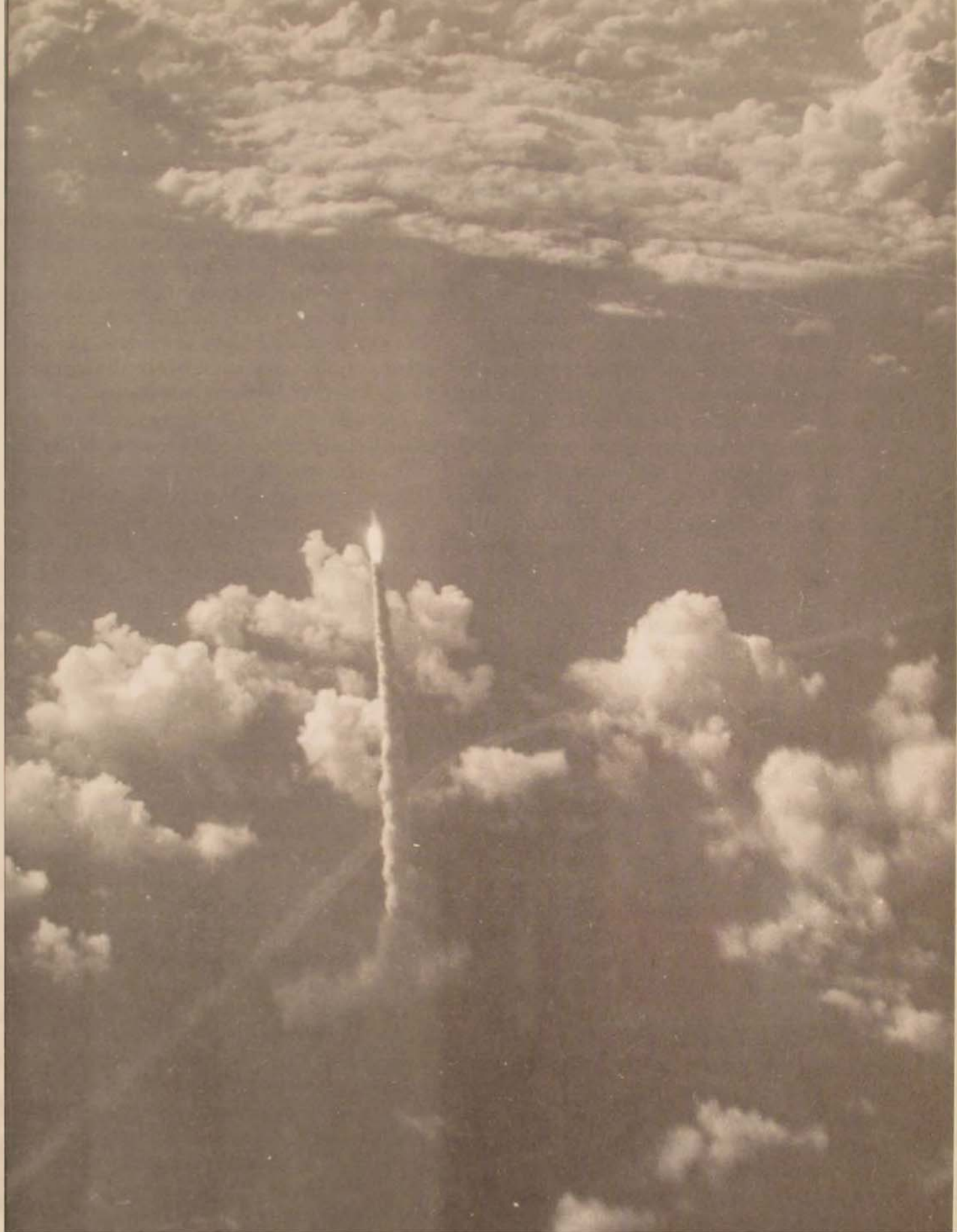
ballistic missile defense—an issue that was once thought to have been put to rest by the ABM Treaty.

Most strategic thinkers accept the fact that technology and military power in themselves cannot prevent nuclear war and provide for our security. They understand that security is dependent on a rational mix of the application of technology to military power and the use of diplomacy to arms control and disarmament.

Arms control agreements in the recent past have resulted primarily in shifting the arms race to weapons not covered by them. Supporters of the nuclear freeze movement point to the freeze's universality as one of its greatest virtues. Rather than limiting or banning specific weapons (as has been done in the past), adoption of a freeze would attempt to put a stop to a whole range of activities connected with a broad class of weapons. It is true that, because of the breadth of the proposal, verification of compliance would be fairly straightforward. But there are many types of weapons that would not be covered. It is likely that a freeze, as presently proposed, would foreclose the arms race in the nuclear arena, only to have it accelerate in other areas, such as space weaponry.

The primary purpose for arms control is to reduce the chance of war. (Secondary benefits, such as reducing the cost of preparing for war or reducing the destructiveness of war, have been rendered less important in this nuclear age.) I shall attempt to show here that preventing an arms race in space is critical to the primary arms control objective. Allowing the arms race in space to continue, I believe, will greatly increase the danger that nuclear weapons, even those remaining after a freeze, will be used calamitously. Treaty initiatives that would enhance the security of the United States are still possible. I shall suggest several concrete proposals that may be workable and, indeed, reduce the chance to a future nuclear conflict. To understand the role of space weapons in the risk of war, one must first review recent developments in strategic thought.

## Historical Background

Public support for the nuclear freeze was aided substantially by the perception of the American people that we as a nation had suffered a profound and dangerous change in national policy and military strategy.

Though divided over Vietnam, our country was for years relatively united on strategic matters. The motto of the Strategic Air Command, "Peace Is Our Profession," expressed the prevailing public concept of our entire military effort. The military services were rather selective in the weapons they developed and deployed, choosing those that contributed to stability and rejecting those which were destabilizing and which would hurt, rather than help, the job of keeping the peace. There were always those who cared little for strategy and yearned for whatever weaponry technology would allow. But until recently, this minority had little influence.

Central to our military philosophy has been the subjection of weaponry to strategy. Our greatest success in this regard was the conclusion of the ABM Treaty in 1972. The United States and the Soviet Union both recognized that antiballistic missile systems were potentially destabilizing. Of course, agreement was aided by the facts that (a) such weapons were very expensive and technically risky and (b) neither side perceived the possibility of emerging from an ABM race with a decided advantage. Still, the agreement was an important validation of the principle of maintaining stability in order to prevent war.

The negotiations that led to this success were simultaneously our greatest failure in the subjection of weaponry to strategy, in that we refused to outlaw MIRVs also. Multiple independently-targetable reentry vehicles have led directly to our present less stable situation by making a first strike theoretically advantageous. As long as there was only one warhead on each ICBM, it would take at least one ICBM to "kill" an ICBM. Actually, since accuracy and

reliability were not perfect, the kill probability was always considerably less than one. For the new generation of highly accurate missiles, it is about 0.6. This means that if one side launches 1000 ICBMs against 1000 of the enemy's, they will destroy about 600. If both sides started with 1000, then the attacker would be left with none, while his opponent would be left with 400 to do with as he pleased. Under such circumstances, it is unlikely that either side would be foolish enough to attack the other. This is a very stable situation. With MIRVs, however, a single ICBM can send two or more of its warheads to each of several enemy silos, thereby destroying a number of opposing ICBMs. The newest generation can achieve about a five to one kill ratio. Thus, the one to strike first can theoretically emerge with a big advantage. This destabilizing effect of MIRVs was recognized at the time, and an agreement banning them could have been reached. But we were blinded by our technological superiority and refused to include MIRVs in the treaty. Instead, we went ahead with MIRVs on our missiles.

When, a few years later, the Russians followed suit, we discovered that we were less secure than before. We had created for ourselves what we now call the window of vulnerability —something impossible without MIRV.

The MX was supposed to solve that problem by being highly survivable. Survivability is a highly stabilizing feature, making it possible to "ride out" a first strike and retain a strong retaliatory force. But while we were at it, we couldn't help throwing into our new missile all the goodies that advanced technology makes possible, including a highly accurate guidance system that gives the MX a potential first strike or "silo-busting" capability. When the survivability of the MX proved too expensive and difficult to achieve, we were left with what we have today—a system with no more survivability than its predecessors but with much greater accuracy. Such a weapon is useful only in a first strike and thus is provocative to the other side and highly destabilizing. The MX

was a misfit in our deterrent strategy. Gradually, our strategy has been changed to fit our weapons. Meanwhile, war has been avoided largely because of the stabilizing influence of space systems.

## The Effect of Space Systems on Nuclear Strategy

The military surveillance systems of the United States and the Soviet Union have until now contributed immeasurably to peace by denying the element of surprise to an attacker and eliminating any advantage of a first strike. By giving each side the knowledge that they could not be taken by surprise, these systems have reduced the pressures for preemptive strikes and led to a considerable lessening of tension. Space systems provide time for analysis, confirmation, consultation, and deliberation, thereby making hair-trigger responses unnecessary. They also have provided the technical means of verification that have made arms control possible.

But now we are at a juncture. Space can continue to provide even greater benefits and solutions, or it can become a massive and perhaps decisive part of the problem. What has changed? Our military forces have become more and more dependent on space systems —not only for surveillance and warning but also for communications, targeting, weather, terrain mapping, navigation, and other "force multiplier" support functions.

Once policy and strategy had been changed to accommodate the MX and a protracted, limited nuclear exchange scenario adopted, military strategists realized to their horror that the space systems on which their war-fighting capability depended were strictly peacetime systems, designed to support a strategy of deterrence and not survivable in a conflict situation. The function for which they had been designed was to give early and unequivocal warning of an enemy attack and to support the launching of a retaliatory strike. It had been assumed that

any attempt to destroy our satellites would constitute warning that an attack was either under way or imminent and would put in motion the retaliatory machinery. The obvious inability of the United States to keep a full set of satellite systems operating for more than a few hours into a nuclear war did not seem to matter.

The peacetime nature of our space assets was reinforced by the national decision to compel the Air Force to design all its new satellites for launch on the shuttle. Over the vehement opposition of the military, the shuttle was literally crammed down the throats of program offices responsible for operational satellite systems. At the time, this decision was deemed necessary in order to justify the shuttle financially. Later in the development of the shuttle, the political and financial support of the Air Force was the only thing saving the shuttle project from cancellation. Time and again, the Congress was forced to ante up more money to complete the shuttle development because of the total dependence of the Air Force on it—a dependence thrust upon the Air Force to create just this situation. The shuttle, of course, both in orbit and on the ground, and its two coastal launching sites are so vulnerable to attack that it is inconceivable that the United States could launch any new or replacement satellites once any hostilities had broken out. Two World War II submarines (or rowboats for that matter) or even two terrorists with hand grenades or mortars could totally wipe out the country's launch capability in minutes. Similarly vulnerable is our capability to communicate with the shuttle and to get data back from it or any of our other satellites. Even the new multibillion-dollar Consolidated Space Operations Center, which the Air Force has just completed building near Colorado Springs, will be vulnerable to attack or sabotage by the most meager of forces.

It is therefore ironic that at the same time as national decisions were being made which irretrievably limited our space capabilities to the peacetime tripwire role for which they had been designed, other decisions were being made to spend hundreds of billions of dollars for weapons whose only usefulness is in a protracted nuclear war and which depend heavily on space systems not designed for that purpose.

One choice available when this dichotomy was recognized was obviously to abandon the MX and other protracted war weapons and to stick with a policy of war prevention. That choice was not made. Once a system gets so far in the pipeline, it is extremely difficult to kill (witness the B-1, rising from the ashes like a phoenix). Instead, the choice selected was to attempt to upgrade the nation's space capabilities to give them a war-fighting capability.

Increasing the survivability of satellites by hardening them against attack was given much lip service and several millions of dollars, but very little was accomplished. Providing survivable launch capability by returning to expendable launch vehicles was considered for selected systems. But most of the effort went into a program to develop a U.S. antisatellite (ASAT) system to match that of the Soviets. The rationale evidently was that if they're going to threaten our satellites, then we'll threaten theirs. The fact that we are much more dependent on our satellites for command and control of strategic forces than they are did not prevent such a decision from being made.

We have now developed a far more sophisticated, far more capable ASAT than that possessed by the Soviets. It was ready to begin operational testing in early 1983 and had a successful booster system test in January 1984. Its first critical test against a target in space was held up temporarily by congressional action and could not take place before April 1985, but, in September, it was tested and found to be fully satisfactory. Antisatellite weapons now threaten to negate the beneficial stabilizing influence of surveillance and warning satellites.

For years, our policy was to negotiate a ban on ASATs if at all possible. In 1975 we dismantled the ASAT system that we had had operationally deployed since 1963. It had been

a nuclear-tipped system, far too indiscriminate in its destructive power and inconsistent with our treaty obligations. We recognized the fact that we were more secure in a world without ASATs than with them—even if ours were superior to the Soviets'.

This truth is now being ignored. We seem to be intent on surpassing the Soviets in the arms race in space and are therefore eager to test our new ASATs. Because ASAT deployment (or absence thereof) will be almost impossible to verify, testing of our ASAT weapons may therefore be an irreversible step that will make it very difficult to return space to the status of a sanctuary for peaceful and nonthreatening military support systems.

As long as there are nuclear weapons and delivery systems for them, the United States and the Soviet Union are going to need space surveillance systems to provide some measure of stability. To allow those systems to be threatened by antisatellite weapons is reckless and foolhardy.

This danger is now being compounded by our unfortunate pursuit of weapons with a first-strike capability. Although some proponents of our new war-fighting strategy have invented second-strike scenarios where silo-busting capability is required, thereby justifying the MX, others blatantly talk about situations in which the United States, in their opinion, should strike first, destroying Soviet ICBMs in their silos, together with Soviet command posts and hardened communications centers. Provided we also abrogate the ABM Treaty, install a point-defense system, and embark on a huge civil defense program involving evacuation of cities, we can, according to these strategists, hope to limit U.S. casualties to as few as twenty million deaths.

There is one minor flaw in this "optimistic" portrayal of victory. It depends on the Soviets' continuing their present policy of requiring committee approval before a nuclear strike can be ordered—a very time-consuming procedure. Clearly, if we proceed with the MX, Tri-

dent II, and Pershing II, the Soviets, with as little as four minutes' warning, will have to go to an automated launch-on-warning procedure. Their doing so would put the survival of the United States in a very precarious circumstance — dependent on the reliability of Russian computers. Our own sophisticated and technologically advanced computer warning system has given many false alarms. One of the recent ones was not identified as false until after six minutes had elapsed. If the Soviet automated system did no better, such a fault could bring about the annihilation of the United States.

Administration strategists have the answer to that scenario: "Knock out their surveillance satellites prior to a nuclear attack, and they won't have any warning!" I wonder what makes such "strategists" think that the Soviets, once blinded, will just sit there and let themselves be decapitated?

Herein lies the greatest danger. Once the United States has both a first-strike capability and an ASAT capability, what happens if a Soviet warning satellite is struck by a meteor or suffers a catastrophic electrical failure? Might the Soviets not reasonably assume that we have just destroyed their satellite so that they will not see the attack we are launching against them? Will they not then be likely to give the order to launch a "retaliatory" attack?

First-strike offensive weapons are dangerous to our security. The ASAT is dangerous to our security. Together, they are devastating and are very likely to destroy our security by bringing on a war that neither we nor the Soviets want —a war that neither we nor the Soviets can survive.

## Weaponization of Space: ASAT and BMD

The militarization of space is an accomplished fact—on both sides. However, until recently, the emphasis was on nonweapons applications, such as communications, navi-

*A Titan IIIC (left) carries two nuclear detection satellites into space. The Titan has been the workhorse of the space program since the midsixties. . . . Laser technology (artist's concept, above) will gain increased importance in communications and other space systems in the future.*

gation, and surveillance. Now a new phase is beginning—the weaponization of space.

This change has been a gradual one. Military spacecraft still perform their stabilizing missions, but they now perform others not so benign in nature. Coverage and responsiveness of surveillance systems have improved to the point that they can be used not only to provide strategic intelligence and warning information but also to perform targeting of tactical targets on a real-time basis. Such systems, while not

ing been introduced on both sides, have prompted both sides to pursue antisatellite weapons to counter them. Perhaps without realizing the Pandora's box they were opening, both sides have embarked on a new and far more dangerous phase of the military use of space—weaponization.

ASATs, although originally developed to attack threatening space-based force-multiplier systems, are now becoming indispensable as necessary precursors and adjuncts to a Star Wars space-based ballistic missile defense (BMD) system. Because of the technology overlap between ASAT and BMD, because of the vital role of ASATs in countering BMD systems, because of the necessity of anti-ASAT (AASAT) systems to protect the enormous investment represented by space-based BMD, and because of the powerful ASAT capabilities of even primitive BMD systems in the space age, it is probably no longer possible to deal with either ASATs or BMD alone. One of the weaknesses of the ABM Treaty and the Outer Space Treaty is that neither prohibits ASATs. The development of ASATs is threatening the viability of these treaties. Similarly, no ASAT ban can be effective if the development of BMD systems continues and destroys the ABM Treaty. From an operational military point of view, as well as an arms control point of view, space weapons must be dealt with as a whole.

ASAT technology is infinitely simpler than Star Wars technology, and the development of ASAT systems is at a critical stage. The decision about whether to proceed is time-urgent. But that decision is driven by the prospects for space-based BMD systems, and therefore (even though the operational deployment of such systems may be decades away) the advisability of pursuing these systems must be determined now. If Star Wars weapons are indeed likely to make us more secure, then we should reject any current or proposed ban and move to gain operational control of near-earth space, If, on the other hand, such weapons are either infeasible, unaffordable, or detrimental to our security,

normally thought of as weapons, perform the function of "spotting scope" and perhaps even of "gunsight." Therefore, they are increasingly being considered a part of the total weapon system that they support. Similarly, navigation systems, which originally were only accurate enough to allow ships to roughly locate themselves in vast ocean reaches, now give position and velocity in three dimensions with astounding precision. Therefore, they are able to help warheads of all kinds navigate to their targets, providing ICBMs and SLBMs, for example, with potential silo-busting accuracy. Thus, we have gradually turned strictly retaliatory weapons into potential first-strike weapons, greatly destabilizing the arms race.

These threat-enhancing space systems, hav-

then we should attempt to negotiate a comprehensive and verifiable ban on all space weapons, including ASATs.

## Star Wars BMD Weapons

Because Star Wars BMD systems and their strategic implications are of crucial importance, we must consider them in the context of both the past and the most likely future.

What has changed since the United States abandoned Nike-X, Nike-Zeus, Spartan, and Sprint and embraced the ABM Treaty? There have indeed been advances in the technology for such point defenses. We can imagine the possibility of survivable radars to support such systems. The Army's Homing Overlay Experiment (HOE) showed that with modern infrared (IR) homing sensors, it was possible to destroy incoming reentry vehicles (RVs) without nuclear-tipped interceptors. But these advances are not behind the reevaluation of the prospects for ballistic missile defense. Rather, the motivating factor has been the growing technology to support the possibility of the interception of ICBMs in boost phase.

### boost-phase intercept

Boost-phase intercept has several distinct advantages over BMD operating later in the trajectory. Boosters under power have flaming exhaust tails that are easy to detect and track with infrared sensors, even from satellites 20,000 miles away. Reentry vehicles are small, relatively cold objects that can be seen only by exotic sensors focused accurately on a small volume of space at relatively close range. Boosters are basically cans of fuel and, although far more durable than satellites, are much more vulnerable than reentry vehicles, which are built to withstand the rigors of reentry. Finally, boosters are far fewer in number. A launch of 1000 boosters will "MIRV" into perhaps 10,000 warheads and 100,000 decoys. It is easy to see that being able to attack ICBMs in boost phase rather than having to wait until they are in-

bound to their targets changes the whole nature of ballistic missile defense.

Of course, boost-phase intercept has its drawbacks. The boost phase lasts only a short time (40 to 300 seconds) and occurs very near the launch point. The intercept must therefore occur over enemy territory (or for SLBMs, over the ocean). This circumstance very much complicates the basing of the defensive system.

The problems of boost-phase intercept are well illustrated by Dr. Richard Garwin. He likes to tell about the U.S. boost-phase BMD system he has invented. It is technically feasible, requires no new technology, is extremely affordable, and could be implemented quickly. It consists of a machine gun manned by a red-blooded American standing next to each Soviet missile silo (two per silo for redundancy might be prudent). When the silo cover slides back and the missile emerges, the American squeezes the trigger and shoots the booster full of holes, causing it to explode. The problem with this system, as Dr. Garwin points out, is clearly its vulnerability. The Soviets would see us putting it in place. They would have to accede to its being there. And they could eliminate it whenever they chose (probably just prior to launching an attack).

Of course you don't have to station a boost-phase defense on the ground next to the silos. You can put it in space, a few hundred miles above the silos. But you've still got essentially the same vulnerability problem. The Soviets would see us putting the system in place. They would have to accede to its being there. And they could eliminate it (with ASATs or space mines, for example) whenever they chose.

By moving your "machine guns" into space, you have also introduced a new complication. They can't just stand there but must orbit the earth at a velocity dependent on the altitude. Any given component (laser battle station, machine gun, or whatever) spends only a small fraction of the time within range of the missile fields where boost phase will occur. Therefore, there must be (depending on the lethal range of

the particular weapons being used) ten to thirty components in orbit for every one on station. This fact does not negate the technical feasibility of such defenses but certainly influences the economic tradeoffs between the offense and defense. The offense can drive up the number of space-based battle stations required and therefore the cost of the defense by increasing the number of offensive boosters to be intercepted, by hardening the boosters to decrease the lethal range of each defensive weapon, by modifying the boosters to shorten the vulnerable boost time, or by implementing some combination of these measures.

There is one other possible basing mode for boost-phase intercept systems. It attempts to overcome the enormous vulnerability problems of either Garwin's machine gun or space-based orbital systems. It is the "pop-up" basing mode, most prominently proposed by Dr. Edward Teller for his nuclear-pumped X-ray laser Excalibur system. In this scheme, the defensive weapons are kept on the surface until needed and are then "popped up" into orbit within range of the boosters. Of course, these surface-based systems can't be based near the missile fields or, as Garwin point out, they would be just like his machine gun. They must be based in friendly territory or in international waters not controlled by the enemy — which puts them quite a distance from the missile fields. The closest that one could get would probably be on a submarine in the Indian Ocean. The difficulty then is to get the defensive weapon up into space fast enough that it can get a clear line of sight over the curve of the earth before the ICBM leaves the boost phase. This capability would require an incredibly powerful and efficient rocket. If the offense were to reduce their burn time even a little, it would increase the size of the pop-up rockets (and therefore of the submarines) by a large factor. You fairly quickly reach the ridiculous state where the ocean isn't deep enough to hide the submarine, even when it is sitting on the bottom.

The idea of boost-phase intercept has intro-duced some exciting possibilities into BMD. They really aren't new. Boost-phase BMD schemes are as old as the space age. A lot of technology, however, is new. Directed-energy kill mechanisms propagate at the speed of light. And there is a new generation of technologists eagerly considering the possibilities. But the new technology is also available to the offense for countermeasures and improved offensive weapons. What's more, the old problem remains of finding a survivable basing mode within range of where boost phase occurs.

### countermeasures to boost-phase BMD

There are many effective countermeasures available for each of the candidate systems. Most could be implemented quickly with existing technology at a tiny fraction of the cost of the defensive systems. It is instructive to mention just a few countermeasures that have wide applicability against any kind of boost-phase BMD system.

*Direct attack.* One of these widely applicable countermeasures, of course, is direct attack upon the space-based elements of the defense. Whether or not the kill mechanism is based in space, *all* of the proposed systems would be completely dependent on some kind of space-based surveillance and tracking system, space-based battle management computers or command and control satellites to communicate data to and from ground-based computers, and other vulnerable satellite elements. Basing the kill mechanism somewhere else, as with the orbiting mirrors scheme that keeps the laser on the ground in the United States or with the submarine-based "pop-up" systems, does not eliminate the problem of the great vulnerability of the space-based support elements, and these schemes introduce enormous complexities into an already complicated problem.

*Offensive proliferation.* One of the first effects of the attempt, by either side, to deploy a Star Wars system, would be the removal of all restraints on the proliferation of offensive sys-

tems. Neither the United States nor the Soviet Union was willing to negotiate a limit on its offensive forces until the ABM Treaty put a cap on the defenses those forces would face. SALT I without the ABM Treaty would have been unthinkable. While the offensive arms race has continued through qualitative changes, MIRVing of missiles, and improvements of accuracy to give counterforce capability, this competition has been conducted under the numerical limits imposed by SALT I and SALT II. Even though the former has expired and the latter has never been ratified by the U.S. Senate, both sides have been keeping their missile forces within the constraints of these agreements. The reason for this restraint is that greater numbers were not necessary to assure a devastating retaliatory capability in the absence of large-scale defenses. A breakout from the ABM Treaty would change all that. The obvious first response to a Star Wars deployment would be a drastic increase in the number of ICBMs, so as to swamp the defense. If the Soviets estimated that a defense we were attempting to deploy would be 50 percent effective, they would double the size of their offensive missile force as quickly as possible. Since military planners on both sides are always conservative and cautious, they tend to greatly overestimate opposing capabilities and underestimate their own. Thus a system that the Soviets feared would be 50 percent effective might actually be only 10 percent effective. The net effect of this escalation would be to increase the likelihood of war and to result, if war did occur, in nearly twice as many warheads reaching their targets in the United States.

*Quick-burn boosters.* There are many ways in which ICBMs could be modified to reduce their vulnerability to various Star Wars weapons. One of the most effective of these would be to change from liquid-fueled rockets to quick-burn solid-fueled boosters. The effect of this change would be to shorten the burn time from 300 seconds (that of a typical SS-18) to a more reassuring 40 to 120 seconds (comparable to that of an MX). Boosters begin to be vulnerable to high-energy long-wavelength chemical lasers about 30 seconds after launch. Shortening the burn time from 300 seconds to 120 seconds reduces the length of the vulnerable period from 270 seconds to 90 seconds. This abbreviated time frame would triple the number of laser battle stations required to shoot down the same number of boosters. It would also complicate the task of the battle management computers significantly.

While this countermeasure multiplies the cost of a defensive system incorporating laser battle stations, it is even *more* effective against all the other candidate systems. None of the other kill mechanisms can reach down into the atmosphere. They must wait until about 90 seconds after launch to attack a booster as it emerges from the protection of the atmosphere. Short-wavelength lasers, particle beams, and X-ray lasers are all absorbed by even a very thin layer of air and cannot penetrate much below altitudes about seventy miles above the earth. Kinetic-energy kill vehicles can fly down into the atmosphere; but as they do so, they heat up and their infrared sensors are immediately blinded. Thus a missile like the MX with its 120-second burn time is vulnerable to such systems for only about 30 seconds. If the burn time is shortened even further, so that the boost phase ends *before* the missile exits the atmosphere, then these kill mechanisms are *completely negated.*

In testimony before Congress, industry experts testified that for a modest increase in cost (10 percent or so) burn times of ICBMs could be reduced to as little as 40 seconds. Were the Soviets to implement this countermeasure after we had invested hundreds of billions in a boost-phase BMD system, they could render our investment totally worthless.

### alternative offensive systems

In light of the preceding discussion, it seems highly improbable that an effective boost-

phase ballistic missile defense could ever be deployed. It is not that our technology, ingenuity, and creativity cannot overcome staggering obstacles. They can. The problem is rather that the new technology is also available to the offense for countermeasures and improved offensive weapons, and innovations for these systems tend to be available more easily, more quickly, and much more affordably than the defenses they must overcome. What's more, in the game of countermeasures, counter-countermeasures, counter-counter-counters, etc., the tremendous destructive power of nuclear weapons gives the offense the advantage: the offense has to overcome only a small part of the defense to succeed, while success for the defense demands near-perfection.

However, even if a totally impregnable, invulnerable Star Wars system could be deployed —one capable of destroying *all* ICBMs in flight—it would be of little or no strategic value. Ballistic missiles can also be launched by submarines from fairly short range. These missiles can use low-angle trajectories such that their entire flight—not just the boost phase —lies within the protective blanket of the atmosphere. They could not be intercepted by any of the Star Wars defenses thus far imagined, with the possible exception of the long-wavelength lasers.

In addition, nuclear weapons can be delivered by cruise missiles launched from bombers or submarines. Cruise missiles fly at very low altitudes, safe from even the lasers. No one has yet imagined a Star Wars system capable of reaching down into the atmosphere and attacking cruise missiles. If such a thing were to exist, it would also have the capability to be used as an offensive weapon to destroy any target on earth at will. Cruise missiles therefore represent an "end run" around any Maginot Line in the sky.

Space weapons proponents say that they would not mind the Soviets' putting greater reliance on cruise missiles, because these missiles, being slow, do not constitute a first-strike

threat. That is not necessarily true. At the present time, we do not have any means of even detecting cruise missiles, much less defending against them. If they were used, we would not even have the thirty minutes' warning time we get with ICBMs.

If the objective of Star Wars is to eliminate the threat by making nuclear weapons "impotent and obsolete," then one must be concerned with other means of delivery also. Nuclear weapons can be delivered by light aircraft, barge, sailboat, diplomatic pouch—indeed, by any of the ways that enterprising criminals smuggle cocaine and marijuana into the country. If one is concerned with nuclear blackmail, then one must consider the threat of preemplaced nuclear weapons that could be detonated on command. No Star Wars system can eliminate that threat.

If Star Wars defense can neither disarm potential nuclear terrorists nor protect the people of this country from a massive (or even less than massive) surprise attack, what then could it do? What is a realistic and legitimate objective for a Star Wars system? That indeed is *the* question. The debate over Star Wars is (or should be) primarily one of strategy and objectives, not technology.

## BMD Strategy and Objectives

There are four possible objectives for ballistic missile defense:

• to replace a policy of deterrence by the threat of retaliation with a policy of assured survival based on a near-perfect defense against all types of offensive weapons (as proposed by the President in his "Star Wars" speech of 23 March 1983);

• to limit the damage to our country, should deterrence fail, by reducing the number of warheads getting through;

• to complete a disarming first-strike capability by providing a shield against the 5 percent of enemy missiles surviving our MX, Trident II, and Pershing II attack; and

• to enhance deterrence by reducing the vulnerability of our retaliatory offensive forces.

Each of these four objectives results in its own unique set of system requirements and associated technology challenges. They are listed in order of decreasing difficulty. Each also presents its own political and diplomatic challenges.

Achieving the first objective, in particular, is difficult because it involves the complex problem of managing, in conjunction with the Soviet Union, the transition from the current offense-dominated to a defense-dominated strategy without passing through an unstable situation. Implementing the program would have to be accomplished so that at no time the combination of offensive and defensive capabilities brought about deployment patterns appropriate for achieving objective three, the disarming first strike. Although nearly everyone agrees now that the kind of perfect defense needed for this first objective is impossible, such a defense, if it were possible, would be exactly like that needed for first strike, except that it would have to deal with approximately twenty times as many targets. Thus, there is no way to get such a capability without, along the way, getting the capability to complete a first-strike posture.

The second possible objective for a BMD system—limiting the damage should deterrence fail—is particularly troublesome. Such an objective is legitimate, provided the system put in place to achieve it does not increase the likelihood of deterrence failing. Since the system requirements are very similar to those for objective three, the chances of diminished deterrence are high. Damage limiting is essentially preparing to fight and win (or at least survive) a nuclear war. However, there is almost unanimous agreement now that a nuclear war cannot be won and must not be fought. Indeed, scientists are arguing over whether even people in the Southern Hemisphere, thousands of miles from the most likely arena of battle, can survive. Because it is not clear that damage limiting will do much good, given the potency of nuclear weapons, it should not be allowed to increase the likelihood of war occurring in the first place. In addition, abrogation of the ABM Treaty by either side will lead to an enormous offensive buildup. The best military judgment is that attempting to implement a damage-limiting ABM would probably lead to the deployment of so many offensive weapons to overcome the defensive system that, if a nuclear conflict did erupt, more nuclear weapons would actually reach our soil than if we had maintained the status quo through a mutual nuclear freeze. Therefore, when one considers the likely outcomes (both reduced deterrence and increased numbers of offensive weapons), a BMD system for damage limiting makes no sense whatsoever.

The third possible objective for a BMD system is to complete a first-strike potential by achieving the capability to shield oneself from retaliation. Since a first strike (which could be called preboost-phase defense) might get 95 percent of the adversary's weapons, an ABM system to support this objective would differ in the following respects from one needed for retaliation:

• the allowable leakage rate could be greater by a factor of twenty,

• the total amount of energy required to accomplish the mission could be reduced by a factor of twenty, and

• the speed of engagement (which dictates the speed of operation of battle management computers and the time available for repointing and retargeting, for example) could be reduced by a factor of twenty.

These factors make a big difference. They still leave enormous technological shortfalls, the inherent vulnerability of space systems, and the lack of a good kill mechanism for boost-phase interception. But they certainly lower the "level of impossibility" significantly. We cannot expect the Soviets to ignore this possi-

ble objective if we set out to develop and deploy a BMD system for any purpose.

The final possible objective for ballistic missile defense is to "enhance deterrence" by protecting offensive weapons and increasing our ability to retaliate. This is, in fact, the current Pentagon justification for the Strategic Defense Initiative program. It is certainly arguable, in light of the survivability of our Triad as a whole, whether deterrence needs enhancing. One can argue, of course, that the land-based leg could use some shoring up if we are to keep it. But this protection could be attained by implementing the kind of ground-based point defense allowed by the ABM Treaty. If this is in fact our objective, then it can be satisfied without Star Wars systems, without weapons in space, without violating the ABM and Outer Space treaties, without spending $5000 for every man, woman, and child in the country, and without putting our survival in the hands of computers.

Star Wars is far more than is required to enhance deterrence and far less than is required to replace it. There is simply no legitimate objective for the kind of program we are currently pursuing.

*the prospect for ASAT negotiations*

Negotiations with the Soviet Union aimed at preventing an arms race in space were cut off by the United States at the time of the Soviets' incursion in Afghanistan. Until recently, enamored with the possibilities of high-tech weaponry in space and engaged in a quixotic quest for a return to strategic superiority, the administration refused to resume those negotiations.

Then, in response to growing congressional and political pressure, the Reagan administration agreed to a Soviet proposal to meet in Vienna in September 1984 to discuss space weapons. For a variety of reasons, the talks never occurred.

Arms control talks have resumed in 1985, and serious discussions on space weapons may actually take place at some point. Whether or not an agreement can be reached is another matter. If both sides are more interested in blaming the other for negotiation failure than in achieving success, little will be accomplished. Clearly, there are people in both governments who are sincerely interested in reaching an agreement, although their motivations and objectives differ greatly.

It is clear that U.S. agreement to discuss space weapons in 1984, after four years of intransigence, was due to the following factors:

(1) The Tsongas Amendment to the 1984 Defense Authorization Act required such negotiations as a precondition to testing of the new U.S. ASAT against a space target. The 1985 version is weaker in many respects but still contains a requirement that the administration indicate its willingness to negotiate some sort of limitation on antisatellite weapons.

(2) The Democratic party made space weapons one of its main issues in the 1984 election, and the administration needed to do something to defuse this issue, as well as the larger issue of its lack of success in arms control in general.

(3) More and more people in government were becoming convinced that preventing an unconstrained arms race in space is vital to the national security of the United States. An Office of Technology Assessment (OTA) Workshop on Arms Control in Space, held 30-31 January 1984, revealed differences in philosophy toward arms control but also a rather broad consensus that there were verifiable steps that could be taken to restrict space weapons in such a way that U.S. security would be enhanced.

The main substantive difference between the U.S. position and that of the Soviet Union seems to be over how comprehensive a ban is desirable. The Soviets, although agreeing to discuss "limitations" on ASATs, clearly would prefer a total ban on all space weapons. The U.S. position seems to be along lines that would prevent the development of more capable Soviet systems while allowing the United States

to complete development of its new miniature homing vehicle designed for launch from the F-15. This U.S. goal can be accomplished by either "grandfathering" existing systems or limiting ASAT capabilities to lower orbits and prohibiting systems capable of reaching geosynchronous or other very high orbits.

Such an approach by the United States would probably satisfy the administration's political objectives and would allow the administration to continue testing our ASAT against targets in space, but this approach has absolutely no chance of resulting in an agreement with the Soviets (which is precisely what some members of the administration would prefer). Soviet obstinacy on this matter is understandable. While all of the critical U.S. strategic satellites are in very high orbits, Soviet communications and early-warning satellites are in highly elliptical Molniya orbits, which come very close to the earth over the Southern Hemisphere. Therefore, most Soviet satellites would be threatened by a highly sophisticated U.S. system capable of striking without warning from anywhere on the earth, while all but a few U.S. low-altitude "spy" satellites (and the shuttle) would be granted permanent sanctuary.

THE best way for the administration to show both the Soviet Union and the American public that it is sincere in wanting an agreement would be to join the Soviet moratorium on ASAT testing and to avoid taking positions that are patently inequitable and nonnegotiable. A testing moratorium *can* be verified. Space weapons might possibly be hidden, but their testing cannot. The rate of approach in rendezvous can be limited to prevent homing systems from being perfected in the guise of civilian applications. The size and power of lasers can be limited. The proximity of orbiting systems to those of other nations can be controlled. The development of new dedicated ASAT systems can be prevented. In summary, verifiable treaty agreements that would greatly enhance the security of both the United States and the Soviet Union can be reached, reducing the danger of a terrible war. We should end our recalcitrance and pursue such agreements at our first opportunity.

*Institute for Space and Security Studies*
*Potomac, Maryland*

# SPACE ARMS CONTROL
## a *skeptical view*

Dr. Colin S. Gray

**T**HE superpower arms competition is reaching out to embrace the heavens because the competitors derive great benefit from space deployments for military purposes. Moreover, there is a terrestrial arms competition between the superpowers because of an enduring geopolitical antagonism. This logic is as obvious and inexorable as it tends in practice to be neglected by some of the more starry-eyed advocates both of far-reaching measures of arms control in general and of space-focused arms control regimes in particular.

*Our wondrous earth at sunrise—captured in this photograph taken from the spacecraft during the joint U.S.-Soviet Apollo-Soyuz Test Project.*

I would argue instead that it makes no sense to consider space arms control in isolation, abstracted from its proper contexts of the arms competition as a whole and of the political structure of superpower rivalry. Critics of arms control malpractice during the past decade and a half, the SALT-START-INF era, have long noted, similarly, the strategic absurdity of discussing both offense apart from defense, and "strategic" apart from "theater" or "intermediate-range" forces. The United States cannot have a space arms control policy or a space strategy, any more than it can have a maritime, a land, or an air strategy that is distinctive from national security policy as a whole.[1] Large-scale war, should it occur, will embrace all arms and all geographical environments. "Combined arms" thinking should pervade U.S. policymaking for arms control as well as U.S. military operational planning.

Space is a special, or unique, environment in that states do not own it, no one lives there, and its physical properties are certainly unique. However, space is not special in the sense that states are, or will be, behaving there in ways fundamentally different from their settled habits of mixed cooperation and conflict in the three other geographical dimensions of political engagement. The militarization of space, which is now far advanced and shows no indication of diminishing, creates a major incentive for the development and deployment of ASAT (antisatellite) and active DSAT (defense satellite) capabilities. The development and deployment of large terrestrially based arsenals of long-range missiles that must leave the atmosphere for much of their flight create, inexorably, powerful incentives to develop and deploy effective countervailing weapon technologies that would have to be either space-based or, at the least, assisted by support platforms in space. In addition, again inexorably, the potential deployment of an architecture of ballistic missile defense that had key elements space-based must generate, indeed mandate, very robust DSAT capability. DSAT is not necessarily synonymous with ASAT, but the technical overlap could be considerable.

Much of what has been said and written in favor of various proposals for space arms control amounts, in truth, to little more than pious nonsense. Pious because unduly uncritical obeisance is paid to an arms control credo that reflects a triumph of hope over experience; and nonsense because the answers or solutions that are provided are in fact provided to a problem, really a condition, that has been wrongly defined. The "problem," properly framed, is not to "keep the arms race out of space" or some similar formulation. Instead, the problem is *either* (a) to remove the incentives for (defensive) space weaponization, or (b) to facilitate the effectiveness of defensive space weapons.

ASAT arms control is a lost cause for a wide range of powerfully plausible reasons that are specified in detail and discussed later in this article. However, the basic reason why the superpowers have developed ASAT weapons is, of course, because they have chosen to provide important, and arguably essential (though unarguably increasingly important), force-multiplier support with space platforms. The more important the military assets deployed in space, the greater the incentive, on the one side, to hold them at risk and, on the other side, to provide for their defense—passively and actively.

I am profoundly skeptical of the likely practical value of the arms control process to help fashion a military space environment conducive to the best interests of the United States. However, I have little difficulty designing arms control schemes, though not for space systems, that certainly would be helpful for national security—if they could be negotiated and if the Soviet Union would comply with their terms.

## Attitudes and Opinions: The "Arms Control Culture"

The Napoleonic maxim that the moral is to the material as three is to one could usefully be

supplemented by the proposition that the political is to the technical as three is to one. Armaments are, of course, at one level technical. But their meaning, at a more significant level, is political. Armaments are not the problem; rather the propensity of governments to use them is the problem. History, including some very recent history, is littered with technical schemes for the control, and generally reduction, of armaments, whose ingenuity was matched only by their political irrelevance. The lobby for space arms control, as was said of the Bourbons who were restored by the allied victory over Napoleon, would seem to have learned nothing and forgotten nothing from historical experience.[2]

It is both bizarre and not a little sad that the current debate about ASAT and the Strategic Defense Initiative (SDI) suggests that the most important question to be asked of space weaponry of different kinds is how best to control it —as if it were ASAT and BMD weapons themselves that were the overriding threats to peace. Lest any reader of this discussion should not be conversant with the relevant history, it is appropriate to state the following noncontroversial "enduring truths" about arms control:

• Progress in arms control reflects the quality of political relations. The more radical the military consequences of an arms control regime, the better the political relations required to sustain it.

• As a very general rule, states compete in armaments because they believe they may have to fight each other (i.e., all arms races are rooted in, and fueled by, politics). The state-to-state conflict systems that could be said to be in most need of the benign medicine of arms control are denied that medicine precisely by the facts of political conflict. This relationship is called the "arms control paradox."

• The historical record of arms control in action shows that arms control regimes have been either essentially trivial or harmful in their effects on international security.[3] The most important item in the arms control credo is the belief that arms control can reduce the risks of war occurring. All things are possible, so one hesitates to assert that this belief is wholly ill-founded. However, shocking though it may seem to some people, the belief that arms control can reduce the risks of war occurring is both probably wrong and certainly without plausible, actual historical foundation. Unwittingly, arms control theory may well have stumbled into a tautology. Arms control arrangements that seem to dampen proclivities to bellicosity, in fact, are the products of combined political wills to provide tangible expression of a decreased inclination to fight. This nexus of cause and effect does not negate the possibility, indeed the probability, that arms control can provide positive feedback for its political sustenance. Nonetheless, the notion that an arms control regime by itself could serve in some respects as a barrier against war is a logical absurdity. Politics is the master, not the technical details of military posture or even of relative military power.[4]

• Western democracies, whether in the 1920s, 1930s, or today, have proved to be incapable of prudent management of any major aspect of the arms control process—including negotiation of terms of agreement, coping with treaty noncompliance by other treaty signatories, and accomplishing adequate but treaty-compatible defense preparation. There is no reason to believe that the United States would be able to manage a new space arms control regime any more prudently than it managed naval arms control during the 1920s and 1930s or SALT since the early 1970s.

The issue is not the abstract merit of an arms control process. Anyone can write a panegyric of praise for the benevolent effects that hypothetical arms control regimes could have on the international political system. The trouble is that the kingdom of the truly dedicated arms controller is neither of this world nor of any part of outer space that the states of this world

can reach with lethal machines.

There is in the United States today what one could term an "arms control culture." That is to say, there is a body of socially transmitted concepts, attitudes, habits, and skills that inclines those so encultured to believe, macroscopically, that defense problems are really arms control problems and, microscopically, that the responsible citizen's first duty vis-à-vis a particular weapon is to try to prevent its deployment, control it, or abolish it. For the sake of justice in debate, it is only right to note, as Ralph Lapp argued at book length more than a decade ago, that there is also a "weapons culture" in the United States.[5] Both worldviews, or cultures, are potentially harmful to the national security. Arms control may not make us more secure, just as more weapons may not make us stronger. In the process of arguing that an arms control culture is framing false choices for U.S. national security policy with respect to projects for space arms control, I do not intend to signal implied enthusiasm for deployment of any and every weapon that American engineers are able to construct. Folly in mindless, indiscriminate recommendation of weapon accumulation, however, does not justify folly in arms control advocacy on some "balance of poor judgment" theory of productive policy debate.

Thus far in this article, I have kept the discussion of arms control at a level of very considerable generality. The reason why I have done so is that behind the emerging debate about space arms control are general attitudes toward the value of an arms control process.[6] I have suggested strongly in this discussion that there are what may be termed enduring "structural" realities pertaining to arms control which compel, at best, a modesty of genuine security achievement in that realm[7] and which ensure that political conditions, not technical relations in armament, comprise the more independent variable.

If optimism over the prospects for new space arms control regimes has not been sufficiently dampened by the arguments presented thus far, it is time to introduce two additional levels of difficulty—moreover, two levels that function synergistically for malign effect. If "Problem Level One" is the character of interstate relations and the highly plausible proposition that arms control follows improved political relations as trade follows the flag, then "Problem Level Two" is the political (and strategic) culture and style of the relevant participants in the arms control process, and "Problem Level Three" comprises the technical characteristics of the candidate weapon agenda for control.

Deferring "Level Three" issues, which will be discussed later in the ASAT and SDI sections, and concentrating on "Level Two" factors, we must examine, at this juncture, some of the salient characteristics of Soviet and American political culture and style. Political and strategic culture is not the shifting product of particular people who are struggling pragmatically to solve problems on the basis of necessarily very imperfect information. Culture, to repeat, comprises concepts, attitudes, habits, and skills that characterize the way a community defines its tasks, prefer to approach them, distinguishes their elements, and seeks to accomplish them.[8] Thus, the subject of this analysis is not space arms control as a set of ideas, but rather, space arms control between distinctively Soviet and American competitors.

Regardless of where one stands on the merits of particular space arms control ideas, there can be no evading the unfortunate facts that the Soviet Union has a well-documented history of cheating on solemn agreements,[9] while the United States has a no less well-documented history of practical, if not formal, acquiescence in such Soviet cheating. Before delving into the arguments over ASAT control and the future of the ABM Treaty of 1972, one should recognize that the pertinent structure of the situation vis-à-vis ASAT arms control looks distinctly unpromising. To summarize:

(1) It is Russian/Soviet cultural style not to permit legal niceties to stand in the way of

desired military program deployments. Moreover, the Soviet Union has *demonstrated* a willingness to evade the plain meaning and purpose of arms control agreements both in ways that have military significance (the SS-19, the SS-X-25, telemetry encryption, Moscow ABM system upgrades, underground nuclear test yields) and in ways that do not (Limited Nuclear Test Ban violations [persistent venting], "yellow rain," and so on).

(2) Because of the technical similarity of "scientific" and military missions, the "piggyback" possibility for illicit hardware, the impracticality of space-platform inspection, and the residual ASAT capability of strategic offensive and defensive missile forces, noncompliance with a space arms control regime would be unusually difficult to verify.

(3) The potential military payoff from ASAT Treaty noncompliance is very high indeed, given the facts that (a) the United States has deployed well under a hundred satellites that the Soviet Union could be motivated to target, and (b) the United States does not have a production-line approach to satellite provision. The United States is not at all well positioned to replace combat losses among space platforms. (This is the vice of the virtue of superior station-keeping qualities—the U.S. approach to its space system architecture is highly efficient *in peacetime*.)

(4) The United States has yet to call a halt to any treaty regime (or carry through on such threats to that effect as have been issued) on grounds of unsatisfactory Soviet responses to noncompliance concerns—notwithstanding the facts that the SS-19 made a nonsense of the Interim Agreement on Strategic Offensive Arms of SALT I, the SS-X-25 and missile test encryption are fundamentally incompatible with the plain American intent in SALT II, and the Abalokova radar lends itself to no plausible technical interpretation other than that it is intended to "close the back door" as vital, long-lead-time infrastructure for nationwide BMD coverage.[10]

The key issue is not really verification of space treaty compliance or noncompliance. Instead, the central policy issue is what the U.S. government would have the political courage to do in the event—indeed, the highly likely event—that technically plausible evidence of Soviet noncompliance could be shown. A background consideration for the U.S. policy debate today over ASAT arms control is the fact that the Soviet Union has not complied, at least in ways compatible with U.S. understanding of the purposes and plain meaning of agreements, with virtually every arms control regime to which she has been a signatory. What would be the basis for arguing either that the Soviet Union would behave differently "next time" or that the United States really would insist upon a very high quality of Soviet treaty compliance and would be prepared to withdraw in the event of a persistent, unsatisfactory Soviet performance? Soviet noncompliance, or very uncertain compliance, with a SALT or START regime is judged by many people—wrongly in my view—to be tolerable because the sheer quantity of weaponry permitted both sides makes for an inherently robust military balance. By way of contrast, the balance in capability to use and deny outer space for military purposes is inherently delicate, given the low numbers of important platforms deployed.

## ASAT Arms Control: For and Against

The American "arms control culture," for very understandable reasons, has served strong notice that keeping weapons out of space has become its first priority of business.[11] Even the MX/Peacekeeper ICBM fades somewhat in significance compared with the offenses that space weaponization is held to be certain to commit against the arms control credo. It is difficult to avoid miscategorizing particular arguments concerning space arms control. A central complication is that the debate over ASAT and ASAT arms control is to a degree distinctive, but that debate has major implica-

tions for the SDI. Furthermore, different opponents and proponents of the SDI have a variety of strategic desiderata in mind. At some considerable risk of omitting important variants of attitude and opinion, it is worth noting the following points:

• One can find arguments against ASAT arms control of particular kinds technically persuasive, regardless of one's position on the desirability of the United States' proceeding to deploy ASAT weapons.

• It may be possible to favor some ASAT control ideas but also to favor the SDI—provided the SDI is precluded from proceeding toward a system architecture capable of engaging targets in boost, postboost, or midcourse flight regimes.

• Anyone concerned seriously with protecting high-leverage technical possibilities for the SDI—possibilities involving orbital deployment of key sensors and possibly of actual weapon platforms—prudently cannot support any ASAT control ideas that proceed beyond the "rules of the road" in the "prohibited acts/behavior" genus.[12]

ASAT control prospects today must be considered both on their own terms and in relation to a U.S. (and Soviet) freedom of policy action in the future. To ensure that I am not accused of having a hidden (SDI) agenda lurking behind an ostensible discussion of ASAT, I acknowledge readily here that SDI protection logically dominates this discussion. However, as will be made plain, the case for ASAT arms control fails for reason of its own weaknesses even if there were no SDI arguments of policy relevance.

Stated as directly as possible, the SDI—properly constructed so as to include air defense and civil defense—offers the only halfway plausible prospect for reducing very dramatically the quantity of nuclear threat to American society. If there were some attractive political or radically lesss expensive technical means available to the same end, I would be arguing for them

*P78-1, a satellite used to measure spatial, temporal, and energy distributions of gamma-ray sources in space, was the target in the first U.S. test of an anti-satellite (ASAT) weapon. In the test, carried out in September of this year, the F-15 served as the launch platform, with the ASAT mounted on the fuselage.*

very forcefully. Pending some historically unprecedented transformation in the character or terms of international political discourse, the SDI—technical uncertainties and novel strategic problems admitted—offers the only path that may be available to lead toward our living in much greater safety. ASAT arms control, like the ABM Treaty, easily could place at fatal legal and political risk the prospect for eventual societal defense on a comprehensive (though not literally impermeable) scale. Therefore, much is at stake in the contemporary policy controversy over ASAT arms control.

The case for ASAT arms control, at least superficially, would be stronger than what is provided today if one were able to design an ASAT control regime that truly would accomplish useful things. To be generous, it is far from self-evident that ASAT arms control could accomplish what its more single-minded proponents claim for it (unless, of course, they have a "hidden agenda" of inhibiting SDI development—an objective that ASAT arms control would be likely to achieve very effectively in the United States at least).

WHAT is the argument for ASAT arms control?[13] First, at the most general level, there is the claim that such arms control can be accomplished. This is more than a little reminiscent of the allegations of "technology push" by weapons scientists and engineers who foist their "ripening plums" of new weapons on policymakers.[14] Now, arms control advocates argue, there is a narrow "window of opportunity," a "last clear chance" before ASAT deployment becomes, at best, vastly
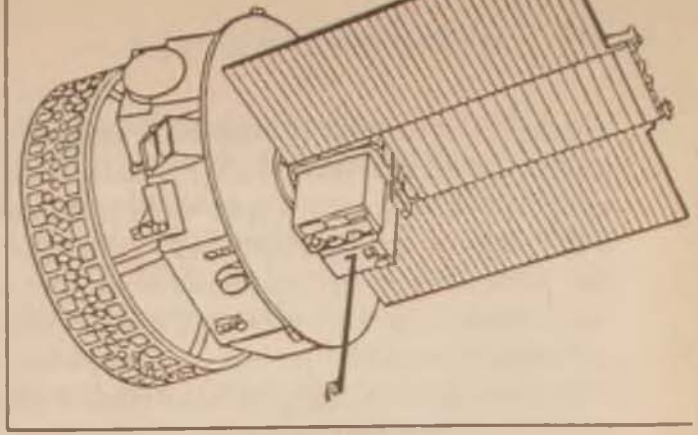
more difficult to arrest or reverse and, at worst, literally unstoppable. Reference is made back to the late 1960s to U.S. policy design for SALT I, to the allegedly missed opportunity of preventing MIRV deployment. It is believed that, in that instance, the United States chose to gain a near-term military advantage at the plainly predictable price of future strategic instability. ASAT, like MIRV, we are told, is a development that the United States will have leisure to regret (of course, if the more dire predictions of ASAT-occasioned crisis instability eventuate, that leisure period might be painfully curtailed).

The answers to this argument are that one should not do something simply because it can be done, and it is a long way from established fact that MIRV truly was negotiable. Moreover, nothing could be further from the truth than the claim that the United States is pressing ahead toward deployment of a technically superior ASAT with the air-launched miniature homing vehicle (ALMHV), in search of a quick advantage, heedless of the strategic consequences. Even in the absence of consideration of the other reasons why an ASAT control treaty would be a snare and a delusion, the certainty that such a treaty would place a fatal political-legal ambush down the road for SDI development suffices to condemn it.

Second, the point is made that the United States, supposedly, is more dependent on space platforms than is the Soviet Union, so ASAT arms control, even of a modest character, would have to function to the net U.S. advantage. There are two obvious problems with this

argument. The first is evidential in kind: the Soviet Union is making heavy, and increasing, use of space for important military functions.[15] True, in some crude quantitative sense the Soviet Union may be less dependent on space assets than is the United States; but one should not neglect possible operational contexts or the character of Soviet military doctrine. The side that seizes the strategic initiative is likely to have its space-based assets in better condition than is the side that is placed in the strike-back position. Also, the warfighting, "classical strategy" orientation of Soviet military doctrine may render some Soviet military space assets—for intelligence gathering and navigational assistance for restrike—of more critical significance than might be appreciated.[16]

The second difficulty with the argument for the net American advantage in ASAT weapon control is a matter very much of common sense. The Soviet Union has no record of endorsing, knowingly, any arms control agreement or any other kind of treaty regime that might work to her net disadvantage. As noted in a recent Defense Intelligence Agency report, "the idea of maintaining a balance or 'staying even' with a foe is alien to Soviet military thought."[17] Arms control, to succeed (or endure, politically), must be a non-zero-sum game. However, the apparent strength and the nature of Soviet interest in ASAT arms control should be explored rigorously. Could it be that the Soviets are fearful of what the absence of ASAT control could imply for a U.S. SDI program that threatens the integrity of their strategy? Or, dare one suggest, could it be that they can contemplate an ASAT control regime with equanimity because they have no expectation that they would need strictly to comply with it?

Third, those in favor of ASAT arms control argue that space-based surveillance assets of various kinds and space-based communication relays are critically important for "stability." Therefore, any military deployment that would place those assets at risk, and particularly at very prompt risk, has to promote instability. A variety of offsetting arguments should be noted. It would be a very optimistic person who would be confident that any character of ASAT control treaty actually would succeed in removing technically reliable threats to U.S. space platforms. Also, first-strike planners would have to worry that ASAT assault upon critical space platforms at very different orbital altitudes would sound a warning bell rather than blind and paralyze. Moreover, the superpowers are not, and are unlikely ever to become, totally dependent upon space platforms for early-warning, surveillance more generally, or long-range communications. There are technical alternatives today, and there will be alternatives tomorrow. Finally, it is just too glib to suggest, as has Daniel Deudney, that "the Archduke Francis Ferdinand of World War III may well be a critical Soviet reconnaissance satellite hit by a piece of space junk during a crisis."[18] If twelve pieces of space junk hit twelve important satellites within a forty-eight hour period during a very acute crisis, Deudney's idea might have some limited merit.

Fourth, and almost needless to mention yet again, many ASAT arms control proponents are focusing on ASAT as the tip of a space weapons iceberg that carries, in their view, the promise of promoting strategic instability. These people are correct in believing that ASAT as a policy issue today is critically important for the political feasibility of an endeavor, one day, to deploy space-based defenses for society-wide protection.

Many of the arguments against ASAT arms control, generically, already have been introduced in this discussion. However, a summary of them may be helpful.

First, an ASAT treaty cannot usefully "bound the threat" to U.S. space systems. If "ASAT capability relates to all systems capable of damaging, destroying, or otherwise interrupting the functioning of satellites,"[19] the threat includes interceptor vehicles (of different kinds, with a variety of possible kill mechanisms); potentially variously based directed-energy

weapons; electronic interference with satellite uplinks and downlinks; and weapons targeted against the ground, air, and sea-based infrastructure for interpretation and relay of satellite data traffic to ultimate users.[20] The more valuable U.S. space systems can be protected, to a degree, by hardening against nuclear and some directed-energy threats, by provision of limited maneuver options to "break track," by "stealthy" design (in some cases), by suitable choices for frequency of transmission, by selection of orbits that cannot be reached rapidly, by storage of spares inert in orbits, by greater autonomy (from ground control) in operation, and by more extensive cross-linking within satellite constellations where feasible (for NAVSTAR GPS, for a leading example). No ASAT control treaty can do anything to protect a ground-based infrastructure that is not suitably dispersed, hardened, or defended. Overall, one should not neglect the attack planner's dilemma that ASAT assault against critical early warning and strategic communication satellites in geosynchronous (et al.) orbits, on a militarily useful scale, would be akin to a declaration of war and would certainly have dramatic DEFCON implications for force generation.

Second, an ASAT control treaty would be reliably verifiable only in the trivial sense that known ASAT-dedicated deployed hardware could be monitored. Aside from the small complication that the Soviet Union does not admit to having a dedicated ASAT weapon, there is no way that anything even approaching the full range of ASAT capability, realistically broadly understood (to include electronic warfare), could be verified. Even with respect to the most obvious and visible of ASAT capabilities, ICBM-carried interceptor vehicles, a U.S. government report states as follows:

> . . . Andropov's pledge concerning a unilateral ASAT moratorium is meaningless, for the Soviets can continue to test them, disguised as scientific research satellites, regardless of any treaty.[21]

Third, any ASAT control treaty beyond the innocuous could hardly fail to work to a net U.S. disadvantage. As I suggested earlier, the Soviet Union would have a large incentive to cheat, such cheating on only a modest scale could reap militarily significant payoffs, cheating would be technically all too feasible, and the United States—on the record to date—tolerates cheating anyway. The United States does not develop and test new technology right on the margin of arguable treaty compliance: the Soviet Union does, and then some. It should be recalled that the Soviet Union, unlike the United States, does not have a truly civilian space program. An ASAT treaty would be likely to have the political effect in the United States of discouraging expensive programs intended to provide physically for satellite survivability.[22] Given the long Soviet record of not permitting military requirements to be affected negatively by arms control agreements, one need not be blessed with the gift of prophecy to predict, therefore, that an ASAT treaty:

- Would erode, and probably arrest fatally, U.S. momentum in ASAT technical developments that could be weaponized rapidly. (The F-15/ALMHV ASAT program requires a great deal of further test activity. A moratorium on testing, offered as a "good faith" gesture to improve the climate for negotiations, could have a devastating impact on program momentum.)

- Would have scarcely any impact on the true scope and depth of Soviet ASAT capability of all kinds.

- Would discourage the U.S. government from investing scarce dollars in expensive measure to enhance the survivability of space platforms.

Fourth, the United States has a major interest in denying Soviet spacecraft a free ride for force-multiplier missions in aid of strategic-missile, ground, naval, and air forces. Soviet doctrine calls for an endeavor to effect a favorable alteration in the correlation of forces at the outset of a war. However, the Soviet theory of

war is focused on the large campaign, rather than on the single battle. It is important for deterrence that Soviet defense planners anticipate being denied the services of ocean surveillance, navigation, and communication satellites. The loss of orbital eyes and ears should complicate usefully the Soviet task of attack assessment for restrike purposes; the loss of radar ocean reconnaissance satellite and ELINT-ocean reconnaissance satellite platforms could be critically significant, given the importance of seaborne power projection in global conflict to the maritime alliance of the West; and the loss of GLONASS (global navigation satellite system)[23] navigation satellites should impair the military effectiveness of all Soviet user organizations.

Fifth, ASAT arms control beyond the very trivial or the short-lived is not compatible with the freedom of development, testing, and deployment action that serious commitment to the SDI requires. ASAT capability, on a large scale, comes as a by-product of, or bonus from, boost, postboost, and midcourse BMD weaponry. The homing overlay experiment (HOE) of the U.S. Army, for example, formally speaking was a BMD test. But a HOE-derived weapon that has some capability against warheads would have to be much more impressive in action against satellites (in low earth orbit).

The idea has been mooted that a space arms control regime could be negotiated to have a lifespan, say, of only five years. This type of agreement, so the story goes, would have zero impact on the SDI, yet would provide the political cover of a positive arms control record on which the U.S. Congress may insist. However, history shows that both the United States and the Soviet Union have a way of becoming near-permanently bound by the diplomatic record that has been established. A five-year, no-space-weapon regime, for example, could affect profoundly the budgetary politics of the SDI during those five years; certainly would generate a "save-the-temporary-treaty" lobby; and would, in practice, be exceedingly difficult to switch

off when the five years have elapsed. Proponents of the concept of a limited-term agreement are, of course, aware of these political facts of life.

## Arms Control, Disarmament, and the SDI

President Reagan's SDI should be approached as a challenge for arms control rather than as a challenge to arms control. The sacred cows of arms control enthusiasts, which the SDI may reduce to hamburger, amount to little more substantial than an obsolete theory of stable deterrence and an incorrect theory of arms race dynamics. A great deal, though certainly not all, of the more root-and-branch philosophical objection to the SDI really is an attempt to turn the military-technological clock back to the great simplicity of an allegedly technology-mandated condition of mutual assured (societal) destruction, vintage 1966-68.[24] Efforts to evade or transcend the vulnerable society condition, be they through refinements to offensive targeting plans or through new active defense technologies, are, allegedly, condemned on the grounds that they are bound to fail and that they are potentially dangerous for the delusions that they may foster among the gullible.[25]

Some people are seeking to use arms control diplomacy to erect political-legal barriers to technological progress in BMD. They do not recognize that it is not a sin against stability to endeavor to protect the American people. In case anyone is confused on the subject, the official U.S. concept of strategic stability today refers not at all to capabilities to inflict massive societal damage, nor does it embrace the bizarre notion that international security is promoted by the Soviet Union's enjoying unrestricted offensive-weapon access to American society. A condition of stable deterrence is one wherein Soviet leaders anticipate the defeat of their strategy. Such a condition, it should be noted, is all too compatible with a Soviet ability to defeat

the United States in U.S. terms. Proceeding beyond current U.S. policy, I have long believed that there is an instability in deterrence fostered by the potentially paralyzing self-deterrent consequences of the American condition of an undefended homeland.[26]

Official spokesmen for the SDI have shown great respect to date for the ABM Treaty of 1972. However, opponents of the SDI have launched a "National Campaign to Save the ABM Treaty." Because the ABM Treaty is a symbolic (if not quasi-theological) as well as a substantive issue for standard bearers for rival schools of doctrine, rational and even-tempered discussion of the treaty is difficult to achieve. Minds are not open on the subject. With malice toward none (save Soviet noncompliers), I would like to call attention to the following salient points:

• The ABM Treaty rests on—and was believed by many Americans to promote—a particular theory of stable deterrence that has been rejected in Washington and that never was authoritative in Moscow.

• We lack consensus among ourselves on "what drives the arms race." But we do know, *for certain*, that arresting legally the deployment of BMD weaponry in the past did not slow the arms race with reference to Soviet efforts in deploying new, more counterforce-capable weapons.

• The ABM Treaty was negotiated by the United States in the context of very well publicized expectations of relatively near-term conclusion of an enduring offensive-forces control regime with terms conducive to (American ideas on) the stability of deterrence. Those expectations were not well founded.

• The ABM Treaty, as with all arms control regimes, was the product of a supportive climate of political relations. That climate changed, leaving a treaty regime bereft of a political support structure in Soviet-American relations.

• Technological keys to a feasible, high-leverage, multilayered defense were not on the

horizon in 1972. Arms control regimes tend to be technology-specific, just as the strategic theories that they express, or are believed to express, are technology-specific. As technological circumstances, expectations, and not-implausible possibilities change, so must their doctrinal and policy referents.

Critics who assert that the SDI may place the ABM Treaty in peril are correct. One could add that Soviet noncompliance misbehavior also should place the treaty in peril, but the Reagan administration seems reluctant to make that argument bear heavy political traffic. The ultimate goal of the SDI, as President Reagan has stated and restated unequivocally, is to provide nationwide defense—to render Soviet offensive nuclear weapons "impotent and obsolete."[27] Article I of the ABM Treaty is similarly unequivocal.

> Each part undertakes not to deploy ABM systems for the defense of the territory of its country and not to provide the base for such a defense. . . .[28]

It is possible that for a variety of political, economic, and technological reasons the United States may decide either not to deploy BMD weaponry of any kind or to deploy only a terminal BMD system for endoatmospheric defense of some hard-point targets. In those circumstances, the ABM Treaty poses no barrier to deployment or would need to be modified only in very modest ways.

Furthermore, a considerable amount of SDI development and testing activity could be conducted, were the U.S. government willing to endorse some expediently permissive interpretations of treaty language and to side-step what many people do, and would, regard as the plain meaning of the treaty. To take the most obvious generic example, the United States is not bound in any way by treaty vis-à-vis development, testing, or deployment of ASAT capability. Therefore, the United States could produce an overdesigned mix of nominally ASAT systems.

In practice, even if the United States were

determined not to offer very serious offense to Soviet and domestic sensitivities regarding the bounds of treaty-compliant behavior, considerable useful leeway for BMD development and testing could be found through sensibly self-serving interpretation of key words and phrases in the treaty and through exploitation of the absence of any legal restraint on ASAT and ATBM weapons. Article V of the treaty states:

> Each Party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, or mobile land-based.[29]

But what constitutes *development?* And what constitutes a *mobile* system or *component?* Examples of this kind could be proliferated.[30] The point is that should the United States decide, for reasons of politics or for fear of near-term Soviet "breakout" (as contrasted with the contemporary reality of Soviet "creep-out"), to seek to live with an unmodified ABM Treaty for as long as it is able, there are many ambiguities that could be exploited in the treaty and the associated diplomatic record, not to mention the sanction that could be sought with reference to Soviet noncompliance (or very arguable compliance). It need hardly be said that this approach is not "the American way." Moreover, I am not recommending that the U.S. government knowingly should affront its cultural preferences in this cynical way.

A more productive, politically defensible, and honorable policy course for the United States would be to reconsider the totality of its approach to strategic arms control. Given what could be at stake over the SDI (quite literally the physical protection of the American people) and given the plain absence of any attractive, attainable alternatives, the case for removal of ABM Treaty constraints on development, testing, and deployment, would seem virtually to make itself. The ABM Treaty cannot protect the American future; a mature SDI just might.

Contrary to appearances in this analysis, I do not dismiss entirely the potential value of suitable arms control and disarmament regimes for national and international security. A process of transition to a defense-heavy strategic posture obviously would be facilitated greatly were the Soviet offensive threat to be diminished in quantity and, preferably, frozen in quality. How might this desirable condition be promoted? There are two intimately connected paths to follow: negotiation and the achievement of visible momentum in military programs.

It is almost certainly the case that for the next several years the Soviet Union will be most unfriendly toward the negotiation of any isolated constraints on strategic offensive forces (i.e., constraints that would have the effect of lending plausibility to the more expansive American visions of SDI effectiveness). A cooperative, or partially cooperative, defensive transition will have to be earned by the United States.[31] Since the net balance of advantage between U.S. defensive and Soviet offensive weapon technologies ten to twenty years from now is problematical, one cannot assume confidently a secure future for cooperation in a defensive transition.

What one can and should do today is to outline, broadly, a strategy for arms control assistance for a strategic condition characterized by major defense advantage. Whether or not American negotiators ever will be able to deliver a suitable arms control regime depends on currently unpredictable trends in the technical relationship between offense and defense, as well as on the general state of East-West political relations.

The Soviet Union will agree to reduce its offensive threat if it calculates that in the absence of legal constraints the United States will proceed to deploy a strategic force posture—offense and defense—that will diminish Soviet security nonmarginally. What this means is that Soviet leaders will need to believe that their offense will not fare very well against a maturing U.S. SDI and that their defense will not cope very well with modernized U.S. offen-

sive forces. Even if Soviet leaders should anticipate being able to sustain a rough equality in the strategic arms competition, still they could well decide that negotiated arms control assistance to the two defensive transitions would be in their best interest. The Soviet Union is not unfriendly to the idea of homeland defense, only to the idea of American homeland defense. Standard geopolitical reasoning may impress upon Soviet leaders the attraction of a strategic context of essentially "sanctuary superpowers." I do not wish to appear to make light of the problems for U.S. and U.S.-allied security of a world wherein Soviet territory no longer was massively at nuclear risk.

Bearing in mind the improbability of a START agreement that would achieve a dramatic scale of negotiated disarmament of nuclear offensive forces, it is appropriate to observe that space-based weapons (directed-energy, projectiles, or rockets) for boost-phase or midcourse BMD would effect functional disarmament of the long- and intermediate-range weapons of the adversary. Actual physical disarmament should follow, if the superpowers appreciated that those means of weapon delivery no longer could penetrate reliably the burgeoning barriers of defense. A final point worth noting about defensive space arms is that they would constitute, de facto, a very robust regime to guard against the possibility of any catalytic war that might be triggered by accidental launch of missiles ("friendly" or otherwise).

THE bulk of the contemporary public comment advocating space arms control is really very backward-looking. It recommends one or another means of freezing defense technology. Although SDI critics claim that they favor continuing research on defensive technologies and undoubtedly are sincere, their claims invite skeptical reception in that generally these same individuals seem not to recognize the necessity of paying a fairly high-dollar exploration price to see whether effective defense is feasible. Moreover, so strong, even emotional, is the opposition to the SDI from space arms control lobbyists, that one should be excused doubting whether any degree of SDI technical success would suffice to change the negative attitudes in question. When a person says that he or she would favor strategic defenses that really would defend but then simultaneously declines to support a research and development effort adequate to explore the feasibility of suitable systems, one must suspect an unwillingness to be convinced.

A related problem is the pervasiveness of unrealistic requirements for perfect performance. In a world with nuclear weapons, only the best defense would be good enough for many people. One sees their point. However, it seems to me that if this defense could enforce a condition where "leakage" would be low by way of dramatic contrast to the current situation, one would have found a defense that was not as good as one would like but which certainly would be good enough to purchase.

Looking to the 1990s and beyond, as we should, we must recognize that the challenge before us is not to control defensive space arms. Instead, it is to design and effect an arms control policy that facilitates the military effectiveness of space arms (weapons deployed in space, weapons deployable rapidly to space, or weapons whose lethal mechanisms are relayed via space platforms). Arms control, properly understood, is not a matter of mindlessly opposing the latest lethal devices. Arms control, rather, is about stabilizing deterrence in order to prevent war and establishing constraints which, in the event of war, would canalize military capability and plans for contingent behavior in directions conducive to the limitation of damage. Space systems, weapons, and support that would render the prospective military efficacy of long-range ballistic missiles *and* air-breathing vehicles increasingly problematical could contribute decisively both to prewar deterrence and to damage limitation. Neither

claim can be advanced plausibly in support of the arms control process of the past fifteen years.

*National Institute for Public Policy*

### Notes

1. For a variety of views on how one should approach space for security purposes, see Colin S. Gray, "Space Is Not a Sanctuary," *Survival*, September–October 1983, pp. 194-204; Daniel Deudney, "Unlocking Space," *Foreign Policy*, Winter 1983-84, pp. 93-113; and Joseph E. Justin, "Space: A Sanctuary, the High Ground, or a Military Theater?" in *International Security Dimensions of Space*, edited by Uri Ra'anan and Robert L. Pfaltzgraff, Jr. (Hamden, Connecticut: Archon, 1984), pp. 102-15.

2. A useful historical perspective is provided by Jeffrey Barlow, "Arms Races, Arms Buildups, and War," in *The Nuclear Freeze Controversy*, edited by Keith B. Payne and Colin S. Gray (Cambridge, Massachusetts: Abt Books, 1984), pp. 37-55.

3. A powerful recent statement of this case is Henry S. Rowen, "The Old SALT Gang Returns," *The Wall Street Journal*, 2 November 1984, p. 28. Also see Henry Kissinger and Brent Scowcroft's reply in the *Journal* on 12 November, and Rowen's response on 16 November.

4. This thesis is argued persuasively by Stephen Peter Rosen, "Foreign Policy and Nuclear Weapons: The Case for Strategic Defenses," in *The Strategic Imperative: New Policies for American Security*, edited by Samuel P. Huntington (Cambridge, Massachusetts: Ballinger, 1982, pp. 141-61; and Richard Ned Lebow, "Windows of Opportunity: Do States Jump through Them?" *International Security*, Summer 1984, pp. 147-86.

5. See Ralph Lapp, *The Weapons Culture* (New York: Norton, 1968).

6. This important point is well signaled in *Arms Control in Space: Workshop Proceedings* (Washington: Office of Technology Assessment, U.S. Congress, 1984), pp. 4, 16.

7. See Colin S. Gray, "Arms Control: Problems," in *Nuclear Arms: Ethics, Strategy, Politics*, edited by R. James Woolsey (San Francisco: Institute for Contemporary Studies, 1984), pp. 153-69.

8. See Jack Snyder, *The Soviet Strategic Culture: Implications for Limited Nuclear Operations*, R-2145-AF (Santa Monica, California: RAND, September 1977); and Colin S. Gray, "American Strategic Culture and Military Performance," in *Military Technology*, edited by Asa A. Clark IV (Baltimore: Johns Hopkins University Press, forthcoming).

9. See William Hains, "Breaches of Arms Control Obligations and Their Implications" in *Arms Control: Myth versus Reality*, edited by Richard Staar (Stanford, California: Hoover Institution, 1984), pp. 134-53; and *A Quarter Century of Soviet Compliance Practices under Arms Control Commitments, 1958-1983, Summary* (Washington: General Advisory Committee on Arms Control and Disarmament, October 1984).

10. See Colin S. Gray, "Moscow Is Cheating," *Foreign Policy*, Fall 1984, pp. 141-52.

11. See Thomas K. Longstreth and John E. Pike, *A Report on the Impact of U.S. and Soviet Ballistic Missile Defense Programs on the ABM Treaty* (Washington: National Campaign to Save the ABM Treaty, June 1984); *Arms Control Today*, July–August 1984 (spe-

cial issue on the Strategic Defense Initiative); Sidney D. Drell, Philip J. Farley, and David Holloway, *The Reagan Strategic Defense Initiative: A Technical, Political, and Arms Control Assessment* (Stanford, California: Center for International Security and Arms Control, Stanford University, July 1984); and Union of Concerned Scientists, *The Fallacy of Star Wars* (New York: Vintage, 1984).

12. See *Arms Control in Space: Workshop Proceedings*, pp. 20-21.

13. Useful presentations of the procontrol case are Richard L. Garwin, Kurt Gottfried, and Donald L. Hafner, "Antisatellite Weapons," *Scientific American*, June 1984, pp. 45-55; and Union of Concerned Scientists, *The Fallacy of Star Wars*, Part III.

14. A recent relevant study emphasizing "policy pull" rather than "technology push" is Jonathan B. Stein, *From H-Bomb to Star Wars: The Politics of Strategic Decision Making* (Lexington, Massachusetts: Heath, 1984).

15. For an excellent review of Soviet military space activity, see Steven M. Meyer, "Soviet Military Programmes and the 'New High Ground'," *Survival*, September–October 1983, pp. 204-15.

16. Soviet doctrine for the military uses of space is examined by Uri Ra'anan, "The Soviet Approach to Space: Personalities and Military Doctrine," in *International Security Dimensions of Space*, edited by Ra'anan and Robert Pfaltzgraff, pp. 47-56; and *Soviet Military Space Doctrine*, DDB-1400-16-84 (Washington: Defense Intelligence Agency, 1 August 1984).

17. *Soviet Military Space Doctrine*, p. 11.

18. Deudney, p. 101.

19. *Report to the Congress on ASAT Arms Control* (Washington: U.S. Department of Defense, 31 March 1984), p. 6.

20. See Colin S. Gray, *American Military Space Policy: Information Systems, Weapon Systems, and Arms Control* (Cambridge, Massachusetts: Abt Books, 1983), pp. 45-46.

21. *Soviet Military Space Doctrine*, p. 31.

22. In which regard, see Robert B. Giffen, *U.S. Space System Survivability: Strategic Alternatives for the 1990s*, Monograph Series No. 82-4 (Washington: National Defense University Press, 1982).

23. The Soviet NAVSTAR GPS.

24. See Wolfgang K. H. Panofsky, "The Mutual Hostage Relationship between America and Russia," *Foreign Affairs*, October 1973, pp. 109-18.

25. An outstandingly lucid critique of recent trends in U.S. strategic policy is Robert Jervis, *The Illogic of American Nuclear Strategy* (Ithaca, New York: Cornell University Press, 1984), particularly chapter 2.

26. See Colin S. Gray, "War-fighting for Deterrence," *Journal of Strategic Studies*, March 1984, pp. 5-28.

27. "President's Speech on Military Spending and a New Defense," *New York Times*, 24 March 1984, p. 20.

28. U.S. Arms Control and Disarmament Agency, *Arms Control and Disarmament Agreements: Texts and Histories of Negotiations* (Washington: Government Printing Office, 1982), p. 139.

29. Ibid., p. 140.

30. For a careful analysis of this subject, see *The SDI and Future U.S.-Soviet Arms Control Strategies and Implications* (Fairfax, Virginia: National Institute for Public Policy, 1984). Also see Christopher Paine, "The ABM Treaty: Looking for Loopholes," *Bulletin of the Atomic Scientists*, August–September 1983, pp. 13-16.

31. For an analysis of the idea of a "defensive transition," see Keith B. Payne and Colin S. Gray, "Nuclear Policy and the Defensive Transition," *Foreign Affairs*, Spring 1984, pp. 820-42.

# You've got the stick

# TACTICS AND TECHNOLOGY: OPERATIONAL PARTNERS OR FISCAL FOES?

DR. JOHN F. GUILMARTIN

TACTICS and technology—how you fight, under what circumstances, and with what— are the prime determinants of combat effectiveness. If we are to survive, our tactics and technology must be effectively integrated, yet analysis of our defeat in Vietnam and our subsequent failures in Beirut and the Iranian desert suggest that we have not been spectacularly successful in doing so. Restricted to air operations, this conclusion applies with equal force; restricted to Air Force activities, it still applies. In *The Foundations of U.S. Air Doctrine: The Problem of Friction in War* (1984), Lieutenant Colonel Barry D. Watts suggests that we have had difficulty integrating our technology, tactics, and strategy from our doctrinal beginnings in the Air Corps Tactical School in the 1920s, so the problem appears to be inherent.

Why? Plainly, economic factors complicate efforts to match tactics with technology. The exponentially rising cost of military technology has exerted a severe strain on our military for at least four decades. In the age of turbojets and intercontinental ballistic missiles, high technology is clearly the name of the game, yet high technology is expensive. We have felt the cost problem most acutely when we have had to deploy high technology in mass. When we learned to our chagrin in Korea that a small nuclear deterrent could not replace large, standing forces, R&D (research and development) funds came into direct competition with O&M (operations and maintenance) and have remained in opposition ever since.

The causes may be debated, but the results are clear. The development of tactics withered under the dual impact of military careerism and a pervasive peacetime, costcutting, safetyfirst mentality. While these factors affected all of our services, they exerted a particularly strong influence on the Air Force. They preemptively focused our day-to-day operational efforts on reducing the peacetime accident rate, often to the virtual exclusion of all else. The preservation, let alone the development, of combat employment tactics was severely inhibited; we went from "every man a tiger" to "zero defects" in a few short years. The longstanding USAF ban on air-to-air combat training, which began in the post-Korea era, is only one particularly clear case in point: Not until June 1973, under the lash of embarrassing losses to obsolescent North Vietnamese MiGs, was the first aggressor unit commissioned at

Nellis AFB, Nevada. Other, less well known, examples are legion. Some of us can remember, when, for example, in the world of Aerospace Rescue and Recovery Service helicopter operations, tactical approach was synonymous with illegal maneuver; thus we went to war in the spring of 1975 flying with young pilots who had received no currency training whatever in turning maneuvers below 500 feet.

There was an implicit rationale behind these restraints. It went something like this: "We can't afford to lose valuable men and expensive machines in peacetime. We must conserve our strength until war comes; *then*, with an expanded budget and relaxed public tolerance of losses, we can train for combat." There are two problems with this logic: First, sound tactics take lots of practice, whether you're talking about air-to-air training for fighter crews or airfield defense infantry tactics for security police. Second, and far worse, over the long term, once you've convinced yourself that you *don't* need to train realistically on a regular basis, caution becomes a habit; innovation withers, and innovators go elsewhere. Once you buy the seductive logic of conserving strength through inactivity, the argument expands to encompass the even more compelling logic of saving money (jet fuel and training ammunition are expensive, even if nobody gets killed), and combat skills quickly vanish.

It would be an overgeneralization to say that the post-World War II Air Force has displayed tactical innovation only when forced to do so by combat losses, but such a statement would not miss the mark by much. Those who argue otherwise will have difficulty explaining away the tactics used by our B-52s in the first stages of Linebacker II; not only were they arguably inappropriate to begin with, but also they were pursued with incredible rigidity for three awful nights until unacceptable losses—and a bankruptcy of aircrew confidence—forced a halt.

The point is not that we should deceive ourselves into believing that high-technology weaponry is cheap (it isn't) or that it can be dispensed with (it can't). Nor is it necessary to argue that we must be prepared to accept some realistic level of peacetime loss and expenditure as the price we must pay to sharpen and develop our tactical skills. That argument has been won, at least on the gross level of budgeteering—witness the continued viability of Red Flag and its offshoots.

The point is that we must carry the logic of realistic, continuing, tactical training beyond exhilarating exercise: peacetime training must be expanded to encompass systematic inputs into the process of weapon system selection, procurement, research, and development. If we fail to take this essential step, we shall find ourselves, as we did in the Iranian desert, and all too often in Vietnam, with magnificent technology employed by ill-trained crews or magnificently trained crews condemned to use obsolete technology. Whatever the PPBS (planned programmed budgeting system) number-crunchers say, this outcome we cannot afford.

Dr. Guilmartin (Lieutenant Colonel, USAF Ret) is Adjunct Professor of History, Rice University, Houston, Texas.

# Letters

### AirLand Battle: the wrong doctrine?

Major Jon S. Powell's essay "AirLand Battle: The Wrong Doctrine for the Wrong Reason" in the May-June issue contains one glaring oversight that essentially negates his hypothesis. He totally *ignores* North Atlantic Treaty Organization (NATO) capabilities, considering *only* the U.S. Army and U.S. Air Force! I'm certain that our NATO allies would consider this view more than a bit parochial.

Although Major Powell mentions NATO a few times, all his references to capabilities refer to "U.S. Air Force." For example, he writes, "The [AirLand Battle] doctrine also assumes that the U.S. Air Force can support the deep battle, but intelligence, target acquisition, destruction, and intratheater airlift capabilities fall short of the support required." Although that's probably true, I question whether *NATO's capabilities* "fall short of the support required." And that, after all, constitutes the deciding factor, not USAF capabilities.

Major Powell further supplies ample evidence that he ignores our NATO allies' contribution to European defense when he uses such heading titles as "USAF intelligence collection capabilities," "USAF target acquisition and destruction capabilities," and "USAF intratheater airlift capabilities." His doing so demonstrates, to me at least, his appallingly parochial point of view. NATO is more than . . . the United States, and the outcome of a Warsaw Pact/NATO battle depends on *far* more than just USAF and U.S. Army assets!

Major Powell also apparently misinterprets "deep interdiction" and the "extended battlefield," or *I* do. He writes (in a rare reference to NATO), "U.S./NATO forces attempting substantive strikes against hypothetical second echelons will be striking mirages and wasting valuable resources." He then continues, ". . . doctrine requiring a lemming-like rush to find and destroy nonexistent second echelons . . . is not valid." Apparently Major Powell believes that NATO intends to sortie aircraft willy-nilly to search for and destroy any rearward "target of opportunity" they happen to find. That *would* constitute a deplorable waste of limited, extremely valuable assets. Deep interdiction doesn't work that way.

My (perhaps incorrect) understanding and interpretation of the "extended battlefield," on the other hand, is this: rather than concentrating *just* on targets near the line of own troops (LOT), the extended battlefield doctrine allows commanders to look for *the most valuable* (however defined) *and/or most vulnerable target(s), wherever they might be*—near LOT or deeper. Whether some authors call these rearward units "second echelons," while others name them "operational maneuver groups" and "air assault brigades" seems to me irrelevant semantics. *All* such terms refer unambiguously to troops *not yet directly engaged in battle*. Earlier doctrine apparently "ignored" rearward units; AirLand Battle doesn't.

Major Powell concludes, "The most logical doctrine is to use current intelligence capabilities to locate the most serious threats so that we can apply force at critical times and places to defeat the enemy." In my estimation, the "extended battlefield" concept provides commanders with the options—and NATO supplies the assets—to do just that.

*Dr. James H. Fenner*
*Euskirchen, West Germany*

I appreciate Major James H. Fenner's letter in response to my article, "AirLand Battle: The Wrong Doctrine for the Wrong Reason." The reason for not including NATO in that article is actually quite simple: NATO does not support AirLand Battle Doctrine. This was pointed out by General Bernard Rogers, SACEUR, in October 1983 and has been reiterated numerous times since (both by General Rogers and by spokesmen for NATO member nations). Since our NATO allies indicate that AirLand Battle Doctrine is a U.S.-only concept, perhaps the doctrine itself is "appallingly parochial."

As far as capabilities are concerned, the fact remains that the United States provides a preponderance of strategic intelligence assets and perhaps the greatest number of sophisticated target acquisition and destruction capabilities, while, of course, logistics (intratheater airlift) is a national responsibility. Moreover, U.S. assets are devoted toward prosecuting the battle in the European corps sectors assigned to U.S. forces. Each NATO member nation likewise

has an assigned area of responsibility. I doubt whether those nations would want to divert vital assets from their own hard-pressed commitments to support a U.S. ground force wanting to independently launch a deep strike à la AirLand Battle Doctrine. Major Fenner is absolutely correct in stating that NATO is more than just the United States. All the more reason why U.S. Army and Air Force doctrine should meld with that of our NATO allies.

If Major Fenner, or other readers, would like a representative European opinion on this topic, I suggest "AirLand Battle in NATO, A European View," by Colonel Arie K. van der Vlis of the Netherlands in *Parameters*, Summer 1984.

The lack of NATO acceptance is a serious (perhaps fatal?) flaw that is well documented in military literature and therefore not discussed in my article. Another important point to remember is that AirLand Battle Doctrine calls for air assets to be allocated and directed by the corps commander against second- and third-echelon targets that he believes will influence the outcome of his battle. The U.S. Air Force firmly disagrees on this point (we learned the lesson of centralized control of air assets in North Africa in World War II), and SACEUR disagrees because the NATO system calls for theater-wide allocation of air assets against the most critical threats wherever they might be in the entire theater. SACEUR, in fact, has developed a concept called follow-on forces attack (FOFA) to deal with this overall problem in the NATO context.

Just as the terms *FOFA* and *AirLand Battle Doctrine* are not equivalent, the terms *second echelons, operational maneuver groups,* and *air assault brigades* are not irrelevant semantics, nor do they all refer to the same type of troop disposition or timing for battle. The differences are fundamental to a basic understanding of the most likely threat and to focusing our capabilities to negate or destroy it.

AirLand Battle Doctrine is seriously flawed, yet the Army has adopted it for Field Manual

100-5, *Operations*, and is now avidly teaching it. In the fog of battle, commanders will search for, dimly see, and attempt to destroy the threats they've been trained to see—sometimes whether those threats actually exist or not, and whether, in reality, they are the most serious ones on the battlefield.

*Major Jon S. Powell, USAF*
*Defense Mapping Agency Office Europe*

Major Jon S. Powell's essay on AirLand Battle is interesting, contemporary, and thought-provoking. Clearly Major Powell conducted considerable research and gave significant thought to the preparation of his essay. I must admit, however, that his conclusions concerning the feasibility of the AirLand Battle Doctrine vary considerably from my own.

In the second paragraph, Major Powell states that the AirLand Battle Doctrine "has serious flaws." He identifies three premises on which the AirLand Battle relies as the principal areas of the serious flaws: Soviet/Warsaw Pact forces will deploy in a two-echelon configuration; the U.S. Air Force can execute critical support missions; and Soviet/Warsaw Pact doctrine will not negatively affect the deep battle. These three premises need to be examined more closely to determine whether they are, as Major Powell implies, erroneous assumptions seriously threatening the viability of the AirLand Battle Doctrine.

No one can say with 100 percent certainty in what configuration the Soviet Army would conduct a major attack or what doctrine would be followed. Even if we had the most current version of the Soviet Army's "How to Fight Manual," we couldn't be certain that it, much like our own situation, reflected the most current thought, at least with precision and currency. Furthermore, despite the commonly accepted belief that Soviet Army procedures are rigidly followed with no room for initiative, there are a great number of variables that will certainly influence the decisions that relate to

committing forces to battle. But, as stated in a U.S. Army Training and Doctrine Command briefing, "whether our enemy is stylistically echeloned is not really critical. What is important is that superiority in numbers permits him to keep a significant portion of his force out of the fight with freedom to commit it either to overwhelm or to bypass the friendly force."

For the sake of discussion, however, let's assume that the Soviets would use a one-echelon configuration rather than the two-echelon configuration envisioned in the AirLand Battle Doctrine. If that were the case, is it reasonable to assume that USAF and other NATO tactical fighters would, as Major Powell charges, "be striking mirages and wasting valuable resources" and "if our forces seek and attempt to strike enemy second echelons (supposedly forming deep to the rear), they will attack phantoms while the real and most immediate threat confronts them face-to-face"?

To the contrary, I'm confident that we have the ability to assess the situation quickly and then to direct our aircraft to the most critical targets, regardless of whether they're in a first or a second echelon, even if they're part of an operational maneuver group or an air assault brigade. Granted, we'll be better able to perform our mission if we have trained the way we intend to fight, but I submit that changes necessitated by recategorization of targets from second-echelon BAI to first-echelon CAS/BAI require only minor adjustments that can be accomplished relatively easily, especially in a wartime environment.

Major Powell's indictment of our intelligence ability to "see deep" is most perplexing. Based on my experience as a corps air liaison officer, I found that in most instances (albeit exercise situations), too *much* information was available. Admittedly, we still have trouble in distributing various levels of classified information, but in most cases there is so much "intel" available that trying to sort out the most important information and then getting it to the appropriate commander is frequently the biggest limitation relative to our ability to "see deep." This is not to say, however, that we don't need improved reconnaissance capabilities. Knowing precisely what the enemy is doing when he is doing it remains the ultimate goal of tactical reconnaissance.

As suggested by Major Powell, USAF operations to penetrate Soviet defenses and then acquire and destroy deep targets would be difficult and exceedingly dangerous. Once again, however, this limitation does not make the mission impossible or so risky that we shall not be able to afford the aircrew and aircraft attrition. Additionally, while we look forward to new and more capable weapons, we are not impotent with our current inventory. Furthermore, if the Soviets do employ a one-echelon configuration, our fighters won't need to fly long distances over heavily defended areas, thus diminishing Major Powell's comment that "as penetration distances to targets increase, acquisition capability and weapons effectiveness severely decrease." Without question, our current tactical resources (aircraft, aircrews, ordnance) can influence the deep battle *significantly!*

The problems of intratheater airlift capability are well documented. I certainly agree with Major Powell's statement that "Air Force capabilities fall far short of requirements" (to logistically support ground units striking deep). This limitation does not, however, invalidate the AirLand Battle Doctrine. Our Army recognizes the limitations and is fully prepared to "work around" the situation, at least to a limited extent. U.S. Army forces routinely practice resupply without airlift; and, while I don't wish to minimize the significance of limited intratheater airlift, its unavailability does not equate to certain defeat.

It is unlikely that the AirLand Battle is *the* doctrine. More likely it is nothing more permanent than one iteration in a series of Army attempts to write down the best way to do the Army's primary job. The AirLand Battle Doctrine may be imperfect, but I don't think that it

is the wrong doctrine for the wrong reason.

*Colonel Ross L. Meyer, USAF (Ret)*
*Fort Worth, Texas*


## on wearing medals

After reading the editorial "The Meaning of Medals" in the May-June issue, I find myself in complete agreement. When I wear the service dress, the question I receive from airmen, junior NCOs, and officers alike lend credence to your argument (i.e., "Why are the Vietnam service medals and campaign medals lower in rank than the unit citations?" and "You get a medal just for graduating from PME?")

The proliferation of noncombat medals has reached the ridiculous. Imagine "earning" a medal for being stationed at some of the gardenspot overseas locations where we must at times serve. Particularly ludicrous is the fact that this ribbon also outranks many combat ribbons. A chief master sergeant told me recently that these noncombat ribbons show that you have "paid your dues." In my opinion, those with combat time have paid much more. I'm encouraged by the recent change to move the Purple Heart above the Commendation Medal. However, it is still distressing to me to see senior NCOs and officers who have achieved great rank and position but whose decorations indicate that they somehow missed Southeast Asia.

The idea of moving the noncombat ribbons to the right side is a great idea, but don't count on it. Our service is noted for getting away from the Army style in uniform accouterments, and placing the name tags on the flaps of the pocket would be going backward, in some people's opinions.

We changed the uniform in 1947, turning the chevron over and removing the "hash marks" and most accouterments in the interest of being plain enough to determine our own style and uniform traditions as we built our service branch. Nearly forty years have passed, and we have not built any meaningful traditions into our uniform. I realize that it takes time, but we must start somewhere. Adding meaningless decorations that decrease the importance of the hard-fought-for ribbons is counterproductive.

Let's work to return the preeminence to the combat decorations and build our own traditions in dress.

*Senior Master Sergeant Allen A. Menard, USAF*
*Loring AFB, Maine*


## Christian morality versus nuclear deterrence

In "Christian Morality and Nuclear Deterrence" in the July-August issue, Captain Charles H. Nicholls's discussion of the paradox of nuclear deterrence is nothing short of astonishing. Combined with an extremely strained interpretation of the biblical account of Jesus' teachings and deeds, the result is perhaps the most twisted account of Christian morality ever to be put into print:

> Serving as a Christian in the nuclear deterrent force, I have an obligation to be prepared—morally and spiritually, as well as physically—to respond to orders to execute my mission. (p. 40)

I would have to presume that Nicholls would argue that this is the case, even if the order to be responded to is the order to launch nuclear weapons, with the very real possibility of worldwide destruction. To be able to arrive at this absurd conclusion on the pretext of following Christian ethical principles is incredible. Perhaps this is the inevitable double-talk that comes from mixing intellectualism with militarism: the result is a very real case of attempting to put new wine (an ethic of peace) into old bottles (an ethic of retaliation and retribution).

Nicholls's logical errors are nonetheless typical of the kinds of arguments being offered in military circles these days, and one particular error needs to be examined closely:

> The churches have accepted and even encouraged deterrence, at least for now, but they censure retaliation. The result is an ethical dilemma, as

explained by Gregory S. Kavka. This paradoxical position requires me to corrupt myself. My best option for deterring war is to form the intention to commit an immoral act. More simply, I do right by intending to do wrong, because this right intention prevents the wrong deed. (p. 38)

Nicholls may well be correct in saying that the churches often contradict themselves on the issue of nuclear armaments, although such generalizations about the "churches" are always ill-advised and suspect: there is no single position about nuclear deterrence held to by the churches, much less by their individual members.

Nicholls's more grievous error here, however, is in following Kavka's logic (assuming that he has read Kavka correctly). The core of the argument presented, if reversed, does describe the moral paradox in the very principle of nuclear deterrence itself: deterrence requires one to corrupt oneself, and it does so because it offers as the only option for deterring a possible nuclear attack the propensity to engage in a comparable evil. Nicholls apparently thinks that he can improve on Kavka's interpretation of the deterrence paradox, and he does so by an attempt to restate Kavka's insight in his own words: "More simply, I do right by intending to do wrong, because this right intention prevents the wrong deed." This, of course, is double-talk. Whether Nicholls has read Kavka correctly is beside the point: the point is that Nicholls does not see the inherent contradiction in his "morality" of deterrence. The contradiction is heightened by defending nuclear deterrence in the context of "Christian morality," since Christian morality clearly urges *non*-retaliation in the golden rule and its corollaries (e.g., "turn the other cheek"). The overall thrust of Christian ethics is compatible with this gentle teaching, although Nicholls struggles mightily to portray Jesus as an instrument of retribution by recounting the story of the money-changers in the temple.

In more down-to-earth language, being prepared to nuke the world in the name of peace is akin to the paradox that was actually uttered by a soldier in Vietnam: "It was necessary to destroy the village in order to save it." In the context of nuclear deterrence, one might rephrase this classic statement of militarist logic as follows: "It was necessary to destroy the world in order to save it." All of this in the name of the lowly Jesus? The mind boggles.

*Dr. J. Landrum Kelly*
*Midwestern State University*
*Wichita Falls, Texas*

## deterrents to an intellectually superior officer corps

As I read Lieutenant Colonel Donald Baucom's last editorial, "An Intellectually Superior Officer Corps," in the July-August issue, I felt great regret that such thoughtful remarks always seem to be reserved for a valedictory address on the eve of permanent change of station. Much of what Colonel Baucom said struck sympathetic chords in me. And with all due deference to his spirited and persuasive presentation, I should like to add some thoughts of my own. . . .

When we speak of an intellectually superior officer corps and an intellectually superior officer, we are dealing with two distinct issues, if not two widely divergent processes. The failure to produce the former reflects, I fear, the irreconcilable conflict of two value systems, while the discouragement of the latter represents the institutionalization of an invidious tendency to micromanage bureaucratic resources.

An intellectually superior officer corps depends in large part on the rigor of its academic training and the quality of the institutions that mold, through that training, its orientation toward society. Universities traditionally provide the officer corps an institutional framework for intellectual excellence and adhere to an academic value system—that is, a belief that ideas are capable of producing effective action. Ideas require long nurturing and a

body of instructors prepared for the arduous task of their elaboration. More important, the translation of ideas into effective action demands continuity of personnel because without continuity the collective wisdom so necessary for a vigorous institutional response to societal needs cannot exist. Academic superiority thrives on this protracted process and on the incubating of ideas through the medium of the collegial consultation of men and women who by virtue of their academic formation share a similar socialization to this belief in the efficacy of ideas. Thus, the university can claim to be the integrated expression of the academic spirit, and university leaders serve that spirit as equals.

If the academic value system lays stress on contemplation and concertation, the military value system, which the Air Force of course embraces, emphasizes action in the context of formally hierarchized command and control functions. To be effective as a military organization, the Air Force promotes a structure in which officers are functionally interchangeable, capable of being rapidly mobilized and responsive to the threat of aggression. This perception of its role as an answer to armed challenge precludes the Air Force from permitting any one officer from staying in one place too long. Therefore, despite the well-intentioned efforts of many to furnish a professional military curriculum in the senior service schools, the constant movement of personnel in and out of academic positions ultimately defeats the objective that only continuity can satisfy: an environment where the ideas of the intellectually superior officer can be enriched, deepened, and added to the body of general military knowledge. Barring the recognition by the Air Force of this essential prerequisite of continuity for successful military education, an intellectually superior officer corps will not evolve. Up to the present, those officers who wish to exploit their talents by remaining within the professional military educational system for the duration of their careers do so

with prejudice to their advancement and in contravention of the ethic that for the officer to serve to the utmost of his capacity he must follow a "well-rounded" assignment cycle. This is not a condemnation of the Air Force for what it is but rather an indication of its fundamental incompatibility with the academic world's view.

The second issue significantly affecting the body of military thought—the process of policy and security review—touches the intellectual in uniform at all times in his Air Force career. It is an unavoidable aspect of military life. Unfortunately, the distinction between what the officer ought and ought not to discuss publicly is often blurred—a circumstance arising out of a basic misunderstanding of where policy begins and security review leaves off. The complexity of the Air Force organization lends itself to the perpetuation of this misunderstanding. In a service where the managerial function outweighs all else, the overscrupulous attention to matters of process and procedure obliges the manager to consider the control of all information as a means for the suppression of bureaucratic dissonance in the interest of smooth organizational functioning. The success of a career too often relies on the impression that all is well and that there is no basis for discontent within the ranks. It is not surprising then that any idea which challenges established norms is perceived as defiance of structural order and coherence. Hence, ideas, however constructive, are feared for their potential to create disharmony. The price that the Air Force pays for the underutilization of its finest intellectual resources, as Baucom points out, far exceeds the bureaucratic benefits that might be realized as a consequence.

Without free access to a forum for ideas, critical inquiry cannot prosper and the Air Force cannot meet its responsibility to defend our future. The line between what constitutes policy and what compromises the national security interest must be redrawn to accommodate the intellectual in uniform. We must end the

practice of suppressing ideas whenever such ideas threaten to give credibility to what is unpopular or distasteful.

*Dr. Lewis Ware*
*Center for Aerospace Doctrine, Research, and Education*
*Maxwell AFB, Alabama*

## security and policy review

Judging by recent articles in the *Air University Review*, I believe that there is a growing misperception in the Air Force concerning the DOD security and policy review program. I would like to clarify some of the misunderstandings that seem to be contributing to this misperception.

Security and policy review is a Department of Defense program directed in part by Executive Order 12356 and implemented by DOD 5200.1R/AFR 205-1 and DOD Directive (DODD) 5230.9. All the services have implemented the DOD guidance and do business basically the same way. The Air Force has not added any requirements or restrictions.

DODD 5230.9 and AFR 190-1 spell out exactly what information requires review and at what level. There are no DOD exceptions to these requirements. For example, articles proposed for *Air University Review*, *Naval War College Review*, and *Military Review* that require DOD clearance do go through the review process.

The Air Force review objective is to clear, without delay, the maximum amount of information. For example, of the 1256 noncongressional cases that SAF/PAS worked through August of this year, 1.5 percent (nineteen) were denied clearance by OSD or the Air Force for policy conflicts, approximately one-third (seven) of which were technical papers. Security was a problem with 1 percent (fifteen) submissions, and 5 percent (sixty-eight) of the technical papers required distribution limitations (to government agencies, contractors, etc.) to protect critical military technology. That means that

1154 cases were cleared for open publication. Sure, we would like to see everything cleared, but that is not realistic, given our responsibility for the defense of our country.

Are there arbitrary decisions by nameless Air Staff reviewers? No, the burden of proof for clearance objections is on the reviewer whose name is on the review form we receive. The reviewer who objects to release of information will more often than not receive a call from SAF/PAS to discuss thoroughly the specific security or policy problem and the justification for denial.

Remember: the security and policy review program is for information proposed for public release, not for review of classified or other information intended for internal use. The review program does not in any way limit internal discussions or internal publications (e.g., texts at AU, USAFA, AFROTC). And, of course, editorial decisions are not part of the review process.

Is the security and policy review program perfect? Not hardly, but it's the best system we have to protect our government and each of us as DOD spokespersons. Each of us has an important role to play in keeping our Air Force strong and ready, so I urge you to study and understand the security and policy review process and how it applies. If you have any questions or suggestions on how to improve the program, please contact me at AV 22-73222/73994.

*Colonel Ronald B. Johnston, USAF*
*Chief, Office for Security Review (SAF/PAS)*
*Pentagon*
*Washington, D.C.*

## a view from just above the middle floor

I have just read in the July-August issue the excellent article, "A View from the Ground Floor," by Second Lieutenant Michael J. Reed. I sense in the young officer a frustration that is not restricted to junior officers alone. He sees many officers using their jobs as a means to get

the extra duties that they perceive will gain the visibility necessary for high-level endorsements. These endorsements, they hope, will sway the boards to provide the end they really seek— rapid advancement. He proposes a change in the rating system as a partial cure.

As a survivor of the controlled system, then as a promoter seeking those "high-level" endorsements for my officers, and finally now as a filter trying to implement our new drive toward de-emphasizing levels of endorsements, I have much empathy for our juniors trying to find their way through the constantly changing maze of career progression. Their only concrete way of measuring their worth is the OER, for most supervisors do not tell their young officers periodically how they are doing. The OER, though, is a zero-sum game, as is any personnel rating system. It is not the cure or the cause of the disease.

The cause, I think, is our process of looking at each officer as a member of the generalist "line of the Air Force" for promotion within an assignment/career development system that tends to breed specializations. The promotion system, as I perceive it, is looking to advance the officer who has proved he can perform in many areas and shows the potential to lead, as well as manage, in nearly any arena in the "line of the Air Force." The assignment/career development system seems to prevent formation of that sort of officer. It assigns AFSCs to individuals and then tends to "lock" the officer into that specialty through a range of assignments. It also strongly resists attempts to allow that officer to break away from his "union"— especially if he is good. The more an officer works in a specialty, the more specialized he becomes. The more he is locked into his specialty, the less he develops into the "generalist" manager or leader that the promotion system is seeking. It is little wonder then that the young officer and his supervisors will seek ways to get "visibility" in any area they can. If he cannot be the generalist, he can try and look like one.

The cure is more fundamental and evades easy grasp. The cure may be the "dual-track" concept. It may be a concept of more generalized AFSCs or combinations of AFSCs as the officer progresses. It may be something even more revolutionary, such as a reduction in officer strength that forces more generalized managers and leaders. In any case, the cure is not easy. But, Lieutenant Reed, the OER system is simply a symptom, not the disease.

*Colonel Jarrett B. McGehee, Jr., USAF*
*Vice Commander, 501st Tactical Missile Wing*
*USAFE*

# IRA C. EAKER ESSAY COMPETITION

Air University is pleased to announce the annual Ira C. Eaker Essay Competition. The objective of this competition is to encourage the development and open discussion of innovative air power ideas and concepts in a dynamic and interactive forum, much as General Ira C. Eaker and his colleagues approached the challenges in developing air power in the '30s and '40s. *Air University Review* is proud to be a part of this very significant competition honoring General Eaker's achievements and memorializing the indomitable spirit of the air power enthusiasts of his time.

Topic areas for the essay competition are military strategy and tactics, doctrine, professionalism, ethics and values, esprit de corps, or any combination thereof.

## ENTRY RULES

—Essays must be *original* and *specifically* written for the competition. Only one entry per person may be submitted.

—Entries must be a minimum of 2000 words and a maximum of 4000 words.

—Essays must be typewritten, double-spaced, and on standard-sized paper.

—The competition is open to active-duty members of the regular Air Force, Air Force Reserve, and Air National Guard; Air Force Academy and AFROTC cadets; and Civil Air Patrol members. Competition judges, *Air University Review* staff members, and cash-award winners of the last annual competition are ineligible for cash awards.

—A separate coversheet should include the essay title, author's name, rank, duty/home addresses, and duty/home phone numbers. The author's name must not appear on the essay itself. The title should be repeated at the top of the first page of the essay.

—Send entries to: Editor, *Air University Review*, Building 1211, Maxwell AFB AL 36112-5511. All essays must be received or postmarked not later than 1 June 1986.

—Essays are submitted with the understanding that first-publication rights belong to the *Air University Review*.

ENTRIES NOT IN COMPLIANCE WITH RULES WILL BE DISQUALIFIED.

First-, second-, and third-prize medallions will be awarded, as well as $2000, $1000, and $500 United States Savings Bonds, respectively. Distinguished Honorable Mention and Honorable Mention certificates will be awarded also. Top winning essays will be published in the *Review*.

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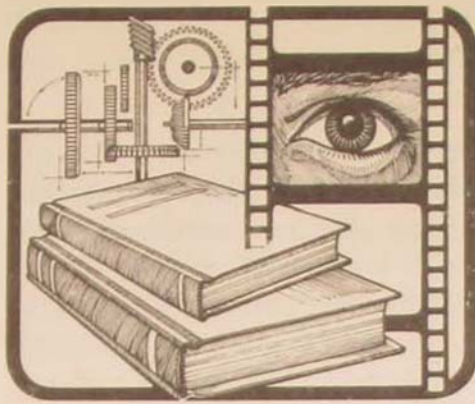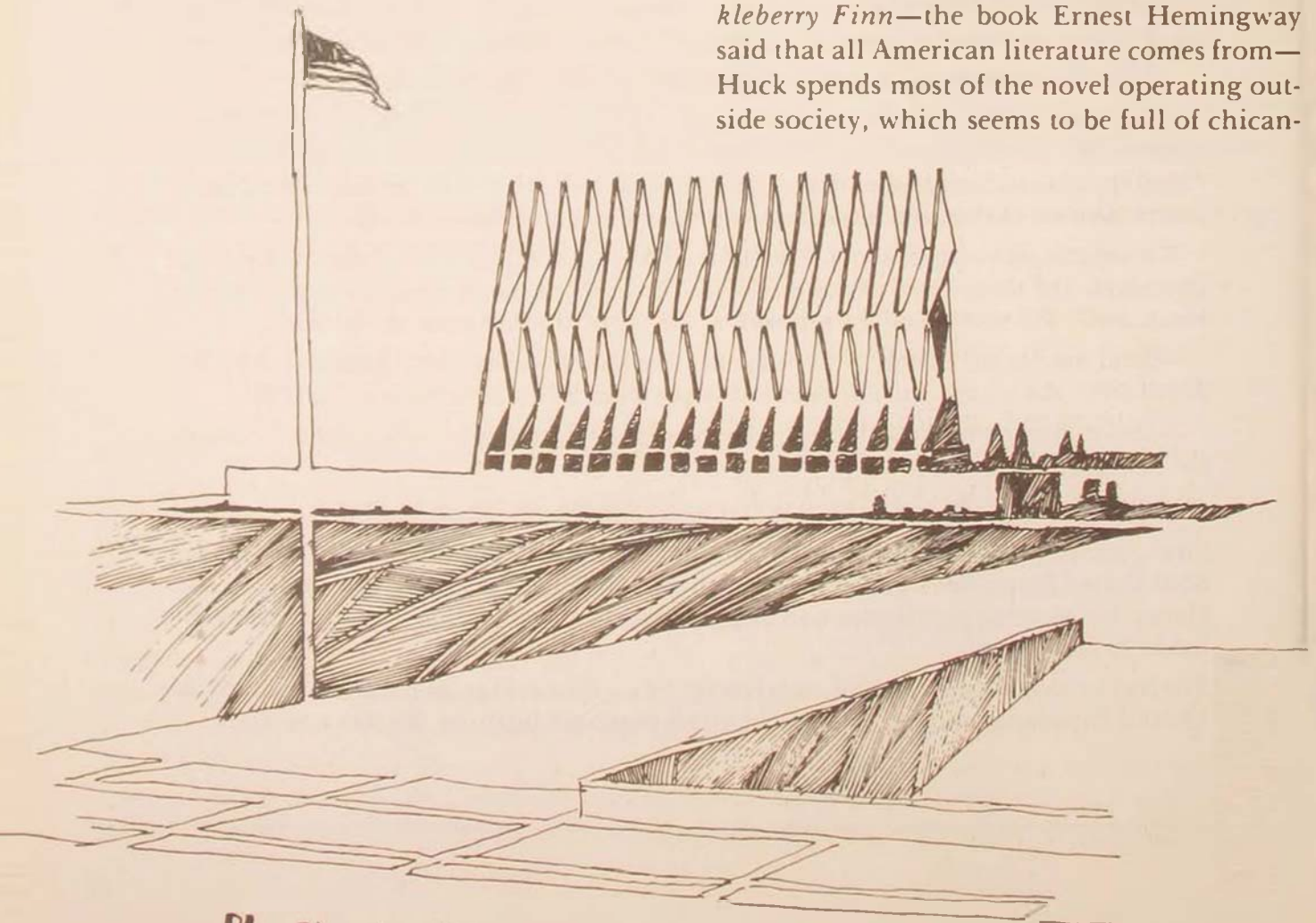
# THE MAVERICK AS HERO: MILITARY SCHOOLS IN AMERICAN POPULAR CULTURE

LIEUTENANT COLONEL JAMES R. AUBREY
MAJOR RICHARD L. COMER

**D**EMOCRACY grants political power to every individual, and celebration of individualism is perhaps the dominant theme in American culture. In the popular movie and best-selling book *The Right Stuff*, for example, we admire Chuck Yeager, the loner who does his job without organizational orchestration or media acclaim. Yeager's brand of rugged independence has long been a characteristic of heroes in popular entertainment, from Horatio Alger stories to John Wayne movies. In *Huckleberry Finn*—the book Ernest Hemingway said that all American literature comes from— Huck spends most of the novel operating outside society, which seems to be full of chican-

ery, affectation, thievery, and murder. Huck's decision to help a slave escape down the Mississippi makes him an outlaw from that society, but he is a hero to us. And after Huck returns home and decides to "light out for the territory" rather than be adopted and civilized by Aunt Sally, he expresses a traditional American preference for the cleansing nature of independent life on the frontier.[1]

If we were to look for exceptions to that rule, for a culture hero who is, say, very much an "organization man," we first might examine books and movies about military schools. We might imagine that here, if anywhere, a character would feel bonds of loyalty to his group, if indeed any of his identity as an individual survived the rigors of military discipline. However, what we would find instead, almost invariably, is a cadet or midshipman in conflict with the military system. What happens to these "mavericks" seems to reflect the peculiar status of the military in American society.

Perhaps the only accurate way to generalize about popular feelings toward the American military is to say that they are mixed. Everybody loves a parade, but everybody believes, also, in civilian control of the military. Wariness of armed forces may be in the nature of democracies, which tend to regard authority and military hierarchies with suspicion. Even American presidents (the commanders in chief) have disagreed over the wisdom of maintaining a standing army.[2]

Popular culture reflects this ambivalence. We need look no further than the entertainment section of the newspapers to find evidence of admiration for military values mixed with skepticism toward them. In February 1983, Paramount Pictures released *The Lords of Discipline* with an ad campaign engaging, at the time, our highest hopes and our worst fears: "one young cadet who was taught honor, integrity, and discipline will uncover the truth and you will discover the lie." The power of the appeal is mostly to our fears, of course, but we should remember that another movie playing

to large audiences that same month, *An Officer and a Gentleman*, idealized the military to the point of sentimentalizing it. Part of the ad campaign for that movie asked, "Isn't it time to feel good again?"—essentially a positive appeal. The ad leads one to expect a traditional love story, with a charming officer-prince, from that golden age before service academy cheating scandals and the trial of Lieutenant Calley undermined the assumption that all officers are gentlemen.

Popular attitudes are by no means the major influence that shapes a movie or book. They are, however, an influence of particular interest to military professionals in the society whose values are reflected on screen or in the pages. Members of the military, for example, have noticed how American taste in war movies has changed since the Vietnam War. *The Green Berets* in 1967 is perhaps the end of the GI Joe tradition, giving way to more emotionally complex films, such as *The Deer Hunter* and *Apocalypse Now*. However, war movies, dealing as they do with threats to society, are inherently sensational; they place characters in extraordinary situations calling for exceptional behavior. Indications of popular attitudes toward the military during peacetime might be clearer in stories about life in military schools. In this small subgenre of popular culture, mood and treatment vary widely, yet a chronological review of representative works reveals a continuing ambivalence toward the military that supersedes artistic forms and eras. From musical comedies to melodramas, the main character is almost invariably a stubborn, independent cadet who instinctively resists the institutional pressures of his school.

THE musical *Flirtation Walk* (1934) provides a rosy, idealized picture of life at the United States Military Academy.[3] The movie focuses on the love affair of Dick Dorcy (Dick Powell) and "Kitt" Fitts (Ruby Keeler), a general's daughter. Dick first meets Kitt when

he is an Army private assigned to be her driver. She begins a flirtation with him but later denies it when they are discovered alone together. The resulting court-martial of Dorcy is canceled to avoid disgrace to the lady. Her father's aide, Lieutenant Biddle, explains this decision to Dorcy: "If you were an officer and a gentleman, you'd understand." Thus challenged, Dorcy decides to attend West Point, and the movie cuts to a time three years later, when Dorcy has become corps commander as well as cadet-in-charge of the Drama Society. Then the new superintendent, General Fitts, arrives—whose daughter is now engaged to Lieutenant Biddle. During rehearsals for the Drama Society production, Dick and Kitt rekindle their interest in each other. When Dick visits her house after taps to dissuade her from marrying the lieutenant, they are again caught together. This time Dick offers to resign, to save her reputation, but Lieutenant Biddle remains a gentleman: he hands over the lady who no longer loves him, shakes his rival's hand, and disappears. As the movie ends, the lovers are free to marry.

There is nothing remarkably deep or ambivalent in this production. Dorcy's rise from enlisted man to officer makes *Flirtation Walk* a Depression classic, military application of the Horatio Alger formula for success (through striving), with interludes for Dick Powell to sing and Ruby Keeler to dance. As depicted here, West Point is a fairy-tale world, almost as far removed from reality as the play the cadets put on, in which a woman takes over as superintendent and decides that every cadet should get married, including the corps commander who is to marry the superintendent herself. Where cultural ambivalence toward military values suggests itself is in the personality of Dick Dorcy, who has a streak of feisty independence. In the movie's opening scene, Private Dorcy has to be disciplined for insolence by Sergeant Thornhill (Patrick O'Brien), who knocks him down with a slug to the jaw. "If you don't want to take orders," he tells Dick, "go to West

Point, where you can give them." The scene not only reveals how Dick first becomes interested in becoming an officer but establishes Dick as a good fellow who sometimes gets in trouble with his superiors by speaking bluntly. Since we do not see how Dick became a corps commander, we are left to imagine that he earned the position by merit and hard work—certainly not by the ingratiating tactics of a yes-man. And to win the hand of the fairy-tale princess—in this case, the superintendent's daughter—Dick violates the curfew regulations, nearly getting himself dismissed from the corps. At that point in the movie, of course, no one is thinking that punishment is called for; his breaking of regulations is merely a sign that he has the courage and initiative to be a leader, as well as a likable character.

The 1939 comedy *Brother Rat* takes place at Virginia Military Institute (VMI). For its humor to succeed, the movie depends on us to sympathize with ordinary, unregimented men trying to live in a military environment. One character, Danny (Ronald Reagan), tries to live a regimented life by staying around school on weekends to study, turning down dates, and reminding his roommates about the value of dollar. He seems stuffy, and we are pleased when he, too, is dragged into the pattern of regulation-breaking to protect a cadet who is secretly married. No one would think of taking *Brother Rat* seriously, and VMI cheerfully shows it to visiting parents each year, but the movie is a hymn to disorder rather than to military discipline.

The U.S. Military Academy fares somewhat better in *They Died With Their Boots On*, a fanciful biography of George Armstrong Custer. The 1941 movie is more sympathetic to Custer (Errol Flynn) than to West Point, however. As a cadet, Custer is an engaging misfit who reports to the academy in a fancy dress uniform, expecting a royal welcome. Somehow he manages to graduate, steals a horse, and through flamboyant nonconformity becomes a successful leader. (The film plays down Custer's death at Little Big Horn as self-sacrifice to

help some settlers escape the Indians.) Custer's audience appeal depends on his ability to circumvent the military system throughout the movie. Indeed, when one officer comments that Custer's cadet record is "the worst since Ulysses S. Grant, whoever he was," we are invited to laugh along with the notion that the worst cadets make the best leaders, who succeed in spite of organizational pressures to conform.

John Ford's 1955 movie *The Long Gray Line* is quite different. Perhaps the almost reverential way it treats West Point reflects the climate of approval for service academies that may have been prevalent during the previous year's establishment of the Air Force Academy (a school which has yet to be used as a site for a novel or fiction film). Although the various cadet characters have human weaknesses, they are always dedicated, virtuous, and straight as plumb lines. We see them come and go through the eyes of Marty Maher, over his lifetime of enlisted service at the Point. The title refers to the tradition that the academy graduates carry on, and Marty has a function in the movie similar to the idea of tradition, as he links the episodes we see on the screen.

Although the movie has many stirring moments, it is not single-minded praise of military virtues, for Marty is not a paragon. Ford makes him appealing by giving him some antiauthoritarian impulses—a hot temper, for one. The first thing Marty does after being sworn in as a supply troop at West Point is to attack the corporal he mistakenly assumes has turned in a cadet for breaking the rules. Eventually Marty learns restraint, but not so thoroughly that he will not stand up to a politician late in the movie and dress him down for failing to appreciate West Point traditions. Elsewhere, we find that Marty has been teaching water survival to cadets without ever having learned to swim. These are small points, but they remind us that we do not want our heroes to be perfect company men. Popular culture-makers generally give us what we want.

John Ford made another movie in 1948,

seven years before he made *The Long Gray Line*, and it provides additional basis for wondering if we should not regard Marty's independent streak to be one of his virtues. *Fort Apache* takes place in New Mexico or Arizona, but it is about West Point in an important way. Captain York (John Wayne) is a self-taught soldier who has acquired good military sense through experience. His subordinates like and respect him. He understands the Indians, speaks their language, and has arranged an unofficial truce with Cochise. The movie begins with arrival of a new commander, Colonel Thursday (Henry Fonda), who is an academy graduate in all the wrong ways. He wants to stir up the Indians in order to attract the attention of the eastern press and promote his career. He orders respect without having earned it. He worries about ceremonial niceties when he should be worrying about Indians. He refuses to let his daughter (Shirley Temple) see Lieutenant O'Rourke (John Agar), a West Point graduate, because the lieutenant is the son of an enlisted man. He resents the advice of Captain York, whose knowledge of Indians does not square with what Colonel Thursday learned at West Point about tactics, a subject he taught as a member of the faculty. Against the advice of York, not to mention ethical standards, the colonel lies to Cochise in order to lure the Indians into a trap. He explains to York, "Your honor is not at stake when you give your word to a loin-cloth savage," and he rides off to be killed, along with most of his command, because Cochise knows better than to trust him. Ford's sympathies are clearly with York, a latter-day frontiersman untainted by corrupt, eastern, aristocratic values. At the end of the movie, Lieutenant O'Rourke is in a good position to learn from York and to marry the two styles of leadership—as well as Miss Thursday.

A director such as John Ford is under no obligation to be consistent from movie to movie, and indeed West Point fares much better in *The Long Gray Line* than it does in *Fort Apache*. But Marty Maher and Captain York

have in common a status that puts them in the military, yet, at the same time, makes them seem like ordinary men, independent from the hierarchical system. We should consider whether Marty's audience appeal is not enhanced by his being an outsider, observing the long gray line he is not a part of.

Another 1955 movie, *An Annapolis Story*, sets out to explore the conflict between the individual and the organization at a military school. During the opening sequence of shots around the United States Naval Academy, a narrator tells us that every summer men "come aboard" to "learn to subordinate themselves to the team." However, contrary to the expectations that this opening creates, the teamwork shown in the rest of the movie is not being taught by the school. Early on, while Jim Scott (Kevin McCarthy) is getting an orientation flight, his brother Tony (John Derek) crashes off the end of the aircraft carrier. Jim jumps out of the helicopter and rescues Tony from drowning, but he is reprimanded afterward. The big football game is no less perplexing. Tony badly wants Navy to beat West Point, so he disobeys the coach's order to punt on fourth down, with Annapolis trailing and less than a minute to go. Tony runs the ball to a first down and sets up the winning score, which does credit to his judgment. The coach benches him, however, and Jim advises Tony to take orders next time. The final dramatic incident muddles an audience's emotions even more. After graduation the brothers become fighter pilots, and, over Korea, Tony breaks formation to help in a search-and-rescue effort for Jim, who has been shot down by a North Korean MiG, even though the pre-mission briefing explicitly prohibited such action as a violation of flight integrity. Tony is again reprimanded, of course.

In no case have we seen any bad consequences of these independent actions; we are being made to feel one way, yet told to feel another. Either we are to think that teamwork means pointless obedience, or we are supposed to admire the brothers for breaking the rules to help one another, in which case we are admiring a code of private, personal loyalty that supersedes the chain of command—not at all the kind of teamwork that the opening of the movie seems to promise and that service academies try to instill. If director Don Siegel meant to create a movie with a message, he failed miserably. More likely, his own mixed feelings led him in contradictory directions, so that he placed independent-minded characters in entertaining situations that could not support his other wish, to endorse the institutional goals of the United States Naval Academy.

The 1959 movie *Mardi Gras* has none of these didactic ambitions, but it does present an institutional viewpont. Most of the movie takes place at VMI, where cadets and officers circumvent the rules against gambling to raffle off a date with the famous French movie actress Michelle Marton (Christine Carere) during Mardi Gras, when the cadets are to march in the parade. The winner is a bookworm named Paul (Pat Boone), a serious fellow not much interested in women. The arranged match does not come off, but the two meet inadvertently in New Orleans anyhow and fall in love. When the newspapers discover what is happening, they treat it as an international, fairy-tale romance. The VMI establishment takes a dim view of their engagement, with all the disruption the publicity is bringing the school, and urges Paul to choose between love and duty. Both Paul and Michelle subordinate themselves to the team better than the characters of *An Annapolis Story*, calling off their engagement. Michelle makes a surprise appearance at the graduation ball, however, and the ending implies that she and Paul will stay reunited, although we may wonder how their careers will mesh.

Two years later, in 1961, Joseph Heller's now famous antiwar novel *Catch-22* appeared, and Stanley Kubrick was making his equally famous antiwar movie *Doctor Strangelove, Or How I Learned to Stop Worrying and Love the Bomb*. A lesser-known novel about West Point

was also published that year, and it took a less satirical but equally dark view of life in the military: *The Black, the Gray, and the Gold* by Norman R. Ford. Inspired by the 1951 cheating scandal, Ford describes West Point through the eyes of a staff officer, Major Landseer, who is chosen to serve on a board that is investigating allegations of cheating by cadets. Landseer's concept of honor is traditional and absolute, unlike that of his career-long enemy, Colonel Philipbar, also on the board. The investigation uncovers practices that reflect unfavorably on the school. Many cadets have lost respect for the Honor Code; lazy officers have been using it as a convenient tool for enforcing regulations by asking cadets whom they have no reason to suspect whether they have broken this rule or that. During the investigations, the code requires accused cadets to tell the whole truth; those who are honest about having cheated, the academy dismisses, while those who omit part of the truth or lie outright, the academy keeps. The officers on the board have their own dilemma: Colonel Philipbar wants to delete from the record evidence they uncover which implicates faculty members assigned as tutors to the football team. Landseer wants officers held to the same ethical standards to which they are holding cadets, and he threatens to write a minority report. Finally, the superintendent intervenes to end the stalemate by telling the board that their purpose is to rubber-stamp decisions already made by higher-ranking officers, which will provide a sufficient but not excessive number of scapegoats:

> Surely if this scandal is not to blow the Academy apart, we must, as sometimes happens in the Army, put justice not first, but second. . . . Write your minority reports if you must; resign if you must, but try to think of the Academy first and justice second. (p. 466)

After finishing the book, we feel that West Point is in sullied hands.

*The Black, the Gray, and the Gold* paints an exaggeratedly nasty picture of the military, but Major Landseer's independence from a corrupt

organization—like Yossarian's in *Catch-22*—places him in a long tradition of culture heroes. In 1961, well before Vietnam caused public consciousness to mature, treatments of military schools came of age in popular culture. Books and movies were no longer trivializing the subject with the assumption that everything was wonderful at military schools as long as a few minor conflicts could be worked out.

During the Vietnam years, novels and movies set in military schools apparently had limited commercial appeal, for there were none produced until 1978, when Lucian Truscott's novel *Dress Gray* appeared. Whereas *The Black, the Gray, and the Gold* promotes a sense that one is reading a factual memoir, *Dress Gray* promotes a sense that one is reading a detective magazine. The novel opens with the murder of a cadet by his homosexual lover, and the search for the murderer's identity reveals all sorts of corruption at high levels. The main character, rugged and heterosexual Cadet Ry Slaight, resigns rather than participate in the cover-up that will protect West Point from a sordid public scandal. Like Landseer, Slaight's moral code makes him a misfit in the novel's corrupt military organization—yet another version of the hero-as-loner in the military environment.

Sensational as it may be, *Dress Gray* provides a vividly accurate rendition of cadet language, that colorful mixture of jargon, sexuality, and aggressiveness that characterizes dormitory banter. At one point Truscott sneers at this kind of talk:

> Cadets were always punching each other in the upper arms and saying stuff like . . . heey, say hey, big fella, c'mon let's toss a couple down on the Plain. . . . say wha? . . . When them plebes spose't come round for SI, anyways . . . zit-faced little pingers. . . . Oughtta bottle 'em up and ship 'em out. . . . Cadets talked like high school football coaches with perpetual hangovers. (p. 98)

Ry has to exhibit some of these characteristics in his own speech to be a convincing cadet character, but Truscott has to avoid making Ry sound moronic, so he tries to give Ry and his room-

mate their own version of cadet language:

> After a couple of summers spent training with "the real army," what had passed for slang among cadets seemed limp, pale. So they picked up the jargon of sergeants, a cut, jab, and hammerlock way of talking with all the earmarks of the American outsider. It was a blue-collar tongue, sprinkled with acid putdowns and a strangely backhand authoritarianism. Sergeant talk was fueled by cigar smoke and mess hall coffee, greasy fatigues and scuffed boots, afternoons spent ghosting at the motor pool, and an instinctive, almost magical feel for the manipulation of subordinates whom "the real world," society, might class as smarter, or better than the sergeants themselves. It was underdog lingo, full of aphorisms and clichés discarded by others, which took on new life and meaning in the coarse texture of a sergeant's timing and delivery. (p. 42)

The distinction is subtle, and Truscott's attempt to differentiate Ry from the other cadets by his speech is not very successful, but the way Truscott identifies Ry with "the American outsider" through his language shows that he is aware of Ry's place in the American cultural tradition of maverick heroes in conflict with the established social system.

In the 1980 novel *The Lords of Discipline*, Patrick Conroy makes a similar point about language and its importance for defining one's personality. He is disturbed over the eradication of self required by the freshman program at Carolina Military Institute, a school that strongly resembles The Citadel but which the novel's introduction tells us is a composite of VMI and the major service academies:

> I saw that the plebe system was destroying the ability or the desire of the freshmen to use the word *I. I* was the one unforgivable obscenity, and the boys intrepid enough to hold fast to this extraordinary blasphemy found themselves excised from the body of the Corps with incredible swiftness. The Institute was a universe in love with the first person plural, the shout of the uniformed mob, which gave the school its fundamental identify, the source of its strength and invulnerability. The plebe system, then, infinitely reduced, was a grammarian's war between two pronouns and infinitely extended, contained the elements of the major war of the twentieth century. (p. 58)

First-person freedoms may be the ultimate value in democracies but not in a military hierarchy. At the institute, the hierarchical system has been perverted by a fascistic, secret society called The Ten, which uses physical torture to drive out undesirables and preserve the purity of the school.

In opposition to this system, Conroy gives us Will McLean, an English major who does not feel that he belongs at the school. Will was saved during his own freshman year by upperclass friends on the basketball team, who intervened to stop company cadre from further beating him and burning him with cigarettes. During his senior year, Will actively opposes The Ten after they provoke an overweight plebe to commit suicide and then turn against the school's first black cadet, pouring gasoline on him, applying electric shocks to his genitals, and threatening him with matches unless he agrees to resign. These sensational aspects of the book more than make Conroy's point, as Will puts it: "The plebe system gave cruelty a good name, disguised in the severe raiment of duty." (p. 172)

In the face of this activity, we feel that Will's guerrilla war on the system is just, so we are troubled by the ending of the novel. Will obtains a list of who is in The Ten, but they have seen to it that Will has accumulated enough demerits to warrant his dismissal from the school. The superintendent, a former member of The Ten, promises not to expel him if Will hands over the list; in the novel, Will cooperates and graduates. The film version ends quite differently, as Will (David Keith) extracts a promise from the superintendent to disband The Ten and then to resign, after which Will declines to attend graduation. The book provides a thought-provoking context for the sensational episodes, whereas the movie provides only the melodrama and an ending calculated to make a viewer cheer, rather than reflect.

Despite the troubling way that both the book and the movie make an audience feel, Conroy's book is not one-sided. Will admits that Caro-

lina Military Institute has beneficial effects on many of its students:

> Triumphant boys . . . took everything the system could throw at them, endured every torment and excess, and survived the ordeal of freshman year with a feeling of transformation and achievement that they had never felt before and would never know again with such clarity and elation. (p. 212)

One senses the voice of the author, who graduated from The Citadel, behind Will's remark that "the Institute had helped many of the boys to find themselves." (p. 212) Conroy knows that he owes a debt to his school, even though the self he found may not have fit comfortably into what he saw as the school mold. Much as Conroy's earlier novel *The Great Santini* makes us love as well as hate the martinet who runs his family the same way he runs his Marine fighter squadron, *The Lords of Discipline* is a tribute to military schools as well as a critique of them. The fact that Conroy has mixed feelings to draw on makes his work that much more appealing.

If the admission of the first black cadet to Carolina Military Institute was a dated issue when *The Lords of Discipline* appeared in 1980, the same was not true of the movie made for television that year, *Women at West Point*. When CBS aired the program, the first women cadets were preparing to graduate from the major service academies. Those at West Point must have been relieved that the movie did not depict their school as scandal-ridden once again. The movie follows the fortunes of plebe Cadet Jennifer Scott (Linda Purl) during the first coed year. The upperclass cadets collectively manage to put on a professional face in dealing with the new situation, which most of them dislike. For the first half hour of the movie, Jennifer's difficulties provide the focus, but the plot soon turns to the reliable pattern of cadets against the system, as she and an upperclassman become romantically interested in each other and must find ways to meet without getting in trouble for breaking the rules forbidding fraternization between upperclassmen and plebes. Overall, however, the system is not made to seem unreasonable, and the institution comes off well.

Aside from her choice of boyfriend, Jennifer is not subversive in the way most heroes are depicted in popular culture treatment of military schools. She believes in the institution and works hard to succeed on its terms. A large part of her appeal as a character, however, results from the popular notion that the Army is man's work. As the first woman cadet, she seems just as much an independent-minded character as Will McLean or Huck Finn. We learn that Jennifer's mother dreams of a life for her daughter that is better than her own as a single parent employed in a department store. Plucky Jennifer is climbing the ladder to success, advancing by merit and surmounting those class barriers that somehow always seem to exist, even in a democracy. In much the same way that Zack Mayo (Richard Gere) in *An Officer and a Gentleman* rises above the dubious birthright of his alcoholic father, Jennifer is a self-made woman in the American popular-culture tradition, a Lieutenant Horatia Alger.

Two 1981 works depict the traditional military school as inherently good but present situations in which the main characters nevertheless feel compelled to oppose the system, in this case, because it is not traditional enough. In the movie *Taps*, Brian Moreland (Timothy Hutton) tries to prevent the closing of his private military school by misguided trustees who do not appreciate Spartan virtues. He takes over the armory and, joined by the other students, starts a small war with the National Guard in an attempt to make the trustees reconsider their decision. In the novel *A Sense of Honor*, senior Cadet William Fogarty violates United States Naval Academy training regulations in an attempt to make a particularly weak plebe, John Dean, into a worthy member of the brigade.

Both of these rebel characters are trying to subvert the way things are, but they differ from Ry Slaight or Will McLean in that they wish to revive their institutions, which they believe

have lost vitality. Both become martyrs (Moreland is killed, and Fogarty is dismissed shortly before graduation) to the classical ideal of military discipline.

*Taps* is rather silly and very boring, but *A Sense of Honor* is a serious book presenting a positive view of the sometimes cruel, year-long initiation process at Annapolis. Gung-ho senior cadet Fogarty's personalized training program for the bright but effete freshman cadet Dean seems like responsible abuse of the system, if the end justifies the means, for he succeeds in his sincere wish to help Dean. Fogarty's techniques include dangerous, predawn runs along the icy sea wall and frequent private inspections. Webb engages our sympathy by showing how Dean responds and evolves into a promising cadet, but Fogarty gets in trouble, charged with hazing Dean. Their "brown shoe" company officer, Marine Captain Ted Lenahan, tries to defend Fogarty's unwillingness to live by the new training restrictions in an appeal to the superintendent:

> Here you have a guy who spends his own plebe year getting the hell stomped out of him because everyone is telling him, right from the Admiral on down, that this is what will make him a better officer. So he takes all the crap and he finally learns to believe in it. And then somebody who can't even do twenty pushups anyway decides that pain is immoral, and we have a few congressional investigations, and the system starts changing. Only it doesn't change in this guy's head, because he knows what worked and what didn't when it happened to him. (pp. 297-98)

In the novel's scheme of values, pain *is* moral, and the risk of abuse by some upperclassmen is worth taking in the interest of leadership development. Elsewhere, in one of many authorial asides, Webb argues that the Navy is already weaker for having more technocrats and fewer people like Fogarty, Lenahan, and Academy Superintendent Kraft:

> Vietnam called for combat leaders, people like Donald Kraft. But the nuclear navy needed brains. And the Academy was being pulled apart by the Department of Defense and Congress; they wanted

both. In all, the nukes were winning, and Donald Kraft, together with his breed of fierce, unrelenting warriors, was being consigned to a role that resembled being a manacled cheerleader for the old, wise ways. He would be replaced by a nuclear submariner, a disciple of Hyman Rickover. (p. 61)

At the end of the novel, we feel sorry to see Admiral Kraft dismiss Fogarty and reassign Lenahan, betraying his "breed" to protect the institution. One puts down this promilitary novel with some of the same feelings that attended reading ones that were antimilitary. So again we sense that the independent, even rebellious personality makes the best leader and that this leader develops in spite of his military schooling rather than as a result of it.

Why is it that military schools consistently come off so unfavorably in popular culture? One reason has to do with the nature of entertainment, and to entertain is, after all, the first aim of a novel or movie. To be popular, the product must appeal to a wide audience. However, the process of education is not as inherently interesting as winning a war, or a big game, or a girl, so school is not an obvious place to set a movie or novel. If a writer or filmmaker chooses to place his characters in that setting, the first requirement is a strong story, with tension or conflict. In stories about military schools, an element of the conflict has always been between the main character and the institution; since the deglamorization of the military in the 1960s, that conflict has tended to be the main conflict.

Even more basically, however, military schools do not tend to get favorable treatment in American popular culture—and probably never will—because they are hierarchical, even elitist institutions. In his discussion of American education, historian Richard Hofstadter observes a phenomenon in schoolbooks, which is true for American novels and movies as well:

> The virtues of the heart were consistently exalted over those of the head, and this preference found its way into the hero literature of the school readers. European heroes might be haughty aristo-

crats, soldiers destructive on the battlefield, or great scholars who were pensioned flatterers of power, and poets, who profaned the high gift of genius to pamper the vices of a corrupted court. But American heroes were notable as simple, sincere men of high character.[4]

If Hofstadter is right about the tendency to anti-intellectualism in American life, then writers and filmmakers must feel doubly inclined to pit their "men of high character" against a military institution that not only is undemocratic and tainted by European-style class structure and fondness for ceremony but, even worse, is a school. Huck Finn certainly shared this view of education and skipped class whenever he could.

Just because popular art relies on character types, we should not infer that such art has no relation to life. Popular novelists and movie makers usually try to create a sense of immediate reality so that audiences will forget that they are not in the imaginary world of art; to do so, artists not only provide realistic details of

setting but also convey popular assumptions about the subject that will help make the book or movie world seem real. If Americans share widespread ambivalence toward the military, this attitude will be reflected in popular art. It may also affect the climate at military schools themselves, as well as the student populations they attract. Academy graduates probably remember the seeming paradox of being constantly reminded as cadets to obey regulations while also encouraged by peers and American ideals to show the courage and "spirit" to break them. Cultural ambivalence may also be a source of such ongoing debates as to whether academies should be producing leaders or managers and how to ensure decentralized decision making in a centralized command structure—issues that are not likely to plague undemocratic societies. Whatever else these books and movies reveal, they should remind us that Americans want soldiers who can think independently as well as follow orders.

*U.S. Air Force Academy*

### Notes

1. Ernest Hemingway, *The Green Hills of Africa* (New York: Charles Scribner's Sons, 1935), p. 22; Samuel Langhorne Clemens, *Adventures of Huckleberry Finn*, edited by Scully Bradley, Richard Croom Beatty, and E. Hudson Long, A Norton Critical Edition (New York: Norton, 1961), pp. 168, 226.

2. Caroline Thomas Hornsberger, editor, *Treasury of Presidential Quotations* (Chicago: Follett, 1964), pp. 12-14.

3. See the listing of movies and books concerning military schools accompanying this article. Specific page numbers of quoted material are cited in the text.

4. Richard Hofstadter, *Anti-Intellectualism in American Life* (New York: Knopf, 1963), p. 307.

## Fiction Films and Books Set Largely in Military Schools

### Films

The Annapolis Story directed by Don Siegel (Allied Artists, 1955).

Brother Rat directed by William Keighley (Warner Brothers, 1939).

Flirtation Walk directed by Frank Borzage (First National Pictures, 1934).

Francis Goes to West Point directed by Arthur Lubin (Universal, 1952).

The Duke of West Point directed by Alfred E. Green (1938).

The Long Gray Line directed by John Ford (Columbia, 1955).

The Lords of Discipline directed by Franc Roddam (Paramount Pictures, 1982).

Mardi Gras directed by Edmund Goulding (Twentieth Century Fox, 1958).

Taps directed by Harold Becker (Twentieth Century Fox, 1981).

West Point Story directed by Roy del Ruth (Warner
    Brothers, 1950).
West Point Widow (Paramount Pictures, 1941).
We've Never Been Licked directed by Walter Wagner
    (Universal, 1942).
Women at West Point directed by Vincent Sherman
    (CBS, 1980).

### Books

Patrick Conroy, *The Lords of Discipline* (Houghton
    Mifflin, 1980).

Norman R. Ford, *The Black, the Gray, and the Gold*
    (Doubleday, 1961).
Charles King, *Cadet Days* (Harper and Brothers,
    1894).
Lucian K. Truscott IV, *Dress Gray* (Fawcett Crest,
    1978).
James Webb, *A Sense of Honor* (Prentice-Hall,
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Authors' note: We are grateful to the Frank J. Seiler
    Research Laboratory, U.S. Air Force Academy,
    Colorado, for assistance in obtaining films for
    review.

# IS DEMOCRACY IN DANGER?

Robert A. Vitas

AUTHORS Jean-François Revel and Richard Pipes see anti-American demonstrations in Western Europe, Soviet interference in democratic elections, arms control negotiations that do not work, embarrassing concessions made by Western statesmen, and an Atlantic alliance paralyzed by a lack of political will as symptoms of a malaise that is eroding the foundations of Western democracies.

Challenges to democracy are not new, as both writers are aware, but the current (and greatest) challenge is posed by erstwhile supporters of democracy themselves. According to Revel and Pipes, democracy is allowing itself to be destroyed in three ways: it exercises excessive self-criticism, it is not challenging Soviet aggression, and it allows communism to exploit democracy's openness in order to subvert democratic systems. Both agree that this self-destructive trend must stop if contemporary democracy and its concurrent freedom and civilization are to be rescued.

THE philosophical foundation of the two books is laid by Jean-François Revel in *How Democracies Perish*.† Revel, the long-time editor of *L'Express*, does not criticize democracy itself but worries about democracy's potentially fatal inferiority complex. He observes that democrats too often chastise themselves not only for the evils of their respective societies but also for the evils of the rest of the world. Revel disagrees with the contention that democracy must necessarily equal perfection and, because of its own faults, cannot criticize communism in general or the Soviet Union in particular. He summarizes the problem succinctly:

> Self-criticism is, of course, one of the vital springs of democratic civilization and one of the reasons for its superiority over all other systems. But constant self-condemnation, often with little or no foundation, is a source of weakness and inferiority in dealing with an imperial power that has dispensed with such scruples.

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When this self-critical tendency is taken to its extreme, democracy's defenders become reactionaries and *capitalism* a dirty word.

One result of this inferiority complex toward their form of government is the infighting among the democracies, seen especially in the relations of the United States with Western Europe. Revel, who criticized European anti-Americanism in his earlier book, *Without Marx or Jesus*, recounts in detail how Europe has politically abandoned its mentor and protector. The continent disguises its surrenders to the Soviet Union as resistance to U.S. imperialism. The debilitating debates over deployment of the neutron bomb and of Pershing and cruise missiles are examples of the growing gap across the Atlantic, a gap that the Soviets are happy to encourage. Revel's analysis suggests that current European attitudes and behavior are not unlike the appeasement of Hitler some forty-five years ago. The consequences today, however, would be even more devastating.

The thrust of *How Democracies Perish* is the West's intellectual failure to see the Soviet Union for what it really is. Revel's first plane of criticism revolves around the frequent use of faulty perceptual filters by democrats explaining and predicting Soviet behavior. The reader is cautioned to avoid using democratic logic in the assessment of a totalitarian state. Westerners assume that the Soviets negotiate because they desire peace; desirous of peace themselves, Westerners quickly offer concessions that are never reciprocated. Revel assails the "unfathomable lack of comprehension of communism's real nature" on the part of Western statesmen who deal with the Soviet Union as a partner in good faith and who fail to "learn their lesson" time after time.

The second plane of criticism is the double standard of Western intellectuals. If a society or a Western leader responds to Soviet aggression, the label of warmonger is not placed where it is due but on those groups and individuals who seek to right wrongs. President Reagan's "hard-line foreign policy" loses its hardness when compared, even superficially, to Soviet policy; but intellectuals consistently fail—or do not wish—to recognize the regressiveness of "progressive" regimes. Poland's martial law is therefore discounted, and U.S. sanctions are viewed as provocative. If the West attempts to enforce the human rights provisions of the Helsinki accords, to which Moscow assented, the enforcement is said to be a threat to peace and stability. The accusation of "imperialism" is cried profusely when a conservative regime oversteps the bounds of decency, but silence prevails otherwise.

*How Democracies Perish* is an impressive document, a breath of fresh air in the midst of opinion that tolerates the failures of a repudiated philosophy and a corresponding regime which needs to maintain a police state in order to survive. Especially interesting and informative are Revel's sections dealing with concrete manifestations of Soviet antidemocratic activity, such as ideological warfare, disinformation, and technological theft. Of course, like any other treatise that presents an impassioned doctrinal statement, *How Democracies Perish* can be accused of one-sidedness, despite Revel's repeated claims that "this book is not a sermon." In order to make his arguments tighter, he ignores items that could place democracy in a stronger light. For example, is there not a pro-American "silent majority" in Europe? The concrete threat from communism and its agents is clear, but is a global Communist victory, even in the distant future, inevitable, as Revel implies? These omissions or flaws should not detract, however, from the real danger facing contemporary democracy. Democracy, when viewed by itself, is strong. It is weak when confronted by an external power seeking to exploit democracy's openness and advantages in order to destroy it. This dilemma is what Revel examines, and he discovers that time is not on our side.

The author ends his book with a bleak outlook and calls for swift action if democracy is to survive. He writes that democracy must use its

economic power to strike at the heart of the Soviet system. Immediate reprisals by the West for Soviet aggression and expansion must be lifted out of the category of "reactionary" response and recognized as giving a guilty party his just deserts. In addition, Revel wishes to see the same unity—politically, economically, militarily, philosophically, and psychologically—in the democratic camp that he perceives (perhaps erroneously) in the Communist camp. Simultaneously, we must avoid a "communist monolith" mentality.

Accomplishing this agenda requires an intellectual reconversion among opinion leaders in the West, many of whom seem to prefer enslavement and Finlandization (incomplete Sovietization, in Revel's words), to the toleration and improvement of democracy's imperfections. This is not to say that communism's imperfections are not destroying Communist systems internally. However, according to Revel's stopwatch, democracy will destroy itself first unless action is taken, and its fate will be decided in the closing years of this century. Let us only hope that his predictions are proved false.

IF Revel is the court philosopher of democracy, then Richard Pipes is its policy analyst in *Survival Is Not Enough: Soviet Realities and America's Future.*† Pipes, a noted historian, currently teaches at Harvard. He chaired President Ford's Team B, which called for a rearming of America, and he served on the staff of President Reagan's National Security Council. Pipes translates his knowledge of Russian history and Communist ideology into concrete policy proposals.

As opposed to Revel, Pipes concentrates on the internal dynamics or, more precisely, lack of dynamics within the Soviet system. Whereas Revel focuses on the weakness of democracy,

Pipes examines the very real political and economic weaknesses of the Kremlin and calls on the United States to exploit them for the cause of peace in the international arena and even for the sake of the Soviet people themselves.

Early in the book, the author notes that the very last thing that the publishing community needs is another work on Soviet-American relations. However, Pipes feels that his position, while not necessarily unique, has been insufficiently articulated:

> My reason for writing derives from the conviction that the existing literature on U.S.-Soviet relations and the nuclear threat suffers from a serious flaw: it treats these subjects almost exclusively as problems confronting the United States, to be debated and decided upon by Americans. The Soviet regime, with its interests, ideology, and political strategy, is regarded in this context as only tangentially involved . . . as if the other party to the equation were nothing but a passive agent, capable only of reacting.

Pipes goes on to show that, quite to the contrary, the Soviet Union has sought the initiative in international power politics. He further connects Soviet foreign policy to its sociopolitical, economic, and ideological structure. As long as the Kremlin's *nomenklatura* makes war on its own people, it will continue to make war on other people as well.

*Survival Is Not Enough* conducts an exhaustive study of Russian proclivities throughout history and shatters the myth that the Russians are insecure as a result of repeated foreign invasions. Indeed, Russia has struck outwards much more often than it has itself been stricken. Pipes places Soviet imperialism on four bases of traditional Russian expansionism: economically, Russia is poor; geographically, it is inaccessible, yet in a position to strike; it has always searched for treasure for its elites; and politically, it requires conquests to placate those being kept underfoot at home. This last

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†Richard Pipes, *Survival Is Not Enough: Soviet Realities and America's Future* (New York: Simon and Schuster, 1984, $16.95), 302 pages.

point explains why the Soviet leadership fosters international tension and the "specter of World War II" continually in the modern world: by doing so, it keeps the Soviet people in fear—and in line. From this framework flows Soviet "Grand Strategy," which is to control its own domain while destabilizing those of others. It is here that Western fragmentation fits in with Soviet intentions. Dividing and conquering—*divide et impera*—has always been a Russian tactic. Only when the Russians have faced unified opposition have they been effectively stymied.

The title and thrust of Pipes's book become clear in a short but penetrating series of questions that he presents. In response to calls for good relations with Moscow, Pipes writes:

> On the face of it, [these statements appear] unexceptionally trite. But what [are they] really saying? That objectives of life other than physical survival, objectives which enabled our ancestors to bequeath to us the benefits of the civilization—among them, personal freedom, the rule of law, and human rights—must in our age take second place to "good relations with the Soviet Union"? That should other powers also acquire the capacity to destroy us, "good relations" with them will also have to become our "paramount objective"? That we must give the Soviet government carte blanche to perpetrate inside its country and abroad any barbarity as long as it refrains from firing nuclear weapons at us?

Such questions, not usually posed in contemporary rhetoric, state the issues in a fashion which encourages the reader to realize, along with Pipes, that physical survival alone is not enough.

The recommendations that Pipes makes are in three categories. First, neutralize the Soviet military threat, especially its exploitation of nuclear anxiety in the West. Second, restrict Soviet interference in Western politics. Third, initiate a form of economic warfare, which he calls "economic interdiction." The United States, Pipes believes, must utilize proxy forces and impose more rigid standards on the Kremlin during arms control negotiations, whose validity within the current context of Soviet attitudes

Pipes questions. Also, the traditional Western idea that foreign policy equals diplomacy alone must be put to rest once and for all. Foreign policy must be a multidimensional undertaking involving strength, politics, economics, and flexibility, topped off with vigilance. For this purpose, Pipes would appoint within the State Department an undersecretary or counselor whose task it would be to monitor East-West relations and Soviet global strategy in the broadest of terms. This office would represent the American counterpart of the Soviet Communist Party's International Department. Finally, as Lenin predicted, the West is selling the Soviets the rope with which they will try to hang the West. Pipes decries the sale of Western "dual-use technology," which not only props up an unviable economic system but also increases the Soviet regime's military capability.

Russia has never been self-sufficient. It is now time, according to Pipes, to drive that point home to the Kremlin. Refusing economic assistance to the *nomenklatura* will make them face the fact that they can no longer rely on others to hold their regime together. Perhaps then, they will channel their energies toward alleviating internal political and economic problems—and hopefully away from external adventurism.

CERTAIN common threads run through Revel's and Pipes's books. First, and most obviously, both authors seek to dispel the good guy/bad guy dichotomy prevalent in too many of today's politico-philosophical dialogues, with the Soviet Union being the former and the United States the latter. Failing to distinguish just who wears the white and black hats is a case of intellectual blindness that could well be terminal for the free world.

Both authors admonish their readers to collect facts, not emotions; find the truth; and, most important, use the truth in behalf of democracy. The truth, according to Revel and

Pipes, is ultimately our most powerful weapon. In conjunction with this endeavor, they urge the study of Soviet history, politics, and ideology. We have not learned the lessons that history has presented us. Revel laments Western gullibility, while Pipes criticizes the fact that the CIA does not utilize Marxist-Leninist theoretical writings in its analyses. A familiarity with Communist systems, societies, and apparatus is needed in order to resist illegal Soviet encroachments more capably. An interesting example is used by both writers. Prior to the Soviet Union's participation in its first international conference, Lenin reminded Commissar for Foreign Affairs G. V. Chicherin that Western pacifist sentiment must not be used for the sake of peace but as a weapon to further Soviet interests. Neither Revel nor Pipes finds any indications that this tactic has changed. Lenin perhaps would smile down on today's peace demonstrations in the West.

The authors do not hesitate to state explicitly that the Soviets have an overall plan of action or "Grand Strategy," but neither, fortunately, falls into the trap of claiming hidden deadlines and detailed contingency plans. On the contrary, these writers' claims are founded on philosophy and history. Both say that Communist theory calls for world communization. Pipes contends that the Soviets are "scientific" in this respect, taking into account "objective factors" and "correlation of forces." Both authors give detailed tactics regarding how this plan/strategy is supposed to be pursued. Their arguments are powerful and thought-provoking.

The most important change that the authors call for is also the most difficult to achieve. Though objectively powerful, the West lacks the political will to utilize its massive power in order to defend itself. This lack of will is due, at least in part, to the legacy of Vietnam, although there are indications that popular sentiment is gradually changing.

The authors, while offering comprehensive analyses, nevertheless fail to accentuate the strengths of democracy. The foundation of democracy (that is, the principle that the ruled are, in fact, the rulers) renders citizens members of the regime. Democracy does not consist solely of intellectuals but of all the people. In turn, all have a stake in the system they manage, and grass-roots loyalty to the preservation of democracy may be stronger than the death knells sounded by opinion-makers. Politics brought to the people has given moral and spiritual strength to democracy in Western Europe for four decades and in the United States for two centuries. It has overcome many kinds of adversity. There is no reason to suspect that this doggedness could not manifest itself in future crises.

Democracy, as opposed to its current ideological rival, preaches the fundamental dignity of man, which is expressed in equality of rights, opportunity, and treatment. Freedom and liberty go hand-in-hand with political equality.

Open-minded critical inquiry, discussion, and compromise, if carried out cautiously with an eye toward potential external enemies, is the strength of democracy, which no other form of government can match. The institutionalized legitimacy of opposition is still a wonder to nondemocrats and perhaps to democrats also. Tolerance of dissent would bring other systems down; tolerance in democracy, on the other hand, strengthens it. Indeed, dissent points out problems and calls for rectification. For example, the civil rights movement, while by no means complete, grew out of minority dissent. Democracy is flexible and adaptable, dependent on the people who comprise it and shape it; it is not necessarily the historical accident that Revel suggests it is.

Democracy is not perfect; perfection would require a perfect citizenry. However, democracy is the most human and humane system ever devised. Perhaps its strengths, which it has demonstrated in many dark days in the past, will overcome also the challenges enunciated by Revel and Pipes.

*Loyola University of Chicago*

# ONE-MINUTE MANAGEMENT

DR. RICHARD I. LESTER

NOT since 1969 and the original publication of Paul Hersey and Kenneth H. Blanchard's *Management of Organizational Behavior* has there been so fresh or exciting an approach to the management of people as that of *The One Minute Manager* by Kenneth Blanchard and Spencer Johnson and *Putting the One Minute Manager to Work* by Kenneth Blanchard and Robert Lorber. One-minute management is a figurative expression with practical implications. Basically, it encourages us to take time each workday to know the people we manage because we understand that they are our most important resource. Thus, *management* as used in these books (and in this review) closely resembles *leadership* found in other contexts.

The management skills, techniques, and wisdom gleaned by the authors have resulted in a powerful on-target, commonsense, workable approach to modern management practice. A recent CBS News study revealed that 80 percent of American employees are dissatisfied with their work. In support of this statistic, since 1962, American productivity has dropped to less than one-third that of Japanese productivity. One-minute management as described here is responsive to these startling realities and is intended to provide some answers to the complex questions confronting current U.S. managerial practices. Henry David Thoreau noted that "for everyone who is striking at the root, there are ten thousand hacking at the branches." In both a philosophical and practical sense, one-minute management strikes at the root of achieving significant, overall managerial performance and productivity. It addresses the most important issue facing managers today—the constant awareness of ineffectiveness.

One-minute management, as presented in *The One Minute Manager* and *Putting the One Minute Manager to Work*, addresses would-be managers who lack confidence in their management capabilities and who are somewhat hesitant about achieving their full potential. It may seem surprising, but lack of personal achievement occurs in a great many instances because managers are literally standing in their own way toward fulfillment. One-minute management challenges people to get out of their own way. It says that they have to trust and believe in themselves. The concept holds that people must have the daring to accept themselves as a bundle of possibilities and undertake the process of making the most of their best.

Wise managers find stimulating excitement in self-discovery. They are always willing to share, grow, and develop; they are rarely predictable. One-minute management seeks constructive change—that is, change that occurs spontaneously, offers a challenge to our maturity, and promotes our personal and professional development. This type of manager believes that subordinates must be held accountable for their work lives, but he does not live their lives for them. Other broad characteristics of one-minute management are dedication and a commitment to commitment. A one-minute manager emphasizes that leaders and subordinates need one another. This special quality or managerial feature enriches the organizational world and enlarges potential for increased group effectiveness and productivity. One-minute management is a sharing notion or idea fostering the development of a common bond between leaders and subordinates. In applying this idea, the manager gives little advice, provides options, and always stresses the need for all personnel to keep growing in concentric circles so that there is a systemic multiplier effect on whomever they contact. A practitioner of one-minute management knows how

to interact. He is capable of having solid relationships with subordinates. He gives and receives without exploitation. He understands his people and gets to know them on a gut level. He is demanding and expects followers to employ their energy in becoming successful one-minute managers also.

To grow in becoming a one-minute manager is to risk (the biggest risk any manager takes is never taking a risk). There is always some pain. The most exciting thing about one-minute management is the realization that most human beings have the potential to become good managers. The effective manager is not a superman but simply a fully functioning human being! One-minute management makes people aware that they have unlimited possibilities. Erich Fromm says the pity in life today is that most of us die before we are fully born. A good manager is not simply an observer of life but an active participant seeking not only his own growth but the development of those around him.

In dealing with today's subordinates, most managers grope forward with all the cocksureness of a foot soldier crossing a foggy minefield. One-minute management helps to smooth the path to managerial success. Its strength rests largely in its ability to reduce complex issues to simple words and images that everyone can understand and relate to. Its greatest asset is that it involves the very people who do the work, increasing their sense of importance and responsibility. It contends that effective leadership comes from a style based on trust and subordinate involvement in decisions affecting them and the mission.

THE first of the two books, *The One Minute Manager*, offers a quick way for people in organizations to know exactly what they are doing in managing people.† The one-minute manager is a person who learns how to direct his activities and his people with three fundamental requisites: one-minute goal setting, one-minute praisings, and one-minute reprimands. The one-minute manager shows confidence in others. He speaks the truth, laughs, works, and enjoys—and he encourages the people who work for him to do the same. He follows a simple motto: "There is no limit to what persons can do or where they can go if they don't mind who gets the credit." He does not cloak himself in the garb of a crusader going off to do battle in search of the Holy Grail; he strives simply to increase productivity, improve morale, and inspire his people to become more effective managers themselves.

The first step in being a one-minute manager is to set goals. Unless the manager and his subordinates establish and agree on goals, objectives, or key milestones, no one will have a clear understanding of accountability areas and job performance standards. Furthermore, without clearly defined goals, there is no basis for one-minute praisings or one-minute reprimands. Therefore, one-minute goal setting starts the whole management process.

In establishing one-minute goals, a one-minute manager must first meet with subordinates individually or in groups to discuss job-related tasks. Considering that 80 percent of people's performance comes from 20 percent of their activity, the manager and subordinates select five or six key areas needing attention. Together they agree on and establish performance standards. Next, they write out the established goals on a single sheet of paper, using less than 250 words for each goal; and they read and reread the goals to ensure clarity, understanding, agreement, and brevity. Reading each

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†Kenneth H. Blanchard and Spencer Johnson, *The One Minute Manager* (New York: William Morrow and Company, 1982, $15.00 cloth, $6.00 paper), 112 pages.

goal should take less than one minute. After the goals have been set on paper, each person in the organization takes a minute occasionally during each day to compare his performance against his goals. Moreover, each person observes whether his behavior matches the goals. If in doubt, subordinates meet with their leaders to discuss and resolve any problem.

One-minute praisings following one-minute goals represent the second step in the process. Praisings are extremely effective with all employees, whether they are newly assigned, in training, in transition from one position to another, or most senior and experienced. One-minute management cautions us to remember that when subordinates are learning new tasks, the manager should praise performance that is approximately right rather than waiting for it to be exactly right. A series of tasks approximately right leads to doing a task exactly right. Properly administered praisings will positively reinforce desired behavior and will keep subordinates motivated and achieving. The central intent in praising is to help people reach their full potential by catching them doing something right and rewarding achievement through recognition. One-minute management insists that feedback on results and relaying these facts to your subordinates is the number-one motivator of people. As Dr. Blanchard told a group of students at Air University, "Feedback is the 'Breakfast of Champions'."

In delivering one-minute praisings, the one-minute manager will:

- immediately recognize people's performance;
- tell subordinates in specific terms what they have done right;
- specifically tell subordinates how good he feels about what they did right;
- stop for a moment and let his people internalize and grasp how good he feels about what they have done; and
- encourage subordinates to continue their good performance.

The one-minute manager realizes that people who feel good about themselves and what they have accomplished produce better results.

One-minute reprimands constitute the third aspect of one-minute management. Reprimands can be effective with experienced, capable, and motivated subordinates. Job familiarization has made these workers aware of their ability to perform assigned tasks. However, a manager needs to exercise caution when considering reprimands for people who are new to the job, still in training, or simply inexperienced in learning a new task. In these instances, a one-minute manager will revise goals rather than reprimand.

One-minute reprimands separate the person from the behavior. Feelings are discussed so that behaviors can be analyzed and corrected. These discussions are intended to illustrate that the individual is not just his behavior, but he is the person managing his behavior. Managers should not be managing the subordinate's last mistake as if it were representative of his entire behavior pattern.

Some key points that the manager will keep in mind in delivering a one-minute reprimand are to:

- reprimand immediately;
- tell subordinates specifically what they did wrong;
- communicate clearly to followers how he feels about their error;
- allow subordinates time to internalize how he feels about what they did;
- impress on people how much he values them, but not the particular behavior about which he is reprimanding them; shake hands or touch them in a way that expresses warmth and concern, indicating that he means them no harm and is trying only to help them; and
- comprehend that when the reprimand is over, it is over, and that he holds no resentment toward the reprimanded person.

The one-minute reprimand keeps things moving in the right direction. This form of discipline leaves people who have been reprimanded

concentrating on improving their performance and not on the reprimand itself or feelings of unfair treatment.

Following these rules enables one to manage effectively in a minimum amount of time. These concepts serve as a practical answer to three key problems and challenges confronting managers today: productivity, quality of work, and job satisfaction. They are commonsense practices that all managers can implement easily to build a more effective team.

IN *Putting the One Minute Manager to Work*, Dr. Blanchard and Robert Lorber take goal setting, praising, and reprimanding further, instructing managers how to apply these concepts in a systematic day-to-day basis that improves productivity and personnel satisfaction.† The second book builds on the first and further reinforces the one-minute management theme. It contains powerful new information and methods for increasing managerial effectiveness through the PRICE System. This system involves five basic steps:

• Pinpoint—determine performance areas. This is the process of defining in observable, measurable terms what needs to be done.

• Record—measure observed performance and track progress made toward goal achievement. This method directs attention to those areas managers want to improve—not problems. People have difficulty acknowledging that there are problems, but most have an area they want to improve.

• Involve—seek agreement with subordinates on performance goals and strategies for coaching and evaluation. People who are in the same boat with you are not going to bore a hole in it. The key to this step is remembering that "one-minute management just doesn't work unless you share it with your people."

• Coach—observe performance and manage consequences. Coaching is basically observing subordinates' performance and providing them with constructive feedback on results. It is a process of managing people toward achieving good performance.

• Evaluate—examine performance progress and determine future strategies. As the last step in the PRICE System, evaluation is the process of reviewing information gathered and using it to form judgments, which, in turn, are used in further decision making.

Readers of *Putting the One Minute Manager to Work* are given an easy-to-apply guideline for adapting the PRICE System. This ordered assemblage of simple principles puts one-minute management concepts into an actionable format.

ALL too often we seem concerned about the husk of management and disregard the kernel. Not so with one-minute management. Like a piece of blotting paper, it absorbs in simple yet profound ways the essence of managership. It might be called the Jonathan Livingston Seagull of Management. Lewis Carroll once wrote to his sister: "Imagine this scene: An old man asks a little girl why she isn't eating her carrots. She replies, 'If I eat them, I might like them, and I can't stand the things'!" One-minute management makes sense. Try it—you may like it. You may even find that it works.

*Maxwell AFB, Alabama*

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†Kenneth Blanchard and Robert Lorber, *Putting the One Minute Manager to Work* (New York: William Morrow and Company, 1984, $14.95), 112 pages.

# THOUGHTS ON STRENGTHENING THE FAITH

Colonel H. Lawrence Elman, USAFR

JUST as young naval officers are reared on the theology of sea power, Air Force officers—regardless of nationality—are reared in the theology of air power. I was educated in this faith and have practiced it for more than a quarter-century. The American version of this cult begins with the martyrdom of the prophet Saint Mitchell, progresses through the persecution of the faithful by the conservative general staff, and ends with air power's ascension to its rightful place in 1947. If one's mentor has no nautical relatives, this catechism is sometimes expanded to include the carrier Navy's traitorous revolt and its lack of understanding of true air power. However, in most instances that last item is treated as an Apocrypha because of ecumenical considerations.

Interestingly, those aviation historians who bother to read histories of the ascension of air power in foreign nations never seem to be bothered by the curious fact that each nation's air force delights in claiming to be the most backward of its time—and always because of a martyrdom or persecution. For some strange reason, it never seems inconsistent for more than one nation to claim preeminence in air power backwardness. After having been tutored in this faith, serving as an Air Force officer and writing extensively on air power history, I now am forced to wonder at my own naiveté in not having seen this contradiction years ago.

As I have considered this contradiction in the light of the frequent claims of air power persecution, I have slowly realized that those harebrained, narrow-minded generals of the old Army might actually have been intelligent, well-informed, dedicated officers who had some healthy skepticism. How much had air power influenced war prior to the 1930s? In considering both the generals' skepticism and the passion of the airmen, notice that most of the participants on both sides of the argument were unable to predict the effects of the sudden surge in the technological growth rate which occurred a few years later. Without such a prediction, accurate setting of priorities among competing weapons needs is virtually impossible.

The future probably holds still further sudden changes in the direction and speed of technological change. The Air Force officer, like those dedicated officers of the past, will be faced with competing views on priorities and probable directions of progress. These disparate views will resemble those which led to the passions of the twenties and thirties. More important, they will eventually lead to changes in military organizations, tactics, and weaponry. In this context, the mythology of air power may be doing its practitioners a very real disservice.

Two recent books sponsored by the USAF's Office of Air Force History shed some much-needed light on key events in air power history, events that occurred in the thirties and forties. With amazing open-mindedness, the authors document healthy and vigorous questioning of the claims of air power advocates by responsible leaders who were not necessarily hostile to the Air Corps, but who were much more conscious of other defense needs than were the outspoken proponents of air power.

For the most part, both of these authors display genuine care and balance, providing insights into why those who did not support air power felt justified in their stands. One unfortunate exception, in the more interesting of the two books, is John Shiner's statement that "the War Department . . . so rigged the Baker Board

investigation that it was impossible for that body to reach conclusions contrary to the outlook of the General Staff."† (Shiner's conclusion, contradicted in part by his own evidence, is in agreement with most aviation history texts available today.)

For years, the Baker Board's conclusions that Air Corps demands for autonomy were premature have been mentioned only in passing as footnotes to the board's dissenting minority report by Jimmy Doolittle. The conventional wisdom of aviation historians has been that the board was biased, close-minded, and possibly even a bit stupid—or at least unimaginative.

I have been professionally engaged in aviation history for almost a quarter-century, yet until Shiner's book, I had never seen the eleven members of this board fully identified in one work. By identifying all of the board members and by describing the less well-known members, Shiner has provided strong evidence that the board has long been unfairly maligned. Furthermore, Shiner has clearly described the other issues that the board considered and their impact on the Air Corps.

The chairman was Newton D. Baker, Woodrow Wilson's Secretary of War, clearly not a man of limited intelligence or imagination. The board included five Army generals, at least two of whom Shiner shows to be either openminded or pro-air power (Charles E. Kilbourne and Benjamin F. Foulois). The five civilians included Jimmy Doolittle of the famed Minority Report; Dr. Karl T. Compton, the president of MIT—clearly not a man unfamiliar with technological change; Clarence D. Chamberlain, a famous flyer; Dr. George W. Lewis, head of National Advisory Committee for Aeronautics (the forerunner of today's National Aeronautics and Space Administration); and Edgar S.

Gorell, a business executive and Reserve officer whose monumental statistical report on the operations and effectiveness of the Air Service in World War I is today treasured by historians and might well be considered a starting point for the use of operations analysis in the U.S. Armed Forces. Clearly, none of these men were unfamiliar with the potential of aviation.

It is my contention that the Baker Board's most important caveat—that its recommendations applied *only* to the aviation technology of the time (1934)—is almost always overlooked. With all due respect to the amazing accuracy and vision of Jimmy Doolittle, this board was neither stupid nor easily fooled. The excellent discussion of the Baker Board in Shiner's volume lends credibility to this observer's contention that the theology of air power often quotes events out of context and in so doing does the Air Force a disservice. By highlighting the intensity of the debates of the time and by trying to treat the ground forces' view of the issues fairly, *Foulois and the U.S. Army Air Corps, 1931-1935* provides an important stimulus for the Air Force to reexamine much of its past. And since this past—or, more accurately, our view of this past—is a foundation for our *Basic Doctrine,* a reevaluation of the historical lessons of air power could be the first step toward purging Air Force Manual 1-1 of errors that might have arisen because of a faulty view of history.

A SIMILAR insight is provided in Herman S. Wolk's treatment of the genuine concern of the Navy over whether USAAF attempts at autonomy might threaten carrier aviation.†† Here also, the delineation of the issues, combined with descriptions of the high-caliber

†John F. Shiner, *Foulois and the U.S. Army Air Corps, 1931-1935* (Washington: Government Printing Office, 1983, $13.00), 346 pages.
†† Herman S. Wolk, *Planning and Organizing the Postwar Air Force, 1943-1947* (Washington: Government Printing Office, 1984, $12.00), 359 pages.

personalities involved, provides proof that Air Force mythology oversimplifies and trivializes the great issues of an earlier day. Many fine naval officers of the forties truly believed that an independent Air Force and a Department of Defense threatened America no less than Stalin's legions.

Another burning issue of a half-century ago, well detailed and explained by both authors, was whether an independent Air Force could be achieved without eventually neglecting the close air support mission. Wolk makes clear that the quid pro quo paid by Arnold and Spaatz for Eisenhower's support of an independent Air Force (in his congressional testimony) was their personal and professional promise that this mission would not be neglected. Today, one could start a rather acrimonious debate in many an officers' club by simply asking whether the promise has been kept.

Having spent most of my career in a combination of rotary-wing aviation and close air support aviation, I have too often watched the service I regard as "home" take positions in roles and missions controversies that will not be defensible when the history of my era is written. The revolutionaries in the armed forces of Mitchell's time may have become the reactionaries of a later period. Or, perhaps, the effects of nuclear weapons on defense priorities may simply be too great to allow other important missions to be funded. I can accept that and still take pride in the Air Force, but I would hope that many air power advocates would read both Shiner and Wolk and possibly become more open-minded. Generals Foulois and Spaatz deserve at least that, and they would certainly prefer such unbiased examinations to simple, blind adulation.

*Smithtown, New York*

## A RESPONSE

Colonel John F. Shiner

I share Colonel Elman's concern that we need balanced, objective studies in military aviation history. This is the type of literature that can help us learn from our service's past successes and failures so that we can better serve the nation in the future. As Project Warrior emphasizes, such professional knowledge is essential to our effectiveness as a combat force.

I appreciate the kind words that Colonel Elman has for my book, *Foulois and the U.S. Army Air Corps, 1931-1935,* but I must point out that he has erred in his evaluation of the Baker Board. In fact, the War Department did its best to ensure that the Baker Board would not recommend creating a separate air force. (At that time, there was congressional interest in such a reorganization, and the aviators were

working clandestinely to bring it about.)

The board chairman, Newton Baker, was a past secretary of war who had acted in 1919 to prevent the air arm from gaining independence. His views had not changed over the succeeding years. Four of the five uniformed members of the board were senior Army ground officers. They had come to appreciate the value of tactical air power during their careers, and they were not about to see a separate air force created. They feared, quite correctly, that an independent air arm would seek to put most of its resources into strategic bombers while paying little attention to the Army's air support needs. Reflecting the views of the General Staff, their goal was to bring about improvements in the Air Corps, while ensuring that the Army

did not lose control of a force that could play an important part in the success of ground operations.

The five civilians on the committee may have appreciated the potential of aviation, but none of them, save Jimmy Doolittle, had given air arm organization much thought. Seeking to keep them from seriously considering the need for a separate air force, Major General Hugh Drum, the Army's Deputy Chief of Staff and one of the senior officers on the board, took steps to control the proceedings by gaining the appointment of a General Staff major to direct the questioning of witnesses. The record of the hearings shows that he did a good job of building the testimony in the direction favored by his Army superiors.

As Colonel Elman notes, the members of the Baker Board were "neither stupid nor easily fooled"—nor do I imply otherwise. Their final report helped stimulate many positive changes that helped the Air Corps achieve greater effectiveness as a combat force, but none of those changes conflicted markedly with the views of the General Staff.

I have sought to write a useful, objective study of General Foulois' years as Chief of the Air Corps. I leave it to Colonel Elman and other readers to determine whether I have succeeded.

*Bolling AFB, D.C.*

Colonel Shiner is Deputy Chief, Office of Air Force History.

## Short Bursts

**From H-Bomb to Star Wars: The Politics of Strategic Decision Making** by Jonathan B. Stein. Lexington, Massachusetts: Lexington Books, 1984, 113 pages, $20.00.

The title of this slender volume is deceptive, suggesting a rather cursory, even light content that is characteristic of much of the current flood of popular literature on nuclear weapons. Jonathan Stein's purposes are more serious and scholarly than the title would suggest, although, in the end, he falls short of his own mark.

Stein's basic mission is a detailed comparison of the processes leading to the decision by the Truman administration in 1950 to develop the hydrogen bomb and the Reagan administration's 1983 determination to pursue the various directed-energy technologies that may produce comprehensive ballistic missile defense (BMD) systems. His underlying purpose is to assess whether political factors or technological imperatives were the most important influences on the decisions reached, and his conclusion is that it was politics, not technology, that was the motive force in both cases.

His evidence is uneven, leaving the reader with

something of a schizoid aftertaste. The analysis of the H-bomb decision is very solid and historically rich, based on extensive use of the papers, writings, and official documents of the time. It is an excellent historical case study of defense decision making in action and is enough to justify reading the volume. The study of the Star Wars decision does not live up to this high standard, for at least two reasons. First, there is essentially no publicly available official account of how the process worked, leaving the author to speculate from the outside on the basis of secondary and even tertiary sources rather than primary materials. The second problem is that the author is openly disdainful of the prospects of BMD. As a result, his opposition to the concept pervades his analysis. In the H-bomb case, Stein seeks to discover why a decision was reached; in the Star Wars case, he seeks to find out why a *wrong* decision was made.

Stein's prejudice comes completely out in the open in the concluding chapter of *From H-Bomb to Star Wars*. He begins by attempting to compare the two decisions for similarities and dissimilarities. This purpose soon devolves into a polemic against "the chimera of ballistic missile defense" (p. 87) that

would lead inexorably "to increased crisis instability and a degradation in the admittedly imperfect system of deterrence." (p. 89) In the end, Stein's polemicism undermines his effort.

Dr. Donald M. Snow
*University of Alabama, Tuscaloosa*

**The Illogic of American Nuclear Strategy** by Robert Jervis. Ithaca, New York: Cornell University Press, 1984, 203 pages, $19.95.

*The Illogic of American Nuclear Strategy* requires careful, thoughtful, and, for supporters of warfighting strategies, unbiased reading. Such a reading should yield a better understanding of the limitations and dilemmas inherent in any nuclear strategy and why, as Robert Jervis states in his opening sentence, "a rational strategy for the employment of nuclear weapons is a contradiction in terms."

Jervis points out a basic flaw in our present nuclear strategy: the strategy does not focus on the fundamental reality of the nuclear revolution, namely, that "each side's civilization can be protected only by the other's cooperation." In the face of this reality, military force can no longer defend a society from its enemies but can only deter enemy attacks. This fact is the heart of the nuclear revolution, the implications of which we have not fully accepted.

Jervis argues that since "nuclear weapons both promise safety through deterrence and involve the chance of total destruction, our beliefs about them contain severe tensions." These tensions are products of the dilemmas inherent in the nuclear standoff and therefore are inescapable. Since we cannot accept this reality, Jervis says that we attempt to escape in various ways. Active defenses, nuclear disarmament, the nuclear freeze, conventional defense for Europe, and a no-first-use policy are offered as manifestations of these futile attempts to escape. A much more insidious and dangerous manifestation, because it is unrecognized as an escape attempt and is the basis of much of our nuclear policy, is conventionalization. Jervis defines conventionalization as "the attempt to treat nuclear bombs as though they were conventional weapons, to apply the same ways of thinking to them that applied to armaments in the prenuclear era."

Jervis not only shows that conventionalization is a denial of reality but also explains why our present strategy, because it is a product of conventionalization, makes "less and less sense as it becomes increasingly elaborate and precise." He discounts theories of escalation dominance and deterrence by denial as being overemphasized in importance. The central

focus, Jervis believes, should be on competition in risk-taking as the basis of deterrence. Furthermore, he claims that deterrence is not as difficult as the practitioners of present strategy claim.

On the negative side, perhaps getting a little carried away in supporting the book's title, the author seems to be setting up a false dichotomy in some instances to prove his point. Also, in arguing that escalation control is not only a necessary but also a missing element of our present strategies, he ignores Soviet incentives and needs that might make escalation control possible.

Nevertheless, I strongly recommend *The Illogic of American Nuclear Strategy* to anyone who has serious interest in the theory of nuclear strategy. The author supports his provocative opening statement and closes with an equally inviting one. "I do not claim that the arguments I have made here are the truth. But I do think that nuclear weapons have so changed our world that much of the truth does not make sense."

Lieutenant Colonel Fred J. Reule, USAF
*Center for Aerospace Doctrine, Research, and Education*
*Maxwell AFB, Alabama*

**Airborne Early Warning: Design, Development and Operations** by Mike Hirst. London: Osprey (distributed in the United States by Motorbooks International, Osceola, Wisconsin 54020), 1983, 192 pages, $29.95.

Here is one photo-filled aircraft book that stands above the similar-looking volumes flooding the market. Mike Hirst, drawing on personal experience in the British aerospace industry, tells the heretofore neglected story of airborne surveillance radars and the "platforms" that carry them.

Ever since the first clumsy attempts to stuff bulky radar equipment into World War II airframes, the development of airborne early warning (AEW) has been a compromise between optimal electronic and aerodynamic performance. In view of the U.S. Navy's obvious need to protect its carrier battle groups from surprise attack, the Navy led the way in AEW development, culminating with the Grumman E-2C Hawkeye. During the last several years, however, the U.S. Air Force, with its growing fleet of Boeing E-3A Sentries, has made the acronym AWACS (airborne warning and control system) synonymous with the use of high technology to project U.S. power overseas unobtrusively.

Reflecting his engineering orientation (and constant use of unattributable passive voice sentences), Hirst largely excludes the roles and names of people

from his predominately technical account. Unmentioned, for example, is the extended political battle that USAF leaders had to wage during the 1970s to keep the E-3 program alive. However, the author does touch on both NATO's long struggle to purchase its multinational E-3A fleet and the United Kingdom's decision to go it alone with the USS *Nimrod*.

Despite the subtitle's last word, Hirst does not say much about actual operations (but in view of security classification restrictions, the neglect is understandable). As one who for several years wrote official histories of AWACS operations in Europe and the Middle East, I can attest to the effectiveness of the E-3 and its globe-straddling crews in a wide range of missions—from watching over remote trouble spots to helping orchestrate employment of allied air power. For anyone who wants to know why AEW is important and how it works, *Airborne Early Warning: Design, Development, and Operations* is indispensable.

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Lawrence R. Benson
*Office of Civilian Personnel Operations*
*Randolph AFB, Texas*

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**Political Terrorism: A Research Guide to Concepts, Theories, Data Bases and Literature** by Alex P. Schmid. New Brunswick, New Jersey: Transaction Books, 1984, $34.95.

Explaining the rise of terrorism and offering alternative strategies to combat it has become a growth industry. *Political Terrorism* makes a practical contribution to understanding what has been written about political terrorism and serves as a comprehensive, analytical, and objective research guide.

The organizational structure of this reference book is that of a bibliographic essay that moves the reader carefully through an examination of the concepts, theories, and data base documentation of terrorist incidents. Alex Schmid surveyed more than 100 scholars who specialize in terrorism research to flesh out prevailing concepts, definitions, and theories. Not surprisingly, there emerges no consensus on either definitions or appropriate responses, mirroring the reality confronting governments and decision makers tasked with grappling with the complicated webbing of low-level violence in our multicultural world.

Indeed, a major issue with which the professional military education community is still struggling is well displayed in this text. Is terrorism a tactic, strategy, or level of conflict? A determination of the answer to that question, as yet unobtained, will decide how we respond to the perceived threat. In this respect, several facts have a bearing. We are witnessing the resurrection of counterinsurgency as a governmental preoccupation, with substantial and not always positive implications for traditional military missions. At one point, the author reminds his readers that while 95 percent of World War I casualties were military combatants, more contemporary conflicts generated 90 percent civilian casualties. Moreover, the research on terrorism is heavily skewed, in that 75 percent of the studies are conducted in the United States. There is latent danger for designing multilateral policies when U.S. nationals dominate the literature on phenomena that occur largely outside our borders.

Some useful insights for the military researcher pepper the text. Conspiracy theories (Soviet and U.S.) are reviewed and fail in their lack of supporting evidence. Both left-wing and right-wing terrorism is assessed, with distinctions wisely made between precipitants of and preconditions for the rise of terrorism. Importantly, there have been two widely accepted applications of the extensive research already completed. Widely practiced hostage negotiation techniques and the successful implementation of aircraft hijacker profiles have reduced the number of terrorist casualties. Lastly, a gnawing question arises in any explanation of the growth of terrorism: Can this surge in low-level violence be the result of the difficulty, or even impossibility, of waging warfare successfully by more traditional means?

With only two published periodicals concentrating solely on terrorism and low-level violence (*Terrorism* and *Conflict Quarterly*), this guide should be the first stop for a military researcher. Numerous tables, charts, diagrams, and a list of known terrorist groups worldwide supplement the thorough text. An extensive bibliography with more than 4000 indexed entries provides rapid access to the key literature produced thus far. The list includes the most significant military research. Even my own published article on hostage rescue operations, now several years old, appears.

*Political Terrorism* should be a required purchase for military research libraries. Active terrorist researchers, as well as curriculum developers in the military education and training communities, will find it a very valuable aid and resource.

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Dr. James E. Winkates
*Air War College*
*Maxwell AFB, Alabama*

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**The Coercive Utopians: Social Deception by America's Power Players** by Rael Jean Isaac and Erich

Isaac. Chicago: Regnery Gateway, 1983, 325 pages, $18.95.

Utopians have always played a role in U.S. political and social changes. The Revolution of 1776-83 itself had Utopian overtones, but usually the great reform period of 1830-50 comes to mind first. That period began with the great onrush of the "abolition of slavery" movement, followed closely by the mental hospital, prison, women's rights, education, and alcohol reform movements. In each of these instances, small groups of vocal minorities led by extraordinary individualists (William Lloyd Garrison, Dorothea Dix, Ralph Waldo Emerson, and others) urged the nation to change prevailing customs, institutions, and standards. Some changes came rapidly, while others took longer (slavery in the United States was abolished in 1863; Prohibition and women's suffrage came in the 1920s). Regardless, most observers will agree that our society has always had its share of reformers and Utopians. Usually, when the central issue was a valid one, such as the reform of food and drug standards or the curtailment of railroad rate abuse, it was adopted ultimately by one or both of the political parties and gradually was enacted into law. Traditionally, that was the ad hoc process in which reform worked its way into the U.S. system.

Our reform process might still be working that way if it were not for Three Mile Island, Vietnam, Watergate, and the Soviet misinformation service. Now the gradual process of dialogue, debate, and electoral acceptance has been replaced by simply dialogue and coercion. Authors Rael and Erich Isaac in *The Coercive Utopians* claim that the new process brings undue pressure to private foundations, church groups, and governmental agencies to act precipitously to reform our supposedly sagging U.S. political system. The actors that apply the pressure include Ralph Nader, Amory Lovins, and groups like the Institute for Policy Studies and the Center for Defense Information. They make charges, often insubstantiated, about auto safety, water purity, political freedom in El Salvador, and the U.S.-Soviet missile balance. The media pick up on the charges and do little to check substantiation; in short time, the dialogue is over, and public interest is being redefined.

The authors find the process sickening, especially when major U.S. corporations contribute funds to study groups and foundations, who, in turn, advocate a new socialistic society that would seek to destroy the corporate structure. They remind us that thrown into this confusing stew pot of ideas are tons of misinformation which Soviet misinformation

services scatter around the world daily. In this regard, the Isaacs repeat and verify some of the dire warnings of Arnaud de Borchgrave, who first detailed the outlandish efforts of the Soviet Union to bias our intelligence gathering and news reporting in order to manipulate our world view.

The Isaacs have produced a calm, cool volume of well-researched information. They have published a warning to all of us that the simple, direct reform spirit that was always a part of our society is in danger of perversion by a select and selfish few who interpret the public interest for their own ends. Certainly, we must continue to guard our air, water, safety, forests, national defense, and energy sources; but we must also be wary of those who would zealously overguard us right back into the neolithic age.

Theodore M. Kluz
*University of Alabama, Tuscaloosa*

**Health and Human Values: A Guide to Making Your Own Decisions** by Frank Harron, John Burnside, M.D., and Tom Beauchamp. New Haven, Connecticut: Yale University Press, 1983, 196 pages, $24.95.

In 1776, American colonists declared that there were certain "inalienable" rights, among which were life, liberty, and the pursuit of happiness. It took a revolutionary war to establish those declared objectives as legitimate in a new nation. The evolution of "rights" in Western society is a complex story intertwined with developments in philosophy, politics, and warfare. Some say this evolution began in the West with the Magna Charta, when one segment of the population declared and won freedoms from those above them. John Locke's powerful arguments for the individual in the seventeenth century provided key philosophical and moral justifications for subsequent legal and political values that were important to the American and French revolutions.

The evolution of new interpretations and corresponding obligations for society continued through the nineteenth century. American and European philosophers and reformers claimed, and in some cases won, additional rights. These included the right to work, education, and social security for larger segments of the population. Gradually, these new social rights, which extended beyond earlier political and civil rights, were established as legitimate by governments.

A frequent pattern in the cultural evolutionary process has been that a new value will first be claimed as a moral right. Eventually, these claims are translated through the legislature or the court

system, where precedent-setting legislation or legal opinions are framed. Finally, governmental programs and agencies are established to implement the accepted rights and corresponding obligations.

Claims to protective measures concerning health have taken two broad forms: a "right to health" and a "right to health care." The right to health was claimed during the rise of public health programs. During the Industrial Revolution, people first became aware that job hazards, sanitation problems, air and water pollution, and other side effects of industrialization could have adverse effects on the well-being of individual citizens. Subsequently, they demanded protection from such effects by their governments. Likewise, once people understood that microbes transmitted disease and could produce widespread epidemics and even pandemics, they began to place claims on their governments to guard against the spread of disease.

If you are a casuist who delights in resolution of moral life (health) problems in specific situations, or if you are an eclectic who openmindedly argues to demonstrate some familiarization with all the issues, then this book will be helpful. The authors—doctor, legislator, and philosopher—have carefully selected actual classic cases involving abortion, euthanasia, and applied genetics; they have structured these in a literary double helix demanding your assimilation, decision, and considerable resynthesis on the basis of their objectively deontological, teleological, and utilitarian arguments.

Thinking people are concerned about the right and wrong uses of unprecedented knowledge and power. For help in finding answers to these moral questions, we should not turn to medicine exclusively but rather should include the traditional repositories of moral insight in our society — law, philosophy, and theology.

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Colonel Richard B. Pilmer, USAF
*Chief, Human Factors Analysis*
*Scott AFB, Illinois*

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**The Eagle Aloft: Two Centuries of the Balloon in America** by Tom D. Crouch. Washington: Smithsonian Institution Press, 1983, 770 pages, $60.00.

Tom D. Crouch begins this important history of ballooning with Benjamin Franklin and some other Americans in Paris, who in August 1783 reported the launch of unmanned, hydrogen-inflated balloons. In November of that year, these Americans also witnessed and reported the first manned flights of the Montgolfier brothers' hot air balloons. Thus does the author tie American interest to early balloon flights in Europe.

Crouch reports that the first manned balloon flight on the North American continent occurred in the newly independent United States of America on 24 June 1784 at Baltimore, Maryland. After detailing the first ballooning ventures in this country, the author considers the English experience with ballooning, tracing the activities of an American-born Loyalist John Jeffries, who settled in England after the United States won its independence. Jeffries, with a French partner, Jean Pierre Blanchard, on 7 January 1785 made the first cross-channel flight from England to France.

Next, Crouch details the further development of ballooning in the United States, largely as a spectator sport in the years prior to the Civil War. He devotes two chapters to military reconnaissance ballooning during the Civil War, providing a very thorough account of the politics and personalities as well as the organization and operations of the Balloon Corps. Following the war, ballooning continued in this country as an exhibition sport, the U.S. Army having dropped the use of observation balloons until the Spanish-American War.

Ballooning as exhibition declined after the turn of the century, coincident with the introduction of heavier-than-air flying machines. Consequently, between early 1900 and the mid-1930s balloon racing became the most important sporting use of balloons. The author briefly summarizes the fledgling U.S. Air Service's use of observation balloons in World War I and then describes the great balloon races of the 1920s, in which many of the best balloonists were U.S. Army airmen. Crouch next turns to the first "space race" exploratory stratospheric balloon flights conducted during the 1930s under the auspices of the Navy and Army Air Corps. In the concluding chapter, he briefly examines the uses of balloons after World War II for scientific research, weather forecasting, and even strategic reconnaissance. He also reports the first crossings of the Atlantic and Pacific oceans by balloonists, plus the recent reemergence of hot air ballooning as a sport.

The author includes a great amount of trivia, mostly in the early chapters, where he not only details the growth in general interest in ballooning but writes at some length about balloon hoaxes reported in eighteenth-century newspapers. Such diversions from the basic story add to an already lengthy book without contributing significantly to ballooning history in this country. No matter. Crouch has written what is probably the definitive work on the history of ballooning. Published to coincide with the two-hundredth anniversary of manned flight, *The Eagle Aloft* is well written and thorough, relies on reputable sources, and contains good illustrations,

plentiful footnotes, and helpful index. The author often enlivens occasionally dull reading with interesting biographical sketches of leading (and sometimes not so leading) personalities in the history of ballooning.

A. Timothy Warnock
*USAF Historical Research Center*
*Maxwell AFB, Alabama*

**Howard Hughes' Airline: An Informal History of TWA** by Robert Serling. New York: St. Martin's Marek, 1983, 338 pages, $16.95.

Robert Serling is an indefatigable collector of airline lore who specializes in "informal history." His version of the past can be compared to a martini that contains one part gin (archival research) and nine parts vermouth (interviews). Most martini drinkers prefer the quantities of gin and vermouth to be mixed in reverse proportion; professional historians feel the same way about archival research and interviews. As the great Fernand Braudel once observed, "No history . . . can be written without precise knowledge of the vast resources of its archives."

Serling obviously loves his subject. He knows a good deal about airlines and the people who run them, and his writing style—featuring dramatic confrontations and invented dialogue—has found favor with a wide reading public. But reliance on the memory of airline personnel produces a blend of myth and reality, and it is impossible to tell where one ends and the other begins. While he puts together an interesting story for an undemanding audience, his work has limited value for anyone seriously interested in recovering the elusive past.

TWA is the fifth airline that Serling has chronicled, and his sense of déjà vu is growing. As he notes at the outset of this volume, "Every air carrier history is similar almost to the point of repetition, just as the human cast of each airline has its identical counterparts on another. The plots, characters, events, and tribulations are virtually interchangeable. . . ." (p. x) Searching for a dramatic device to carry his narrative, Serling decides to use the tried-and-true theme of good versus evil.

TWA's employees are the "good guys." In the midst of devastating accidents, financial panics, and continuous managerial turbulence, the airline survives because of the loyalty of its pilots, flight attendants, mechanics, ticket agents, and other staff members. On more than one occasion, Serling emphasizes, "loyalty was the only glue that held TWA together." (p. x) This part of his theme allows the author to say a lot of nice things about a lot of nice people.

Management, primarily in the person of Howard Hughes, is the villain of the piece. Serling depicts Hughes as a fascinating man—complex, brilliant, and totally unpredictable. Although careful to note the eccentric Hughes's many contributions to TWA (especially his money), the author places primary emphasis on the trials and tribulations caused by management by whim. Equipment purchases, for example, often came about because Hughes had intuitive feelings about airplanes. As a result, TWA operated a series of aesthetically pleasing but economically inferior Lockheed Constellations, while other airlines made money with their dowdy Douglas aircraft. The culmination of this unfortunate trend came in 1955. At a time when Pan American was ordering new jet transports, Hughes was overriding the objections of TWA's engineering department and spending $50 million for piston-engine Lockheed 1649s. To compound the airline's equipment problems, Hughes later commandeered one of the new 1649s for his personal use, and for six months refused pleas by TWA's president to return the aircraft!

Perhaps, as Serling contends, TWA survived such monumental mismanagement because its employees never lost faith in the company. But a question comes to mind: Could an airline continue today under such circumstances? The answer is no: deregulation has compelled efficient operations. This suggests that the federal government (in terms of protected route awards and subsidies) played the key role in determining TWA's fate. But Serling does not examine this kind of question. Analytical history is not the author's forte; he tells stories.

Dr. William M. Leary
*University of Georgia, Athens*

**Black Eagle, General Daniel "Chappie" James, Jr.** by James R. McGovern. Tuscaloosa: University of Alabama Press, 1985, 195 pages, $16.95.

*Black Eagle* is a three-dimensional portrait of America's first black four-star general, Daniel "Chappie" James. The author, Dr. James R. McGovern, is well steeped in Southern history and has written an especially sensitive background for James's unique achievements. McGovern writes: "There was little reason for Southern American blacks to be hopeful if they were raised in the Deep South in the early decades of this century. Youth's typical dreams for fame and fortune were impermissible luxuries for them. . . . Indeed, it was even unlikely that a young black man could be confident for his personal safety if he objected to the discrimi-

natory codes that victimized him. . . . Capable and accomplished blacks . . . had much to fear. It was black . . . professionals, not sharecroppers, who were the target of crowd abuse."

Conditions for successful blacks were often worse because their success made them the objects of white hate, "constituting yet another warning for them to stay in their places. . . . Under these conditions despair would have been more realistic for blacks than confidence about the future; extraordinary qualities of personality were required for those blacks who would like to accomplish great things, even more so for those who eventually did." General James, born the youngest of seventeen children to a poor family in Pensacola, Florida, surely did have "extraordinary qualities of personality." He had well instilled within him from his exceptionally powerful mother, Mrs. Lillie James, a deep hunger for accomplishment, and he was taught never to surrender his ambition. He became, as readers of the *Review* well know, the commander in chief of the North American Air Defense Command. James was also a veteran of three wars and a distinguished fighter pilot.

McGovern's writing is highly polished, and this biography is a good read. The author displays the many facets of James's personality—the attractive as well as the unattractive aspects—and writes sensitively about James's appetites, which, apparently, were as big as the man himself. *Black Eagle* is not biographical hagiography; it is a serious portrait because of its honesty.

Unfortunately, the text is seriously flawed by numerous historical mistakes, some of which are sub-stantial. To mention a few, McGovern has B. O. Davis, Sr., promoted to general many years early. He writes elsewhere that the Air Force "could not muster determination" to integrate racially until Harry S. Truman issued his July 1948 Executive Order, when in fact, the Air Force chief of staff announced publicly in several fora in April 1948 that the Air Force was determined to integrate. General Carl Spaatz's announcement came three months before President Truman's Executive Order 9981.

McGovern's biggest error is his complete mishandling of James's role in the Freeman Field Mutiny of April 1945. First of all, McGovern confuses that racial altercation with the Selfridge Field riot of 1943 (which McGovern, for unknown reasons, leaves out of the biography totally). While James was engaged in the Michigan riot in 1943, he was neither a ring leader nor even a participant in the Freeman Field Mutiny in 1945. McGovern has James arrested at Freeman Field and serving as a courier for jailed officers, but neither of these allegations is accurate.

While the author is knowledgeable regarding black history, McGovern is generally ignorant of Air Force history—a defect that does major harm to the manuscript. Those who wish to read a sensitively drawn portrait of General James to try to understand the man's personality and to appreciate what James had to overcome to succeed will find McGovern's *Black Eagle* a worthy volume; but the historical inaccuracies would force one wanting to quote this book to do so with extreme caution.

Colonel Alan L. Gropman, USAF
*Hq USAF*
*Washington, D.C.*





**AWARD**

The *Air University Review* Awards Committee has selected "The French Air Force in 1940: Was It Defeated by the Luftwaffe or by Politics?" by Lieutenant Colonel Faris R. Kirkland, USA (Ret), as the outstanding article in the September-October 1985 issue of the *Review*.

...ry L. Guertner (B.A., M.A., University of
...zona; Ph.D., Claremont Graduate School)
Professor of Political Science at California
...te University, Fullerton. He has been an
...cer in the Marine Corps, a faculty member
...U.S. Army War College, and a scholar in
...idence at the U.S. Arms Control and Dis-
...mament Agency, Washington, D.C. Dr.
...iertner has written numerous articles on de-
...se and foreign policy for professional jour-
...s, including the *Review*.



Stephen J. Cimbala (B.A., Pennsylvania State
University; M.A., Ph.D., University of Wis-
consin) is Associate Professor of Political
Science, Pennsylvania State University, Del-
aware County Campus, Media, Pennsylvania,
and a Research Fellow at the Foreign Policy
Research Institute, Philadelphia. Dr. Cimba-
la's articles have appeared in the *American
Political Science Review*, *World Politics*, *Air
University Review*, and other military and so-
cial science journals.



Major General Robert A. Rosenberg (USNA;
M.S., Air Force Institute of Technology) is
Director, Defense Mapping Agency. He has
served as Vice Commander in Chief, North
American Aerospace Defense Command; as
Assistant Vice Commander, Space Command;
in a variety of positions with the Air Force
Ballistic Missile Division at Air Force Systems
Command, in the Office of Special Projects
and the Office of Space Systems under the
Secretary of the Air Force, with the National
Security Council, and with the Air Staff; and
as Assistant Chief of Staff for Studies and Anal-
yses, Hq USAF. General Rosenberg is a grad-
uate of the Industrial College of the Armed
Forces.



...tenant Colonel Charles D. Friedenstein
..., Virginia Polytechnic Institute; M.S.,
...versity of Southern California) is Director
...ngineering, AFELM DOD Project Office,
...ce of the Secretary of the Air Force, Wash-
...on, D.C. He has served as assistant profes-
...and director of research for the Department
...Astronautics at the Air Force Academy.
...onel Friedenstein is a Distinguished
...duate of Air Command and Staff College.



Major General Thomas C. Brandt (USNA;
M.S., Air Force Institute of Technology) is
Director of the Joint Planning Staff for Space,
Office of the Joint Chiefs of Staff, Washing-
ton, D.C. He has served as Assistant Deputy
Chief of Staff, Operations for Combat Opera-
tions, North American Aerospace Defense
Command (NORAD), Cheyenne Mountain
Complex, Colorado; Assistant Deputy Chief
of Staff, Operations for Combat Operations,
U.S. Space Command; and Deputy Chief of
Staff, Intelligence, for the U.S. Air Force Space
Command and NORAD, Peterson AFB, Colo-
rado. General Brandt is a graduate of the In-
dustrial College of the Armed Forces.



Robert M. Bowman (B.Ae.E., Rensselaer Poly-
technic Institute; M.S., AFIT; Ph.D., Califor-
nia Institute of Technology) is president of the
Institute for Space and Security Studies, Po-
tomac, Maryland. As an Air Force officer, he
served in a variety of assignments, including
faculty, Air Command and Staff College; di-
rector, Advanced Space Programs Develop-
ment, Space Division, AFIT; head, Aerospace
Engineering Department, AFIT; and deputy
director, Ballistic Systems, ABRES. Dr. Bow-
man is a graduate of Squadron Officer School,
Armed Forces Staff College, and Air War
College.

**Colin S. Gray** (Ph D , Lincoln College, Oxford University) is president of the National Institute for Public Policy. He has been director of National Security Policy Studies, Hudson Institute; assistant director, International Institute for Strategic Studies (London); and a member of the General Advisory Committee on Arms Control to the Arms Control and Disarmament Agency. Dr. Gray's articles have appeared in numerous journals, including the *Review*.

**Major Richard L. Comer** (USAFA, M.A., University of North Carolina) is Assistant Professor of English at the U.S. Air Force Academy. As a helicopter pilot, he has had assignments at Nakhon Phanom RTAFB, Thailand; Sembach AB, Germany; and Kirtland AFB, New Mexico.

**Richard I. Lester** (Ph.D., Institute of Historical Research, University of London) is Director, Educational Plans and Programs, and Educational Advisor, Leadership and Management Development Center, Air University. In previous assignments, he has been Chief, Social and Behavioral Sciences, United States Armed Forces Institute, as well as education officer with SAC and USAFE. Dr. Lester has served also on the faculties of the University of Maryland and Auburn University.

**Lieutenant Colonel James R. Aubrey** (USAFA; M.A., Northwestern University; Ph.D., University of Washington) is Chief of Intelligence, 20th Tactical Fighter Wing, USAFE, England. He was previously an Associate Professor of English at U.S. Air Force Academy and Chief of Intelligence, 42d Electronic Combat Squadron, USEUCOM. Colonel Aubrey is a graduate of Squadron Officer School, a former contributor to the *Review*, and the author of several articles published in other journals.

**Robert A. Vitas** (B.A., Loyola University of Chicago) is a Ph.D. student and research assistant in political science at Loyola University of Chicago. He is also serving as assistant to the president, Lithuanian Research and Studies Center, Chicago, while teaching history and politics at the Lithuanian Institute of Education. His current research focuses on civil-military relations in independent Lithuania.

**Colonel H. Lawrence Elman**, USAFR (B.S., MIT; M.S.E., University of Oklahoma) is senior engineer in the Simulation Systems Division of Gould, Inc. Colonel Elman has served as a missile officer and space training instructor and has held a variety of R&D mobilization assignment positions at Aerospace Research Laboratories, the Air Force Office of Scientific Research, the Air Staff, and DCS Research, Development and Acquisition. He has written numerous articles on aviation and military history, aeroelastic research, and engineering. Colonel Elman is a graduate of Squadron Officer School, Air Command and Staff College, and Air War College.

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