AIR UNIVERSITY
review

JULY-AUGUST 1985
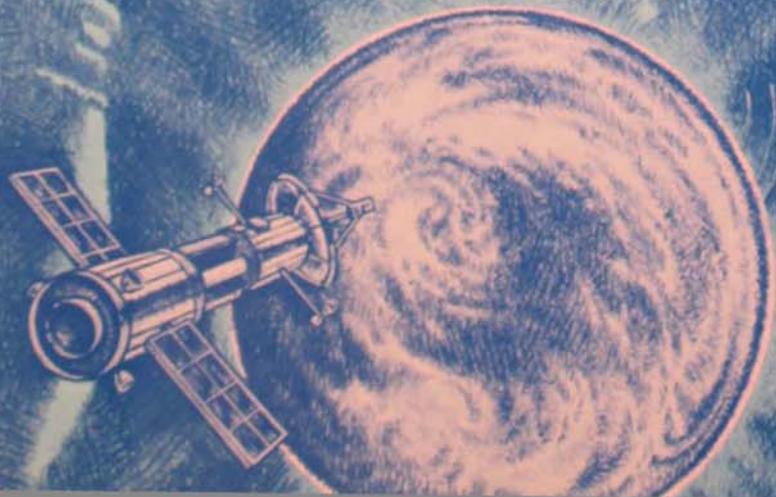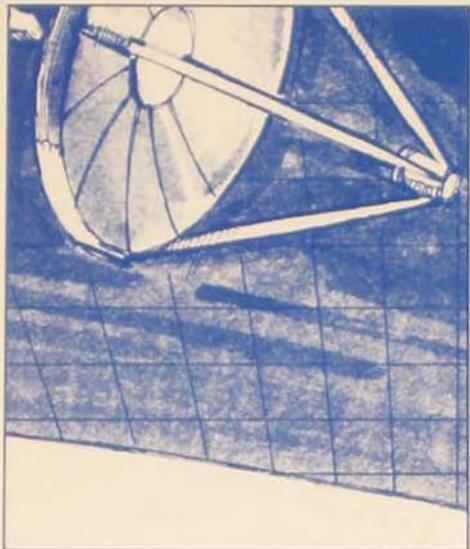
The pros and cons of SDI—*page 4*

Strategic targeting at the low end of the conflict spectrum—*page 24*

Will terrorists soon use nukes? *page 30*

Attention

Since modern warfare is continuously changing, Air Force leaders must be constantly alert for new ideas that might be the key to the successful application of aerospace power in the future. The *Air University Review* is t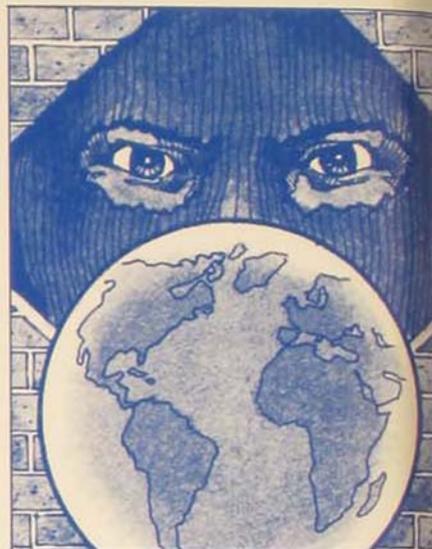he professional journal of the United States Air Force and is designed to serve as an open forum for exploratory discussion of professional issues and the presentation of new ideas. As an open forum, the *Review* aims to present new ideas and stimulate innovative thinking on military doctrine, strategy, tactics, professionalism, and related national defense matters. The views and opinions expressed or implied in this journal are those of the individual authors and are not to be construed as carrying the official sanction of the Department of Defense, the Air Force, Air University, or other agencies and departments of the U.S. government. Thoughtful and informed contributions are always welcomed.

AIR
UNIVERSITY
review

the cover
What will be our future? Unfortunately, there are no crystal balls, no soothsayers to divine our course with certainty. Perhaps through studying history and science we can ask the right questions about a promising but always-dangerous tomorrow.

AN INTELLECTUALLY SUPERIOR OFFICER CORPS

The intellectual is *engagé* —he is pledged, committed, enlisted. What everyone is willing to admit, namely that ideas and abstractions are of signal importance in human life, he imperatively feels.
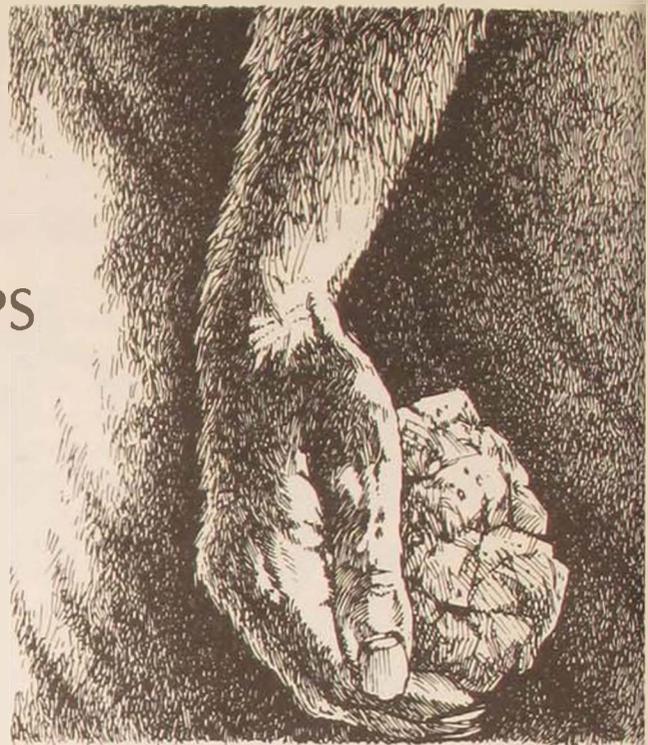
Richard Hofstadter, *Anti-Intellectualism in American Life*, p. 28

FROM the time of Sun Tzu to our own days, students of war have emphasized the importance of intangible factors in war. The most significant of these to my way of thinking is an intellectually superior officer corps, and for the past thirty months, this view has guided my efforts as editor of the *Review*.

The importance of intellectual superiority derives from the fundamental role of ideas in warfare. Before a weapon is a piece of hardware, it is first an idea in a man's mind; before a weapon can be effectively used, someone has to develop a concept to guide its application. The tank began as an idea in the mind of Lieutenant Colonel E. D. Swinton, whose creative insight first brought together the Holt caterpillar tractor, armor, and guns. Only with J. F. C. Fuller's Plan 1919 did military professionals begin to find the ideas that would integrate the tank effectively into military operations. These ideas would eventually form the basis of Germany's blitzkreig warfare, which riveted world attention on Poland, France, and then Russia in the opening days of World War II.

Although ideas are crucial to success in war, they are like fragile flowers. They must have the proper environment if they are to develop and flourish. Such an environment must include several essential ingredients.

For one thing, there must be a critical mass of officers who are intensely interested in ideas and who stay abreast of defense debates by reading professional books and journals regularly. A natural extension of their interest is a desire to contribute their own views to the formal discussion of issues by writing articles and book reviews and by commenting on the ideas of others. Members of this critical mass will know one another and maintain contact through an informal network, exchanging ideas and bringing important new books and articles to the attention of others in the network.

The development and survival of this critical mass are radically dependent on the encouragement that its members receive from top leadership. All too often, this support is missing in the American military. This lack of support is symbolized by Rear Admiral F. M. Ramsay's famous endorsement on an unfavorable fitness report on Alfred Thayer Mahan: "It is not the business of a Naval officer to write books." (Robert Heinl, *Dictionary of Military and Naval Quotations*, p. 178)

An important part of this encouragement by senior leaders is ensuring that officers are free to publish their views, unhampered by an overly restrictive security and policy review system. No responsible officer would argue with a reasonable review to see that a manuscript does not contain classified information, but a manuscript should not be denied clearance just because an anonymous staff officer decides that its content is "contrary to policy," inaccurate, "misleading," or incompatible with his own views.

How does the Air Force rate with regard to its intellectual environment? In my opinion, the number of intellectually active officers in the Air Force is below what is needed to achieve critical mass. Ask yourself this: Who are the leading thinkers in

today's Air Force? Name an Air Force officer with a national reputation based on published works. Can you think of an officer who has established an Air Force-wide reputation as an air power theorist?

A major reason for the shortage of intellectually oriented officers is that the climate within the Air Force is not conducive to the free and open investigation of ideas. Several years ago, an editor of *Air Force Magazine* described our situation by saying that the Air Force is the most thin-skinned of all the services. Today, we see this extreme sensitivity to criticism reflected in the Air Force policy that requires virtually every article intended for publication to pass through a review process that checks for conformance to policy as well as to ensure that manuscripts intended for publication contain no classified information. Too frequently, I have seen articles that have critical things to say about some situation or policy denied clearance because an anonymous staff officer decided that the article did not conform to Air Force policy or presented a position the reviewing officer considered contrary to fact, a judgment based as much on the reviewing officer's personal perceptions as on some set of objective criteria.

Manuscripts "revised" through the policy and security review process or denied publication altogether serve as evidence that blue-suit thinkers are not receiving all the support they need if they are to flourish and serve as a wellspring of new, worthwhile ideas. Further dampening intellectual enthusiasm is the widely held (and unfortunately accurate) perception in the officer corps that those who spend too much of their Air Force career in intellectually oriented assignments instead of the "real Air Force" tend to reduce their opportunities for promotion.

How might the Air Force improve the climate for its thinkers? No single change will enhance the situation so decisively that an intellectually superior officer corps will appear instantaneously, but several significant shifts in emphasis and policy offer promise for long-term, continuous improvement.

The obvious, potentially most fruitful solution is to improve the promotion potential associated with academic positions in the Air Force. We must get away from a situation where one short tour in academe is all that an officer can afford if he is to remain competitive for promotion. It takes about five years for an individual to develop the research base and intellectual skills required to make a meaningful contribution to any intellectual debate. Encouraging officers to abandon academic pursuits after one tour tends to cut them off from intellectual activities about the time they are ready to contribute in some significant way to the consideration of defense issues.

A second measure that must be taken is to reform the security and policy review process so that an article may not be denied clearance except on grounds that it contains classified information. Any other arrangement invites unwarranted restrictions on the free and open debate of defense issues. Such restrictions have a chilling effect on the thinking of the entire officer corps—an unproductive situation at a time when technology is changing rapidly and an innovative, intellectually active officer corps is a *must* in any service. The difficulties of getting critical, perhaps controversial papers cleared for public release are well known at all ranks throughout the Air Force. It is time for a change.

A third alteration that might prove productive would affect section eight on the front of the OER form, which is concerned with writing. I suggest that we make this section more meaningful by requiring a combination of publications in professional journals (letters to the editor, book reviews, and feature articles) for any officer who is given any one of the top two ratings. A rating in the top block would go only to officers who had published at least one feature article in a professional journal. Here is one way that Air Force leaders could say clearly to the officer corps that intellectual activity is an expected, vital part of professional performance.

While none of these measures will have an immediate effect on the intellectual quality of the officer corps, they should mark a significant step toward the goal of ensuring an intellectually superior officer for the Air Force, one of the most important ingredients of an air force that can outfly and outfight the air force of any potential enemy.

With this editorial, I pass the responsibility for the *Review* to a new editor, Major Earl H. Tilford, Jr., who has performed extremely well for the past four years as the *Review's* associate editor. Major Tilford is an intelligence officer and military historian with a Ph.D. from George Washington University. He is a leading expert on the Vietnam War who has devoted a significant amount of his time and energy to distilling lessons from that war and sharing his findings with others in the officer corps. I am confident that he will keep the *Review* in the forefront of the discussion of defense issues during his editorship.

D.R.B.

3
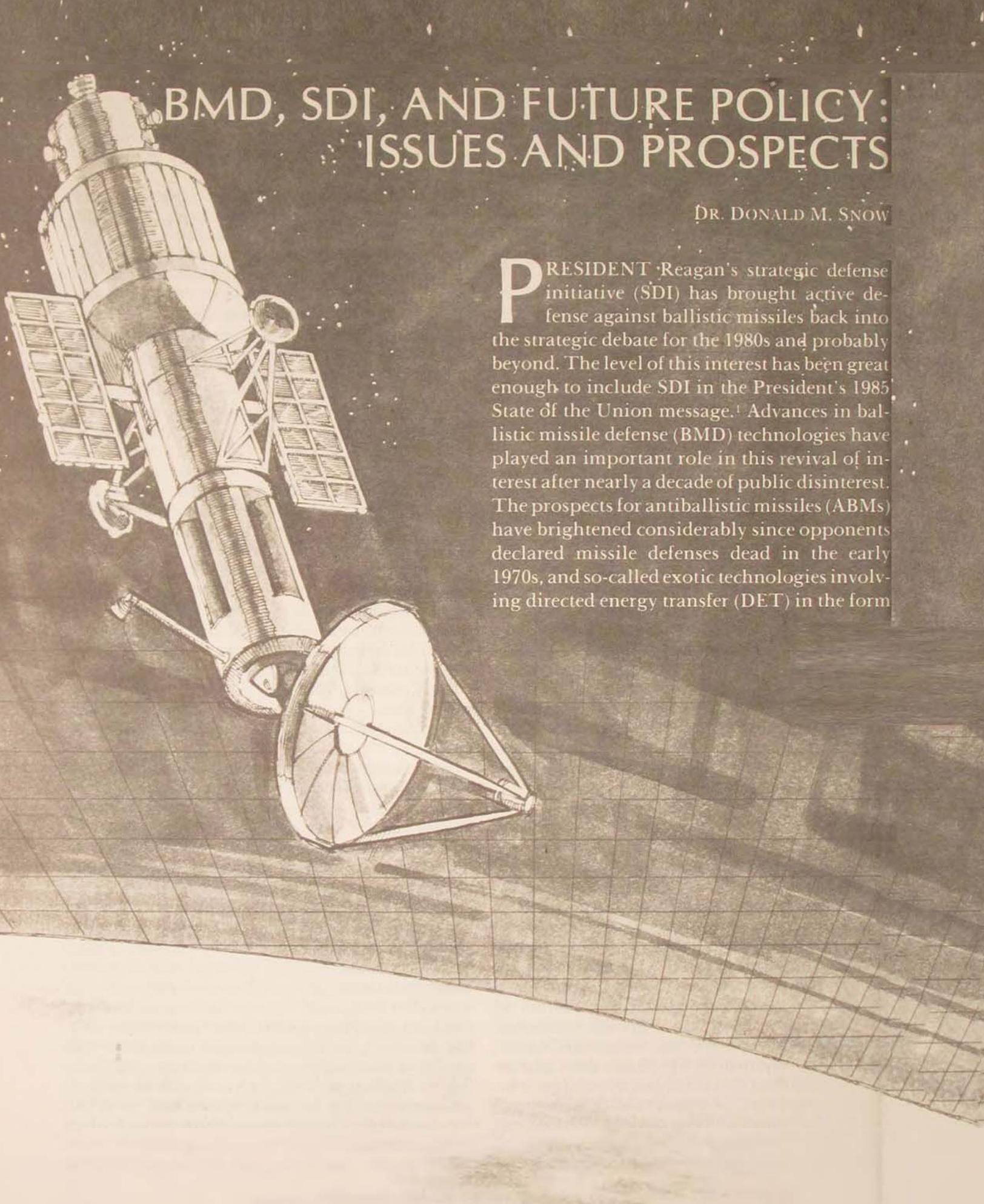
BMD, SDI, AND FUTURE POLICY: ISSUES AND PROSPECTS

Dr. Donald M. Snow

PRESIDENT Reagan's strategic defense initiative (SDI) has brought active defense against ballistic missiles back into the strategic debate for the 1980s and probably beyond. The level of this interest has been great enough to include SDI in the President's 1985 State of the Union message.[1] Advances in ballistic missile defense (BMD) technologies have played an important role in this revival of interest after nearly a decade of public disinterest. The prospects for antiballistic missiles (ABMs) have brightened considerably since opponents declared missile defenses dead in the early 1970s, and so-called exotic technologies involving directed energy transfer (DET) in the form

of space-based lasers (SBL) and charged-particle beams (CPB) offer the possibility of dramatic breakthroughs in the military's ability to defend against a nuclear attack.

While considerable scientific and engineering progress was being made during the balance of the 1970s, it took President Reagan's forceful endorsement of space-based ballistic missile defenses to put the area into the forefront of a national debate over strategic nuclear policy. That debate had lain fallow during most of the 1970s but began to revive in the furor surrounding President Carter's announcement of American adoption of a counterforce targeting strategy through Presidential Directive (PD) 59 in August 1980. It was given further fuel by President Reagan's aggressive advocacy of offensive force modernization in his major October 1981 speech on the subject. The President's 23 March 1983 speech, which included reference to exotic systems and was instantly dubbed the "star wars" speech, brought

BMD forthrightly into the overall debate.

The BMD issue has moved to the center of the ongoing national disagreement over appropriate nuclear deterrence strategies for the future. Public advocacies have centered around the poles of continued adherence to assured destruction and strategies emphasizing limited nuclear options that pay some attention to the possibility of nuclear warfighting. To proponents of assured destruction, BMD always has been and always will be anathema: for them, the central reality of the nuclear balance is that a nuclear war would inexorably devolve to an all-out, possibly civilization-ending catastrophe, and it is the knowledge of that outcome that enlivens deterrence. Successful BMD raises the prospect that the disaster might be mitigated, and this possibility potentially removes useful inhibitions to engage in nuclear hostilities.

Assured destruction largely held public sway during the 1970s but has been challenged increasingly in the 1980s, and a part of that opposition contains an advocacy of BMD. Strategists in the Reagan administration are prominent in this revisionism, which argues that some more limited form of nuclear exchange is more probable than the assured destruction scenario. Recognizing that deterrence is the crucial purpose of nuclear strategy but that deterrence could fail through accident or inadvertence, these analysts argue for deterrence strategies of limited nuclear war. A major thrust of this strategic position is nuclear war termination at the lowest possible levels of destruction, such that society might survive and be able to recover. Given this emphasis, the attempt to defend against a nuclear attack is both natural and the only prudent and responsible course to follow.

BMD and the SDI stand as a lightning rod for the future debate. Predicting the outcome of that debate and thus what the likely role of BMD will be in the future requires, first, knowledge of the process leading to the SDI in Reagan administration policy and, second, awareness of the principal arguments for and
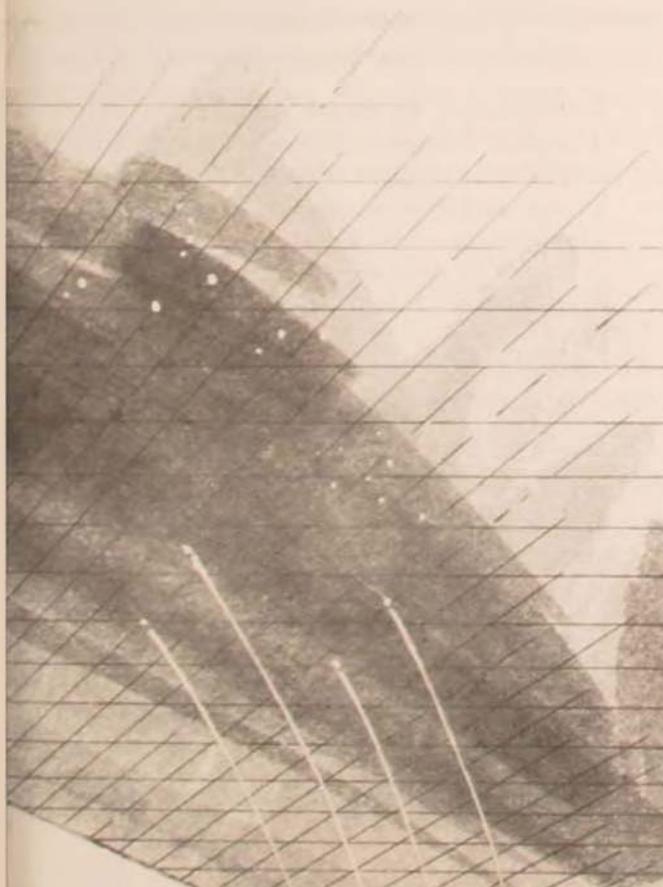
against BMD. With these elements clearly in mind, some conclusions can be drawn.

The Road to the SDI

The idea of active defenses against ballistic missiles is as old as the missile age. The theoretical problems associated with BMD had been solved before the first ballistic missile was tested, but overcoming largely engineering difficulties arising from the theoretical base have dogged BMD development. BMD in the form of antiballistic missiles (ABMs) was first raised as a possibility in the 1960s and resulted in the ABM Treaty of 1972, which precluded the deployment of effective active defenses by the Soviet Union and the United States.[4] Many assured destruction advocates believed that they had foreclosed BMD for once and for all, and, as one contemporary commentator observed, "The ABM Treaty probably averted a costly competition in defensive systems."[5]

The anti-BMD forces were premature in their conclusion. Although the ABM Treaty prohibited deployment of all but minor ABM systems, it did not ban research and development efforts short of actual systems testing, which continued outside the spotlight of major public scrutiny. These research efforts were largely justified by counterpart programs in the Soviet Union and focused on two levels identified by then-Secretary of Defense Harold Brown in his final *Annual Report* to the Congress: "We continue treaty-permitted R&D on Ballistic Missile Defense (BMD) as a hedge against Soviet breakthroughs or breakouts that could threaten our retaliatory capability, and as a possible point defense option to enhance the survivability of our ICBM force."[6]

Brown's reference to point defenses is an allusion to ABM programs such as the low altitude defense system (LoADS), which incorporates nonnuclear-tipped interceptor rockets to intercept incoming Soviet reentry vehicles (RVs). These point defenses were given additional impetus by difficulties in finding a suitable basing mode for the MX missile system—a dilemma that suggested a point ABM defense as possibly the most plausible means to ensure the rocket's invulnerability. The other focus, suggested by the reference to possible Soviet breakthrough, is in so-called exotic defenses based in high-energy laser and charged particle beams. The Carter administration formed a Directed Energy Transfer Office within the Department of Defense specifically to direct research into these technologies by the various services. The most visible efforts have been programs that involve lasers in space to intercept and destroy rising Soviet missiles.[7] This possibility led President Reagan to issue his now-famous entreaty in March 1983: "I call upon the scientific community in our country, those who gave us nuclear weapons, to turn their great talents now to the cause of mankind and world peace: to give us the means of rendering these nuclear weapons impotent and obsolete."[8]

The statements of Secretary of Defense Caspar Weinberger in his *Reports* to the Congress indicate that the Reagan administration did not adopt a pro-BMD stance instantly. The secretary's first force statement contains a note of caution and even skepticism:

> For the future, we are not yet sure how well ballistic missile defenses will work; what they will cost; whether they would require changes in the ABM Treaty; and how additional Soviet ballistic missile defenses—which would almost certainly be deployed in response to any U.S. BMD system—would affect U.S. and allied offensive capabilities.[9]

His second *Report* is cryptic and somewhat more optimistic, but it contains no reference to exotic systems. His entire discussion of BMD in the 350-page document is:

> Our extensive work with Ballistic Missile Defense (BMD) components has demonstrated that an active defense could protect some high-value strategic assets from ballistic missile attack. The program is structured, therefore, to sustain our understanding of this technology so that we could field an advanced and highly effective BMD system quickly should the need arise.[10]

Between the issuance of that report on 1 Feb-

ruary 1983 and the President's 23 March 1983 speech, the administration adopted directed energy transfer BMD. In his speech the President embraced exotic defenses, declaring, "Current technology has attained a level of sophistication where it is reasonable for us to begin this effort. It will take years, probably decades, of effort on many fronts."[11] His announcement accompanied the commissioning of two studies on the subject in June 1983, which were completed in October. These studies recommended spending $18-27 billion between fiscal years 1985-89 for research and development, and for deployment by the year 2000 of a system with a total cost estimated in the range of $95 billion.[12]

President Reagan accepted these recommendations formally on 6 January 1984 in the form of National Security Decision Directive 119. The SDI was thus born. Secretary Weinberger reflected this new emphasis in his fiscal year 1985 *Report*, which states, "The study concluded that advanced defensive technologies could offer the potential to enhance deterrence and to help prevent nuclear war by reducing significantly the military utility of Soviet preemptive attacks and by undermining an aggressor's confidence in the probability of a successful attack against both the United States *and* its allies."[13] Secretary Weinberger recommended $1.74 billion in research and development funding for fiscal year 1985.[14]

Whether the spirited leadership of the administration will result in a movement toward deploying active defense is not entirely clear, nor is the wisdom of doing so obvious. Directed energy transfer defenses, after all, do not exist, and the technologies may never mature. Reaching some judgment on the desirability of moving toward defenses will be assisted by examining the arguments on either side of the issue.

The Pro-BMD Position

BMD proponents make a number of arguments to support their advocacy. These argu-

ments can be grouped around five related points, ranging from the feasibility of constructing effective defenses to the mandate for self-protection resulting from knowledge about the so-called nuclear winter phenomenon.

The first argument, contradicting the major negative argument in the ABM debate, is that active defenses are now technically feasible. In the 1960s, opinion centered on John Kennedy's misleading analogy that the missile defense problem was akin to "hitting a bullet with another bullet." Rather, a leading proponent argues that the task is conceptually much simpler than that: "A missile launched at the U.S. moves so fast that if you tossed an ice cube at it and hit it, you would divert from its course sufficiently to render it impotent. . . . [A] nuclear missile's high speed makes it vulnerable."[15]

This conceptual simplicity has, of course, been dogged by practical problems. In essence, the problem is one of target acquisition and tracking (a radar problem), trajectory determination (a computing problem), and interception (a weapons problem). Proponents argue that advances in radar, especially space-based, in computing capabilities, notably speed in processing, and in interceptor sophistication have, or soon will, overcome all these difficulties. Progress in systems such as LoADS and, in the longer run, the prospects of directed energy transfer BMD devices for a so-called layered system that could be essentially impenetrable are cited as evidence.[16]

The second argument is that missile defenses reinforce, rather than detract, from deterrence, especially if offensive arms reductions accompany BMD deployment. If belief in the catastrophic consequences of nuclear war makes avoidance of such a war the first premises of both American and Soviet foreign policies, then the problem of deterrence is to avoid changes in the perceptions producing inhibitions. As Herman Kahn put it, "One significant indication of the effectiveness of deterrence is that the Soviet Union and the United States share the belief that a nuclear war would

only begin out of desperation or inadvertence."[17] A major goal of nuclear deterrence policy is thus to ensure that neither side determines that it could profit by using its nuclear weapons. An important element in thwarting such calculations is uncertainty about the potential profitability of such attacks. As Keith Payne and Colin Gray stated, "Even . . . limited conventional defensive coverage for U.S. retaliatory forces would create enormous uncertainties for Soviet planners considering the effectiveness of a strategic first strike."[18] Daniel Graham and Gregory Fossedal expressed the same argument rhetorically: "Would a defense be adequate if it provided no rock-bottom guarantees at all— but did throw so much uncertainty into the calculations of someone contemplating an attack on the U.S. that they would have to decide not to . . .?"[19]

Those favoring active defenses have always faced the criticism that offensive arsenal sizes are so great that anything short of total effectiveness would make no difference and that any defense could easily be overwhelmed by offensive weapons, thereby rendering it impotent. This criticism leads Secretary Weinberger to conclude that a movement toward defense would be most beneficial if accompanied by reductions in offensive forces. "For the longer term, offensive force reductions and defensive technologies can be mutually reinforcing. Effective defenses that reduce the utility of ballistic missiles and other offensive forces have the potential for increasing the likelihood of negotiated reductions of those offensive forces."[20] Such reductions could reduce the quantitative (and possibly the qualitative) problems faced by defenses. If deployed and orchestrated properly, the result could be a movement toward a strategy of "assured survival," under which "we can reasonably project that strategic defense would be more likely to prevent all-out war—with the added, crucial advantage that if it does not, we are not totally without defense."[21]

The third and related argument is that defensive systems stabilize, rather than destabilize,

the deterrence system and nuclear balance. The basis for this assertion is that BMD is nonprovocative because a defensive weapon does not put any offensive system at risk (it cannot be used to attack and destroy an offensive weapon before the offensive system is used). Thus, a defensive system has two salutary effects. First, because the system cannot be used preemptively, it avoids putting the adversary in a perceived "use them or lose them" situation during a crisis that might provide the incentive to launch first. Second, if such systems protect retaliatory forces, they reinforce the feasibility of second-strike strategies stressing disincentives to attack first.

The fourth argument is that it is irresponsible, and even morally reprehensible, not to make some effort at self-defense against a potential nuclear attack, since deterrence can fail. "The central problem of nuclear deterrence is that no offensive deterrent, no matter how fearsome, is likely to work forever, and the consequence of its failure would be intolerable for civilization."[22] BMD acts as a prudent hedge against that failure that could mitigate the disaster should it occur. As Barry Smernoff argues in regard to laser-based defenses, "the emergence of SBL [space-based laser] technology creates a new alternative for coping with the seemingly inscrutable problems and ethical dilemmas of nuclear war and nuclear weapons and the open-ended nature of the strategic arms competition."[23]

The fifth argument arises from recent evidence that a nuclear war could trigger a phenomenon known as the "nuclear winter."[24] Briefly, the idea of nuclear winter is that at some level of exchange (as yet unspecified), the result would be massive firestorms that would inject large amounts of microscopic soot into the stratosphere. This soot would create a dense cloud that would encircle the globe and block out the sun's rays. The effect would be to lower the average temperature of the earth by up to twenty degrees Fahrenheit, thereby destroying crops, freezing large portions of the globe's

surface water, and making the earth essentially uninhabitable for up to a year. The result would be ecocide on a global scale and the possible effective extinction of life as we know it.

Although the scientific community is coming to accept the fact of a nuclear winter, the point at which it is triggered remains elusive and probably will continue to be so (the only fully reliable way to locate the nuclear winter threshold is to exceed it). In a general climate of uncertainty about the winter threshold, anything that could mitigate the extent of a thermonuclear exchange by reducing the number of detonations has some appeal. Ballistic missile defenses might keep any exchange at a level below the winter threshold by disabling a percentage of the incoming forces. This outcome would be especially enhanced if combined with a reduction in offensive arms, as Payne and Gray point out: "Advocates of a radical scale of nuclear disarmament need to appreciate that truly deep reductions in offensive nuclear arsenals would be feasible only in the event of a heavy deployment of strategic defensive systems."[25] The force of this argument partly depends on what level of exchange would induce the winter; the lower the level, the greater the need to take measures to ensure that one does not exceed that threshold. The relative recency of investigation of the winter, however, ensures that this fifth argument will be the source of future debate and disagreement.

The Anti-BMD Position

Historically, critics of BMD have dominated the strategic debate. This domination was most clearly evident in the period surrounding SALT I and the adoption of the ABM Treaty. The basic arguments against active defenses were articulated at that time, and they are currently being reiterated. In essence, these arguments can be grouped into three positions.

The first argument flows from assured destruction thought and characterizes BMD as a destabilizing chimera. To the extent that people believe active defenses will improve their chances of surviving a nuclear war, defenses loosen useful inhibitions against starting nuclear war rooted in knowledge of its disastrous, suicidal consequences. Moreover, most critics are deeply suspicious that such systems would not work well enough to make a substantial difference. This suspicion is particularly strong regarding population protection, since even minor "leakage" in urban-protecting systems would result in large-scale devastation. Thus, BMD is opposed in principle because it weakens the "hostage effect"[26] central to assured destruction (an inhibition to start nuclear war because it would be suicidal—an execution of the hostages). Nevertheless, the protection apparently provided by such systems could prove illusory in the real event, which would be the cruelest irony of all.

The second argument also speaks to the question of stabilization versus destabilization. It is the problem of transition from a defenseless world to one in which active defenses play at least some part. This dilemma is also known as the "how do we get from here to there" problem,[27] and it refers to the instability that might accompany the addition of active defenses by one or both sides to the nuclear arms competition.

Two basic possibilities exist in this regard. The less troublesome is the situation where both sides more or less simultaneously develop and deploy systems of roughly similar capabilities (at whatever level of effectiveness). In that circumstance, arms control processes might be used to effect an orderly mutual deployment of such systems, so that the changeover would be symmetrical and would maintain similar force structures throughout for both sides. Whether the result at the end of this process would be stable or unstable is, of course, a matter of more fundamental beliefs about whether BMD is stabilizing or not.

More troublesome is the potential situation where one side makes a substantial breakthrough that would allow it to field a system

for which the adversary had either no counterpart or only one that was markedly inferior. A dramatic advance in some form of DET-based weaponry would seem to offer the best likelihood of such a situation.

The potential source of instability arises because the disadvantaged state realizes its situation will be substantially weakened once deployment is complete by the other. If the defenses are formidable, the nonpossessor may be left with largely useless offensive forces that could be picked off and destroyed before reaching target, transforming the "use them or lose them" problem to an equally intractable "use them or *leave them useless*" dilemma.

The nonpossessor might decide that his only recourse is to fire his missiles before the other side's defenses are operational, and this creates the source of instability. The weaker state might decide that it is expedient and rational to "fire when you can" rather than to accept an inferiority wherein the opponent can threaten attack without having to fear retaliation.

Not all observers believe the problem to be severe. Graham and Fossedal, in particular, dismiss it: "Would the Soviets attack as we complete our ground-based defense? Of course not; no fundamental change in the balance of power is threatened. . . . The stronger U.S. defenses become, the less sense a Soviet strike makes—but the process is marginal, not an all-for-one shot."[28]

Cost is the final argument against active defenses. The price tag on the original ABM system proposed in the latter 1960s was $5 billion or so; depending on the source one consults and the kind of system one envisages, the defenses one could deploy could be enormously higher than that figure.

There is substantial disagreement on this issue. Advocates of the so-called High Frontier argue that existing technologies could field defenses at comparatively modest cost. Graham and Fossedal make such assertions: "At a cost of $2 billion . . . the U.S. could protect the MX missile in existing Minuteman silos in North

Dakota."[29] Moreover, they allege, "Within five years, at a cost of $12 billion, the United States could deploy a two-layered fleet of satellites that would filter out 98 percent of a Soviet missile launch."[30]

Other observers, and especially those looking at systems that incorporate laser and particle-beam components, are less sanguine about cost. Hard information about cost estimates is not available publicly, but guesses abound. As one observer catalogues, "Estimates of the amount needed to make the new system both operational and effective range from $10 billion to $500 billion."[31] Yet another observer provides a range for the installation of a layered system incorporating lasers and particle beams as well as ABMs: "The goal . . . is to have a multilayered ballistic missile defense in place within 20 years at a cost estimated at between $250-$500 billion."[32]

Such guesses are, of course, just that and could be affected by the comprehensiveness and complexity of the system (the number of satellites needed) and by such factors as technological complications and inflation. The question is whether the American public would support the expenditures that the high end of the spectrum portends (particularly in an era of large budget deficits). Certainly there will be opposition on these grounds alone, and two associated difficulties may buttress that opposition.

The first problem is that supporters will not be able to demonstrate with any precision the effectiveness of proposed systems in advance of decisions to deploy them. Testing will always be modest, and whether such results can confidently be extrapolated to all-out exchange scenarios will always be controversial. Opponents will claim that the American people are being asked to spend a half trillion dollars for what is, in essence, a pig in a poke.

The second bedeviling factor is the possibility that the expense will be open-ended, with the defense simply opening a new arena for arms race competition. This prospect is most often associated with a race in space, where

BMD satellites invite counterdeployment of antisatellite (ASAT) weaponry, redundancy of systems, and the like. Weaponizing the last medium could be extremely expensive and long-term, meaning that even very high cost estimates could represent no more than the tip of the investment iceberg.

THESE arguments have or will affect the likelihood that the strategic defense initiative will move toward fruition in the second Reagan term and beyond. These arguments have spanned most of the nuclear age, and they are elegant and persuasive, if contradictory. The question is which set will hold sway in the balance of decisions about SDI.

The setting is reminiscent of the circumstance in the latter 1960s when the ABM controversy raged. In that situation, ABM was defeated largely on two grounds: it was expensive, and there was substantial disagreement about whether it would work. The question of expense was made more difficult because ABM proposals came on the heels of an extensive offensive force modernization program that had produced Minuteman III and Polaris/Poseidon systems, while simultaneously Vietnam was draining defense resources. Moreover, a first round of comprehensive arms control sentiments was part of the mix.

Parallels exist today. There is considerable disagreement within the scientific community over whether the components of the SDI are or ever will be feasible. The "star wars" initiative came slightly less than two years after President Reagan proposed his comprehensive offensive force modernization plan, and the laser defenses in space apparently will be extravagantly expensive. The current deficit crisis may parallel the negative impact of Vietnam, since each represents a politically and economically debilitating drain on resources. Moreover, a new round of arms control talks in which the Soviets insist on banning the SDI defenses looms in the background.

This constellation of factors doomed ABM in the 1960s, but will it also foreclose SDI? There are three central problems: demonstrating the technical feasibility of SDI; making it seem economically palatable; and fitting SDI into an arms control framework acceptable to both sides. These are no mean tasks, but neither are they impossible. One way toward accomplishing them is through a "defense-protected build-down" (DPB) of offensive forces as the defense is erected—an approach now entering the American debate.[33]

The basic notion behind DPB is to combine the President's advocacy for offensive reductions (e.g., the START proposals) with a phased introduction of strategic defenses. Using arms control negotiations to provide schedules and timetables, both superpowers would gradually draw down their offensive systems and replace the eliminated items with defensive components. The defenses would protect the security of remaining offensive retaliatory systems, thereby reinforcing deterrence in the assured destruction sense, while simultaneously making the consequences of a failure of deterrence less disastrous (including, possibly, keeping detonation levels below that which would trigger the nuclear winter).

The expert community does not unanimously support this proposal. Alton Frye questions the basic relationship between offenses and defenses, saying "the sharp reduction in offensive warheads . . . might tend to reduce the incentive to seek some new 'impregnable' defense—or conversely it might tend to make such a defense seem more attainable."[34] At the same time, the proposal introduces another source of uncertainty into strategy. "The difficulty in estimating the effectiveness of a defensive system is a serious shortcoming of a DPB strategy."[35]

The DPB strategy has yet to attract the microscopic attention it may need. The proposal is conceptually compatible with President Reagan's combined interests in offensive force reductions and the SDI. It also offers some potential for addressing the economic and technical

difficulties that form the political objections to BMD generally.

The major technical objection to any BMD system is that it can be overwhelmed and, moreover, that the response to erecting defenses is to create more offensive forces to ensure saturation. A build-down moderates that objection both by ensuring a quantitative reduction in the problem and restricting offensive warhead proliferation. The defensive problem is made easier when combined with an offensive build-down. Economically, a build-down would create some marginal reductions in spending on offensive systems—cost savings that could be devoted to the defenses. Those reductions clearly would not compensate entirely, given SDI costs, but the symbolism of the effort and its results in terms of reducing the "balance of terror" could make the effort politically attractive.

The combination could be broadly appealing. Emphasizing defense adds fuel to the SDI, and those who favor arms reductions can hardly oppose DPB. The arms control community could find solace and purpose in an approach that promises to reinvigorate a moribund process.

Any restructuring of the nuclear balance is a two-actor exercise that must include the Soviet Union. There are at least three reasons to question whether, at least in the short run, the Soviets can embrace such a proposal.

The first problem is the political strength of the new Soviet leadership. The process begun by Brezhnev's death will not end until the Brezhnev-Andropov-Chernenko-Gromyko gen-

eration passes on and Gorbachev and his followers firmly establish control. Until that transition process is complete, it is unlikely that any leadership will be secure enough to negotiate any change in the balance as radical as a DPB proposes.

The second problem is the Soviets' well advertised opposition to the SDI. As argued earlier, a movement toward defenses is most stabilizing if both sides can do so simultaneously (preferably under some kind of arms control regime). Strident Soviet objections to SDI makes one wonder whether the Soviets simply do not think that they can compete in a concerted BMD competition in space.

Third, the Soviets have made a serious commitment to offensive force expansion over the past fifteen to twenty years. An offensive build-down would necessitate more sacrifice for them than for the United States.

Has the defense arrived, or is it still "ahead of its time"? Thus far, the missile age has witnessed the apparently immutable advantage of the offense over the defense, but the history of weaponry suggests that the relationship between offense and defense fluctuates. As Payne and Gray observe, "for the strategic defense to achieve a very marked superiority over the offense over the next several decades would be an extraordinary trend in light of the last 30 years, but not of the last hundred or thousand years."[36] Supporters of programs such as the SDI may simply be marching slightly in front of an idea whose time is coming but has not quite arrived.

University of Alabama, Tuscaloosa

Notes

1. The full text is reproduced in the *New York Times*, 7 February 1985, p. 13.

2. Harold Brown, "Remarks Prepared for Delivery at the Convocation Ceremonies for the 97th Naval War College Class," (Washington: Office of the Assistant Secretary of Defense, Public Affairs, 1980).

3. Ronald Reagan, "Remarks on Strategic Defense," 23 March 1983, reprinted in Daniel O. Graham and Gregory A. Fossedal, *A*

Defense that Defends: Blocking Nuclear Attack (Old Greenwich, Connecticut: Devin-Adair Publishers, 1983), pp. 143-45.

4. This problem is discussed extensively in Donald M. Snow, *The Nuclear Future: Toward a Strategy of Uncertainty* (University, Alabama: University of Alabama Press, 1983), chapter 3.

5. Michael Mandelbaum, "The Future of Nuclear Weapons," *Naval War College Review*, Sepember October 1982, p. 66.

6. Harold Brown, *Department of Defense Annual Report, Fiscal Year 1982* (Washington: Government Printing Office, 19 January

981), p. 116.

7. Snow, pp. 101-07.

8. Reagan, p. 145.

9. Caspar W. Weinberger, *Annual Report to the Congress, Fiscal Year 1983* (Washington: Government Printing Office, 8 February 1982), p. III-65.

10. Caspar W. Weinberger, *Annual Report to the Congress, Fiscal Year 1984* (Washington: Government Printing Office, 31 January 1983), p. 227.

11. Reagan, p. 144.

12. Keith Payne and Colin S. Gray, "Nuclear Policy and the Defensive Transition," *Foreign Affairs*, Spring 1984, p. 821.

13. Caspar W. Weinberger, *Annual Report to the Congress, Fiscal Year 1985* (Washington: Government Printing Office, 1 February 1984), p. 58.

14. Ibid., p. 193.

15. Graham and Fossedal, p. 44.

16. For details on this approach, see Snow, chapter 3.

17. This point is made strongly by the late Herman Kahn in his posthumously released sequel, *Thinking about the Unthinkable in the 1980s* (New York: Simon and Schuster, 1984), p. 37.

18. Payne and Gray, p. 824.

19. Graham and Fossedal, p. 45.

20. Weinberger, *Annual Report to the Congress, Fiscal Year 1985*, p. 58.

21. Graham and Fossedal, p. 113.

22. Payne and Gray, p. 820.

23. Barry J. Smernoff, "The Strategic Value of Space-Based Laser Weapons," *Air University Review*, March-April 1982, p. 14.

24. Carl Sagan, "Nuclear War and the Climatic Catastrophe," *Foreign Affairs*, Winter 1983-1984, pp. 257-92.

25. Payne and Gray, p. 840.

26. The "hostage effect" was coined by Thomas C. Schelling in *The Strategy of Conflict* (Cambridge, Massachusetts: Harvard University Press, 1960).

27. This issue is discussed in Donald M. Snow, "Ballistic Missile Defense and the Strategic Future," *Parameters*, June 1983, pp. 11-22. Colin S. Gray has also pointed out the problem in a number of his works.

28. Graham and Fossedal, p. 120.

29. Ibid., p. 49.

30. Ibid., p. 55.

31. Steven E. Cady, "Beam Weapons in Space: A Reality We Must Confront," *Air University Review*, May-June 1982, p. 37.

32. William E. Burrows, "Ballistic Missile Defense: The Illusion of Security," *Foreign Affairs*, Spring 1984, p. 843.

33. Alvin M. Weinberg and Kack N. Barkenbus, "Stabilizing Star Wars," *Foreign Policy*, Spring 1984, p. 164.

34. Alton Frye, "Strategic Build-Down: A Context for Restraint," *Foreign Affairs*, Winter 1983-1984, p. 300.

35. Weinberg and Barkenbus, p. 168.

36. Payne and Gray, p. 826.
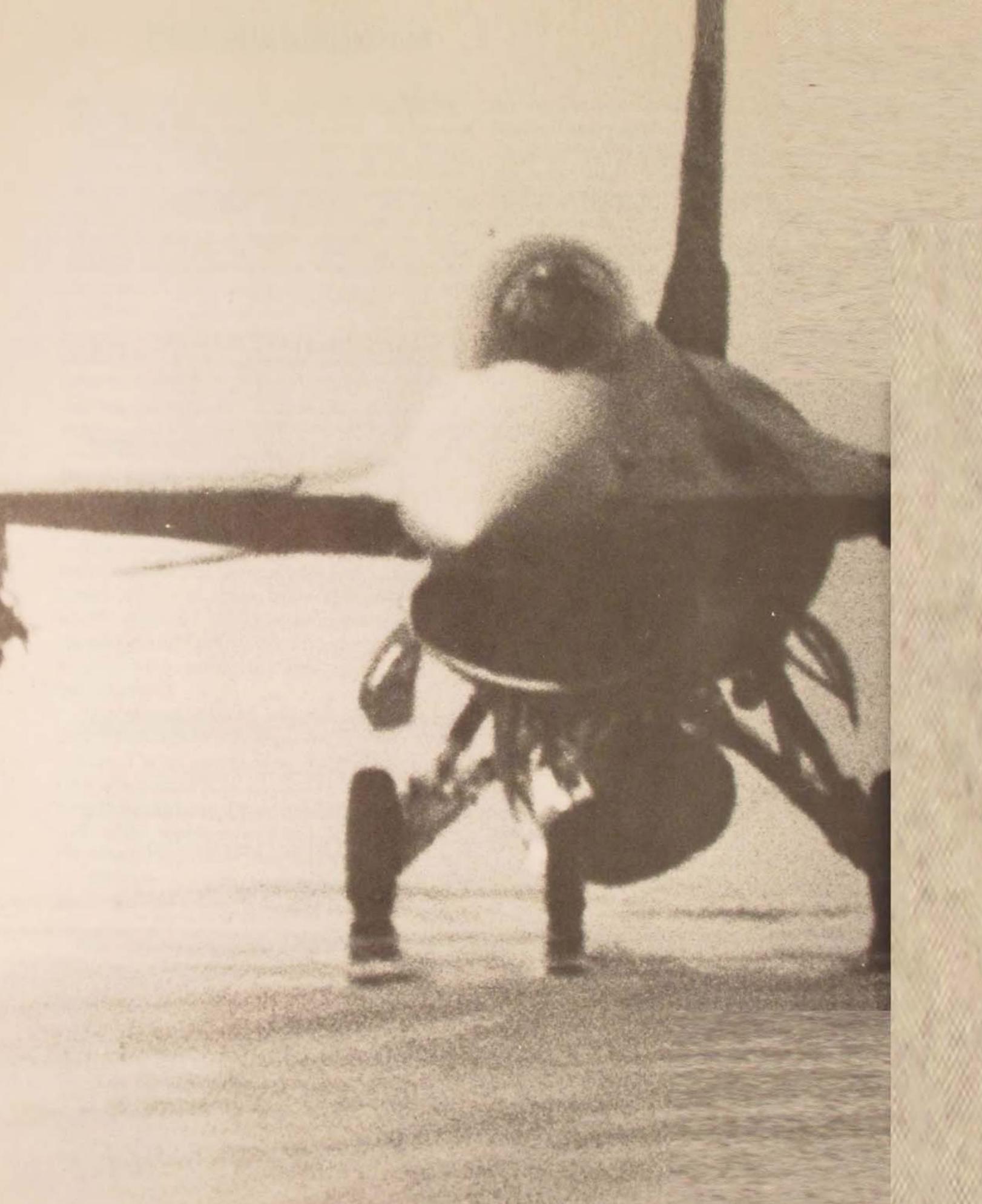
"Killer flight, wind 360 at 5, cleared for takeoff. Contact departure control on channel 4."
"Roger. Killer cleared for takeoff. Killer flight, let's go button 4."
"2, . . . 3, . . . 4."

A PHILOSOPHICAL CONFLICT: A FIGHTER PILOT'S VIEWS ON THE ETHICS OF WARFARE

MAJOR SCOTT B. SONNENBERG

AS I took one last look at the final approach course to ensure that it was really clear for me to lead my flight onto the runway and then added power to start the procession, I could not help wondering whether there was any job in the world better than being an American fighter pilot flying the F-16 Fighting Falcon, or Viper as it was called

Reconnaissance was, in terms of overall impact, the most important mission to emerge from the First World War. Deadly aerial engagements became commonplace as pursuit planes fought to secure the skies for reconnaissance aircraft. Captain Eddie Rickenbacker (above) and Major Raoul Lufbery (facing page), flying planes like the Nieuport (shown to the right), brought an air of romance to their deadly work.

by the men who flew it. My gut answer was the same one I had heard in officer clubs, squadron buildings, and bars from Madrid to Bangkok. To a man, fighter pilots think they have the best job in the world. There is little doubt that the job is physically and mentally demanding, dangerous, and, to many, glamorous. The pay isn't much, but, except for a few specialties that are historically undermanned, it's the tops in the military. The camaraderie is very special, and feedback is quick. The profession has a starry past, and such names as Baron von Richthofen, Eddie Rickenbacker, and Chuck Yeager have helped to make it a prestigious career field. There is never a lack of people trying to become pilots, nor is there a lack of pilots trying to become fighter pilots.

However, as I taxied my multimillion-dollar fighter into takeoff position on the runway, I knew that I had changed dramatically since that day almost fifteen years ago when I first flew in a fighter—an F-4E Phantom II. And as I

now looked out at the rest of my flight joining me on the runway, I wondered what was going on in the minds of the pilots in Number 2 and Number 4—both lieutenants on their first fighter assignments—and what their motivations were.

Over my fifteen years as an American fighter pilot, my thoughts and conclusions on the ethics of warfare have evolved gradually. It is my sincere hope that those within and without my profession will reflect on these ideas and at least agree with me that flying fighters is more than just performing the mechanics of airmanship.

WHEN asked what I do for a living, I find myself in a bit of a quandary. If I wish to be perfectly honest, I should probably say that I'm a hired killer, but there's more to it than that. My usual response is to say that I'm a fighter pilot, but I don't think that makes the point either. Perhaps the best answer is that I'm a highly trained, intelligent, sophisticated killer with a conscience. Would I drop bombs on or strafe innocent women and children intentionally, as many people accused us of doing in Southeast Asia? No. First, I'm not trained to do

that. Second, such callous actions are militarily counterproductive (ask Hitler about bombing London). Finally, I'm not an animal or a robot who either instinctively or on command reacts without fully thinking about what he's doing. I'm a sensitive person who believes in God, participates in community activities, and is repulsed by the thought of hunting, fishing, and any other activity that involves killing one of God's creatures. How then, you ask, could I have participated in 177 combat missions in Southeast Asia and be willing to fight and kill again?

"Next question," I might respond. After all, the explanation you are looking for is not an easy one. Perhaps the most coherent answer I can give is that I have made a conscious decision that life without freedom is not life at all. I believe that God intended for people to be able to live their lives the way they wish, to worship in their own way, to work in the profession of their choice, to marry whomever they wish, to organize themselves for the betterment of mankind and to elect their own leaders, and to speak their opinions freely without fear of reprisal. Apparently there are a lot of other people who share these ideas since this credo, albeit imperfectly practiced at present, has been adopted by most Western countries. Unfortunately, there are some people who are not satisfied with these simple ideas and who must, by whatever means are available, subjugate other people to fulfill their own needs for power. One need only examine most of the recorded human history before the establishment of the United States to see this repetitious phenomenon.

The majority of human beings throughout history have not been able to exercise the simple freedoms I mentioned earlier because of the overwhelming power of other human beings. On those occasions when the oppressed people acquired the power to overthrow their oppressors, they always used it. And on those occasions when it became apparent that they did not have the power to achieve or maintain their freedoms, many chose death (witness the mass

suicide by the Jewish zealots at Masada). I share the same feelings as these people, but I, as a member of the Armed Forces of the United States, possess considerable power to protect my freedoms and the freedoms of others. I have used that power and will use it again, if necessary, to protect these freedoms. The phrase "better red than dead" has been used time and again this century, and I neither agree nor disagree with it. If the majority of the people of the United States choose to live under a Communist system of government, I will be very discouraged, but I will not try to reverse the will of the majority through physical force. If, however, a Communist society is forced upon us against the will of the majority, then I'll be fighting to the bitter end.

Essentially, it is a threat to basic human freedoms that stirs this otherwise mild-mannered individual to the use of maximum force. For those who feel that the United States should not have fought in Southeast Asia, I offer as justification the state of freedom in Vietnam, Laos, and Cambodia today. By not continuing to assist these countries with all of our strength when they needed our help, we, as a country, acted just like the bystanders who watch the brutal rape of a young girl and do nothing to help. I believe my analogy fully conveys the feelings of a man who thinks that one of the greatest crimes against God and humanity is to have the power to stop injustice and to choose not to use it.

The problem within my profession today—and it's one that's been with us for a long time—is that many fighter pilots I run into are solely interested in the trappings of the job and not the actual job itself. They love going fast, impressing girls and nonfighter pilots at the bar, wearing patches, and doing all of the things that fighter pilots are "supposed" to do (get drunk and obnoxious, etc.). I don't think very many of them have sat down and really thought through what is expected of them if they're ever called on to use the skills they've been taught. I'm convinced that most of them

would not change a thing that they're doing, but it bothers me that there is so little interest in talking about the moral and ethical issues of killing someone else. That's why I start off every flight briefing by reminding the flight members that the primary objective of a flight of fighters is to kill someone or destroy something. We can't refuel other aircraft, we can't rescue people, and we can't deliver supplies. Other aircraft and pilots are tasked with those critical roles. Our job is one of destruction.

I'll never forget one of my first missions in Southeast Asia. My flight lead had dropped his bombs in a wooded area next to a clearing, and the forward air controller (FAC) was pleased with the drop. "OK, #2. Your leader's got the whole unit on the run, and they're trying to make it across the clearing. You're cleared in."

I didn't have bombs, I was carrying cluster bomb units (CBUs)—specifically designed to kill people, not destroy equipment. As I rolled in, I realized that a couple of hundred human beings were less than a minute away from dying—and I was their executioner. A minute later it was all over. "Nice drop, #2. There's not a soul moving. It is going to take quite a while

During World War II, great fighter pilots emerged in all the major belligerent countries. Dick Bong (facing page) looks over his P-38. . . . The smile on the P-40 pilot (above) leaves little doubt that he knows that "killing people and breaking things" is what it's all about. . . . Below, Colonel Leon Gray might be thinking that he should have "checked six."

to count the bodies. I'll call the count back to you after I land. Thanks again!"

It was over. Hundreds of human beings who had started the day off alive were now dead, thanks to me. Did I lose any sleep that night? No, but only because I had thought about the moral issues involved long before the incident and had settled them in my mind.

There's no war today, and there hasn't been one for the Air Force fighter force for over a decade. When I entered the service, I knew that I was going to war, and I was prepared for it. But as I look at the lieutenants and captains flying with me today, I know that they entered the service during a time of peace and with little or no prospect of war in the near future. Have they thought through the full ramifica-

New war, same breed. Major Bernie Fisher won the Congressional Medal of Honor in Vietnam. "Going downtown" meant heading for targets around Hanoi and Haiphong—missions often fragged to F-4 and F-105 crews. During Rolling Thunder, about half the crews that went "downtown" came through unscathed.

tions of the successful employment of their training, should deterrence fail?

ANOTHER subject receiving a tremendous amount of attention today is nuclear warfare. Many of today's commentators, Lewis Thomas for one, decry the insanity of some members of the human race in getting us into the balance of terror that exists today. I must admit that I'm not overly excited by the prospect of an all-out nuclear exchange, but I also know that while I can learn from the past, I can't change it. None of the nuclear commentators whose articles I have read have offered any realistic, attainable solutions to the situation. I can sum up my feelings and those of many in my profession with the following statements.

• I completely agree that today's balance of terror is a sorry commentary on the human race and its "progress."

• I can't find one place in history where a certain act or decision would have made any difference. I think that we would have arrived in this situation sooner or later.

• I don't have a solution to the problem beyond maintaining the arms reduction talks.

• I do *not* believe that nuclear war is inevitable.

I've had the unique opportunity to be one of those individuals who has sat alert on a primary nuclear strike line. I often wondered what image the general public has of the pilots, both from SAC and the TAF, and the other members of the armed forces who wait patiently minute-

by-minute for the word to launch their destructive charges. What kind of person would do a job like that? The answer is easier than one would expect because that person is a lot like any of the other people you meet during the day—the grocer, the ad executive, the athlete, etc. He or she has simply chosen another profession. The safeguards against accidental or even unauthorized intentional launches must be seen to be believed. Are they perfect? Well, probably not, but they're good enough to allow me to go through a day without worrying about an unintentional nuclear war.

We were exercised frequently during my years of sitting alert, and there's just no way to describe the thoughts that go through one's mind when the horn goes off and you start sprinting for your aircraft. Things happen so fast that any attempt at a logical determination of the ethical and moral consequences of what might be occurring is just not possible. However, once you were in the aircraft waiting for the rest of the message, there were usually a few seconds to collect your thoughts, and that's usually when I began praying. In our hearts we always believed that every horn was an exercise horn, but we all knew that there was always a possibility that this time it could be for real. Obviously, I never got to experience the thoughts that go through a person's mind when the message is a real one and the gates open up and you suddenly realize that you're really going to launch. That's one of the many things I've wondered about but don't ever care to experience.

Would I have launched? Would I have done my best to get to the target and drop my bomb? Yes, I would have and still would. Don't I realize the consequences, you ask? As a matter of fact, I think I do, and as I indicated before, I have personally chosen death over slavery. It is also important to remember that the decisions to build and deploy nuclear weapons were made by officials elected by the majority who voted in our country, and a majority of the voters have also freely elected the individual to initiate that exchange. As an active member of society, I support those decisions and will do my best to see that they are carried out. The moral debate in our country has been ongoing for decades, and the majority still believe that nuclear weapons are a necessary part of our arsenal. If I did not agree with the majority on this issue, I would be doing precisely what the antinuclear minority in our country is doing. I sympathize with them, and I wish that the world could be as they want it to be, but I don't believe that it ever will be, using their methods. One need only study history to see the inevitable results of unilateralism.

So am I a warmonger? No, I hate war more than most because I've been there and I've seen the devastation and misery it can cause. I've lost several close friends and seen my comrades in arms killed before my very eyes. It's a terrible feeling, and I pray that I never feel it again. But as we get farther and farther away from Southeast Asia, the percentage of those military men who have experienced war gets smaller and smaller, and the passions of the time become obscured and begin to fade away.

There are many lessons that come out of each conflict and, from a technical standpoint, I think that we have made tremendous progress in applying the lessons of our last war to our present force structure. But have we in the military addressed the deeper issues? At the senior level of command, I would answer yes. From all that I see and hear coming out of Washington, our military leaders are the most hesitant to use military force to solve a problem, whereas their civilian counterparts appear to be rather quick on the draw. However, when given a mission, as in Grenada, the military leadership has opted for the use of overwhelming force, which, history tells us, is the surest way to minimize casualties on both sides. My concern is with our younger officers. Youth always has a tendency to react more on gut feel and enthusiasm than on carefully thought-out options.

Have those of us who have mellowed a little and then sat back and pondered the ethical and moral issues of our profession successfully passed on the importance of doing just that to our junior comrades in arms? I don't think that we have, and I wonder just how my lieutenant wingmen would respond to the questions I've asked.

To make the American military a more credible and effective instrument of American will, it is important that each member of our profession take the time to consider logically the arguments being put forth throughout our society and to decide for themselves where they stand. We cannot be mindless bystanders to these discussions. We are also citizens, and we must participate, if only to reassure those who rely on us that we have thought the issues through and have decided on our course of action—a course of action in accord with the will of the country.

Misawa AB, Japan

In Germany during the days of the General Staff, sons of the educated middle class and intelligentsia considered officering as a challenging and respectable profession. With the possible exception of service families, such is not the view in this country today. The perception among the educated middle class is that officering is not a suitable lifework for the brilliant, the broadly talented, or the truly ambitious. Unfortunately, there are grounds for this perception. The young man of broad talents can progress more rapidly, gaining more respect and financial remuneration in business, law, or politics than in the service. Officering has never been a lucrative profession, but respect, power, and great responsibility have always been attractions for the talented and ambitious. The seemingly haphazard manner in which the service bestows these attractions and the equally plodding and insensitive manner in which both the average and outstanding officers are advanced and assigned do much to drive the exceptionally ambitious and talented from its ranks.

Charles A. Leader III
U.S. Naval Institute *Proceedings*, November 1984
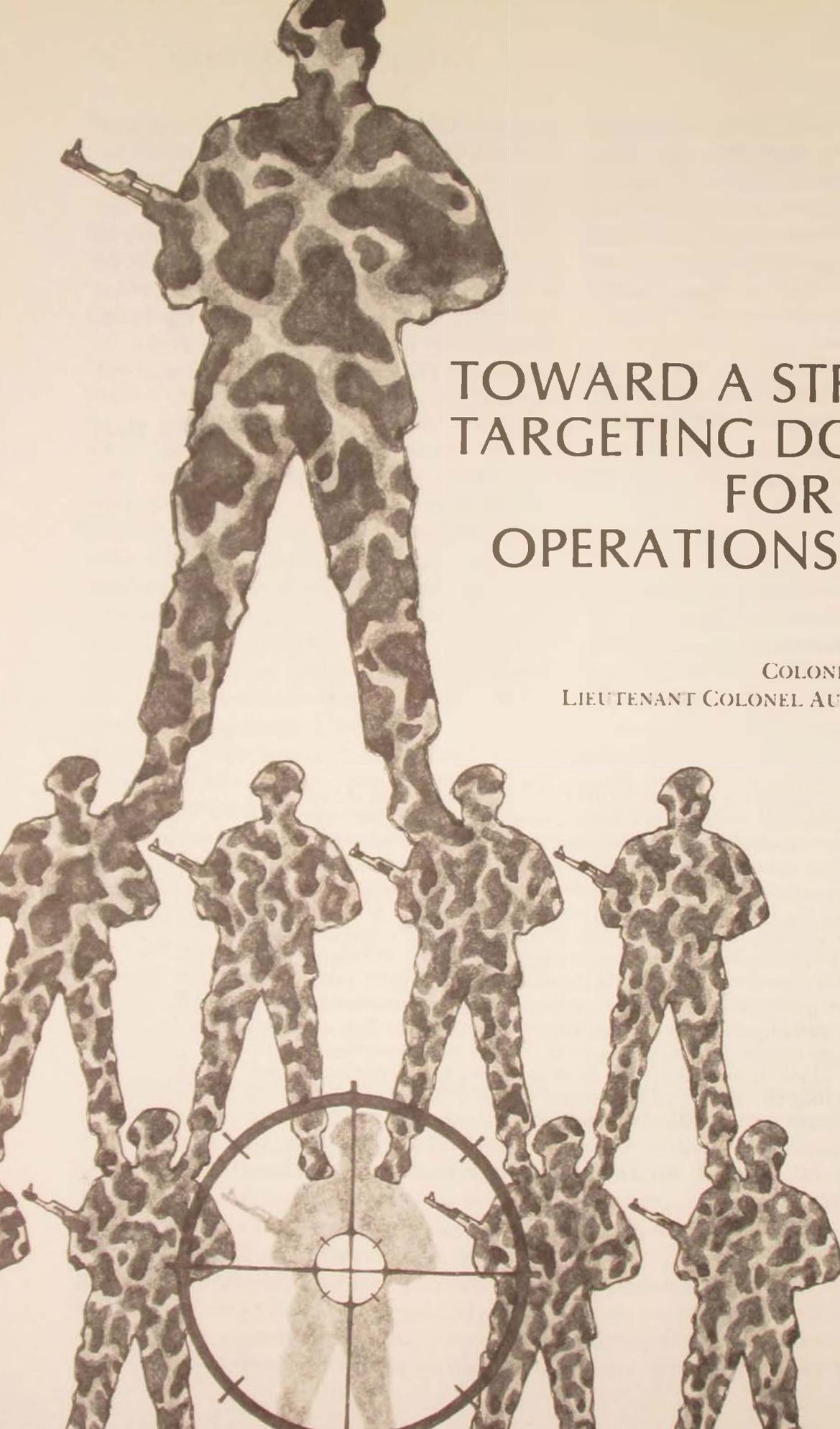
TOWARD A STRATEGIC TARGETING DOCTRINE FOR SPECIAL OPERATIONS FORCES

COLONEL RAY E. STRATTON
LIEUTENANT COLONEL AUGUST G. JANNARONE

THE objective of strategic targeting is to make the enemy feel at risk in his home territory so that his national behavior will be modified or his hostile intentions deterred. For more than twenty years, the United States has successfully avoided nuclear war through deterrence that is based on the ability to inflict unacceptable damage on any adversary who attacks this country or its allies with nuclear weapons. The policy of nuclear deterrence has not deterred conflict at the lower end of the warfare spectrum, however, as the Korean and Vietnam wars clearly illustrate. Additionally, growing Soviet capabilities to project military power outside their borders require increased U.S. capabilities to defuse crises and deter or contain brush-fire wars in areas of the world critical to our national interests. While additional investment in rapidly deployable conventional forces is certainly called for, it is not feasible from a resource standpoint to respond militarily to every problem in a Third World marked by growing unrest.

Because virtually any low-intensity conflict could escalate into a major power confrontation, there is a real need to develop and employ a force that can deter brush-fire wars or, if deterrence fails, end such wars quickly with the lowest possible level of violence. Speed of reaction, flexibility, and an exceptional degree of mobility make the special operations forces (SOF) of the Army, Navy, and Air Force ideally suited to perform this deterrence/containment mission. Although SOF are organized, trained, and equipped to conduct a wide range of missions in nearly all types of conflict, the capability of these units to conduct covert or clandestine missions makes them exceptionally effective in low-intensity operations beyond the purview of conventional military units. These operations, designed specifically to deter or contain conflict, may be conducted even before open hostilities break out. Since SOF assets are limited, the careful selection of targets for SOF units is a central consideration if we are to ensure their effectiveness.

Targeting for Deterrence in Low-Intensity Conflicts

In seeking to deter an enemy, a major goal is to affect him psychologically—that is, to affect what he thinks about his potential for success in a given situation. The capability to strike surgically is an important advantage that special operations forces offer in psychological warfare. Such forces can be used with little collateral damage, thereby avoiding the negative effects associated with killing innocent civilians and destroying nonmilitary facilities.

The effective use of SOF in a deterrent mode requires the selection of targets that will have the desired effects on the enemy's mind. This targeting process must involve detailed intelligence data and a holistic approach to target analysis.

Holistic targeting takes into account all elements of an enemy's power structure and force vulnerabilities. In this targeting approach, targets are selected to influence the enemy's perceptions more than his order of battle and may focus on any element of the enemy's power structure to affect his sense of behind-the-lines security, his mobilization and deployment decisions, and even the manner in which he plans and conducts his operations. Targeteers must be sophisticated enough to take into account political, economic, and cultural factors in addition to the traditional military factors used in target selection.

In the past, the failure to take a holistic approach to targeting in low- to mid-intensity conflict has led to difficulties. For example, the near total destruction of North Vietnam's electric power generation and distribution systems had only a limited effect on the ability of the North Vietnamese to conduct the war in South Vietnam. Since the Vietnamese economy was basically agricultural and the climate mild, the morale of the people was not greatly affected by the interruption or cessation of electric power. Conversely, destruction of similar target arrays in industrial cities in cold climates during the
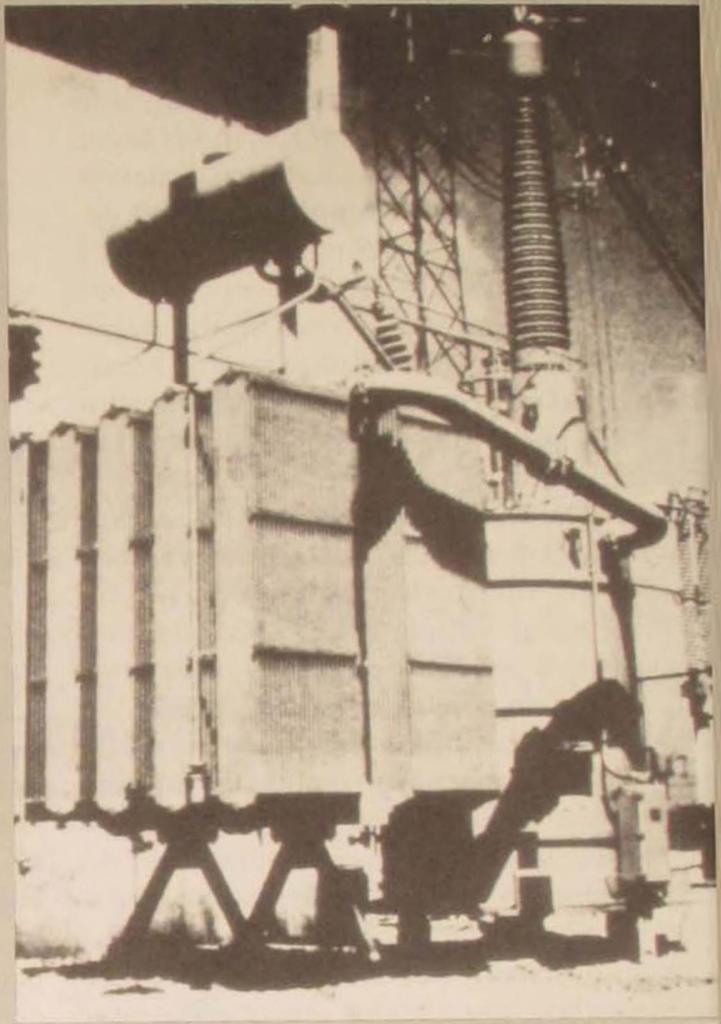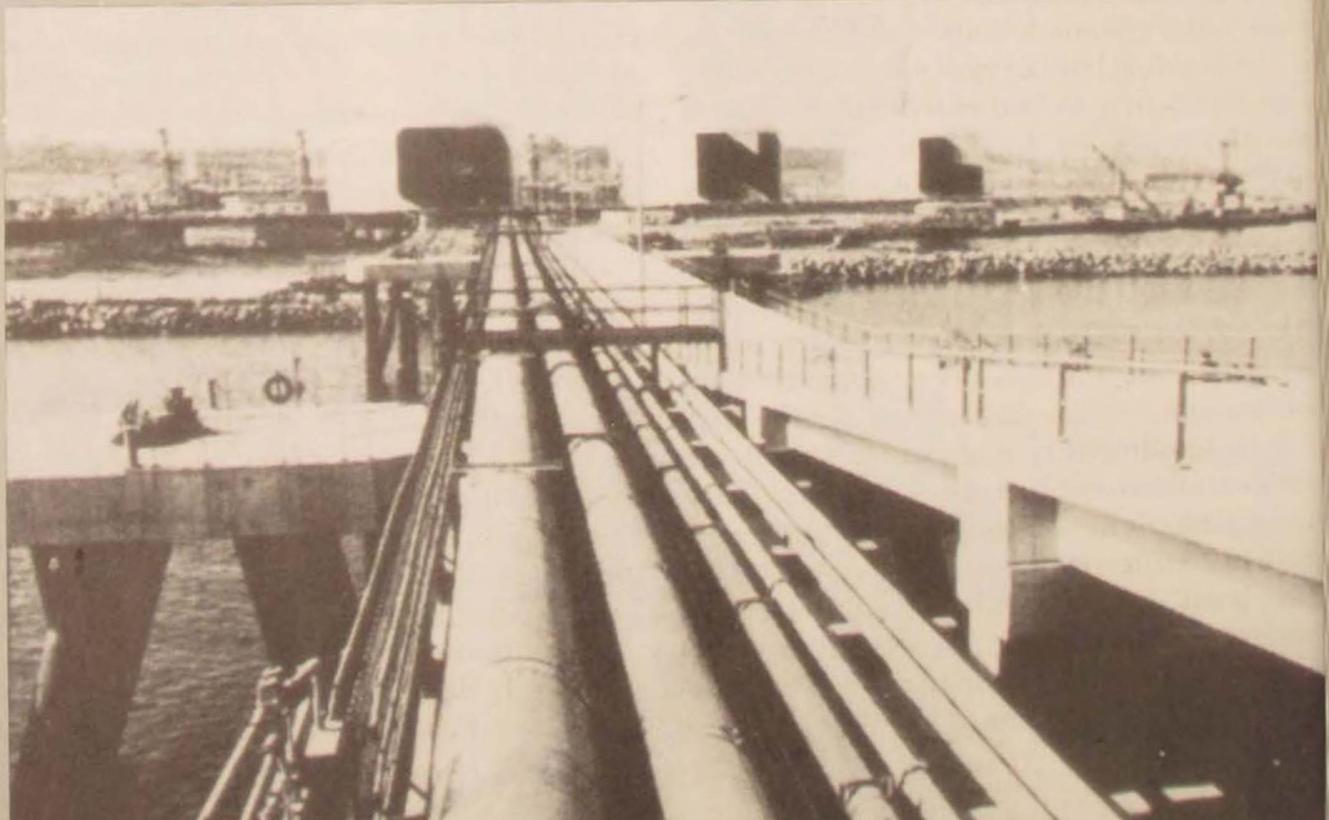
dead of winter might have a much more dramatic impact.

Once selected, psychological targets may be attacked in a number of ways and for a variety of purposes. For example, the war effort of a country that includes a number of restless minorities could be undermined by propaganda and psychological operations. Unrest in rear areas would doubtlessly cause the enemy to divert significant forces to his rear areas to restore order and protect valuable assets. The major requirements for developing such targets, however, hinge on detailed human intelligence (HUMINT) and culturally sensitive analysts—two areas that currently require considerable upgrading in the U.S. intelligence community.

There are several other ways in which SOF operations might be used for deterrence purposes. SOF might be used to eliminate a terrorist headquarters. Swift, surgical destruction of a terrorist center would undermine terrorist morale and serve as a warning deterrent to other would-be terrorists. On other occasions, targets might be attacked to provide a supporting psychological backdrop for a deception operation aimed at the enemy leadership. Even the threat of destruction of a key industrial facility or important agricultural resources on which a nation heavily depends can be a strong psychological deterrent to an undesirable action by an adversary.

Targeting for Containment in Low-Intensity Conflict

Should it appear that deterrence has failed and hostilities are imminent, targeting for SOF expands to include targets that will disrupt, delay, or even stop enemy activities, particularly those affecting the massing, timing, and communicating with his combat units.

British military strategist B. H. Liddell Hart held that the objective of battlefield operations should be to paralyze the enemy's forces by striking at the enemy's command structure or its "head." This approach should be followed

in SOF targeting: operations should aim at targets that will disrupt enemy operations. Targeteers should select C^3 targets as high in the enemy's chain of command as possible to maximize the confusion and delay created by destruction of the targets. Through careful selection, the destruction of a relatively few key targets with the expenditure of limited amounts of force can have far-reaching impact on an enemy's ability to employ his forces.

"Noncontact interdiction," where the attacking special operations forces do not come in direct contact with enemy forces, is another highly effective tool in the hands of an astute targeteer. Destruction of a key tunnel or bridge at an impassable chokepoint can have prolonged and significant impact on the movement of enemy forces. A prehostility, covert attack on such a target can also have a deterrent impact on the enemy leadership (although such an act could be a cause of war if the source of the attack were discovered).

Facing the Challenge

The next twenty years will almost certainly see an increasing number of crises requiring a U.S. response short of full mobilization. The potential for employment of special operations forces will rise proportionately. The effective use of these forces in various types of conflict hinges on three factors: development of a coherent targeting doctrine for special operations forces, enhancement of our intelligence capability in the HUMINT area, and training targeteers who are capable of assessing potential targets within a holistic framework.

At present, targeting doctrine focuses primarily on major conventional hostilities and neglects the potential for deterring lower-level conflicts and containing such conflicts when deterrence fails. Perhaps the newly formed Joint Special Operations Agency within the Joint Chiefs of Staff structure can take the lead in developing a doctrine to guide the unified command targeteers in their efforts to target

special operations forces in the various theaters.

Efforts to improve the collection of human intelligence are under way, but it will be several years before they come to full fruition. In the interim, military intelligence sources should continue the vigorous collection of intermediate-level information not dependent on deep-plant agents. This information can be of considerable value to special operations targeteers and mission planners. Such detailed, technical information as the sound propagation characteristics in a particular valley under certain meteorological conditions, the time that the street lights go on and off in a particular town, and the load-bearing ratio of the soil in a particular meadow can be critical to both wise target selection and effective mission planning.

The Norsk hydro plant, in Nazi-occupied Norway, produced deuterium (heavy water), an essential for atomic bomb development. Because of its proximity to a village, the Royal Air Force opted not to bomb it. A small team of British commandos, parachuted into the region, made their way to the plant and blew up vital components with hand-carried charges, effectively removing the Germans from the race to develop an atomic bomb.
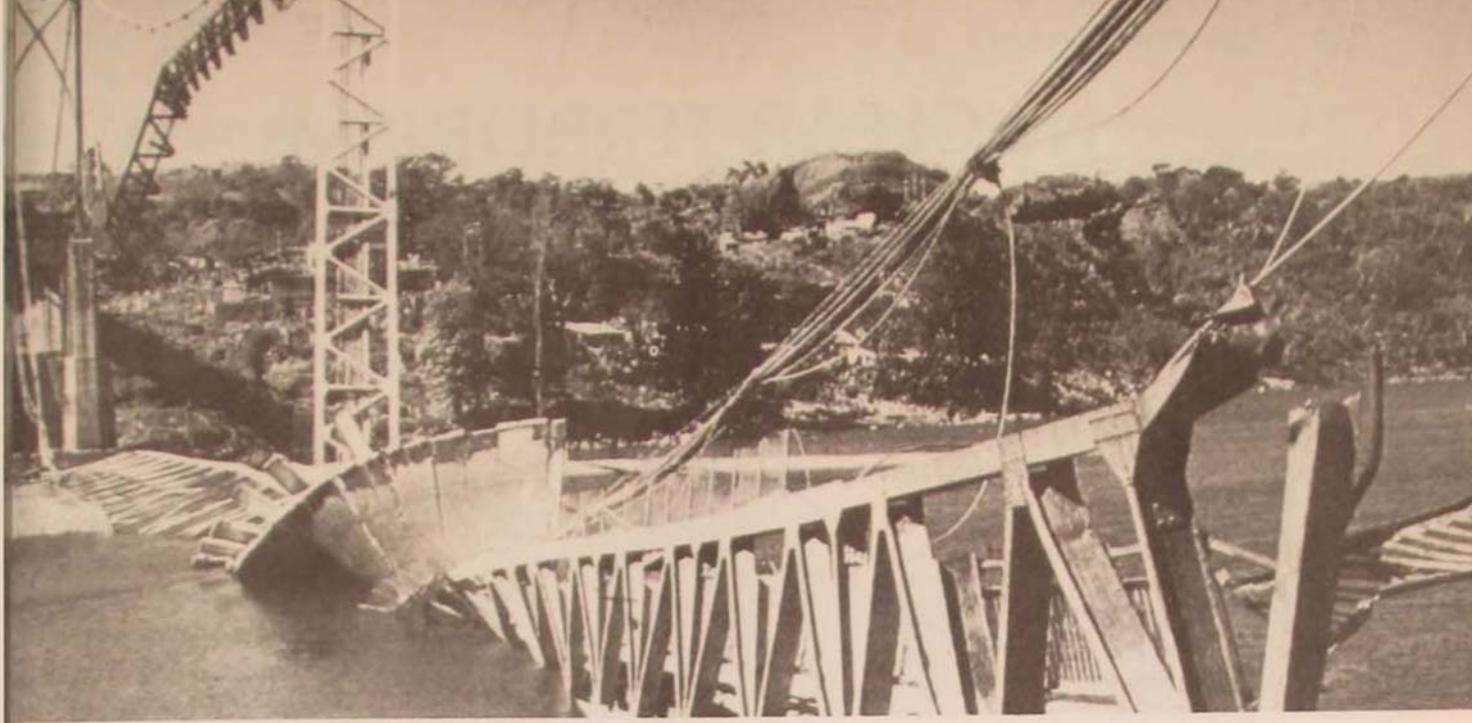
By destroying the Cuscatlán Bridge (above) in the early 1980s, Salvadoran guerrillas not only crippled the local economy but also struck a blow at government credibility by a tangible demonstration of their power. . . . In today's world, the destruction of refineries, depending on the status of petroleum and gas reserves and consumption rates, may have a dramatic impact on a nation's warmaking potential.

for special operations. When specific efforts are directed toward acquiring it, this type of operational data is not overly difficult to obtain.

Correspondingly, we must work at developing intelligence analysts and targeteers who understand the role of political, psychological, and economic elements in modern, low-intensity conflicts. Such analysts and targeteers must have a knowledge of cultures and languages that goes far beyond that provided by our present training programs. Furthermore, well-prepared area specialists must be given longer tours in relevant assignments.

THE development of a coherent targeting doctrine for special forces that takes into account their unique mission and capabilities is long overdue. Without enhancements, we shall continue to view potential adversaries through the limited perspective of overhead technical systems and analyze intelligence data through the biased filter of American values and priorities. The cost of continuing business as usual will be ineffectiveness in dealing with low-intensity conflict in the Third World, which is the type of conflict the United States will most likely face in the foreseeable future.

Hurlburt Field, Florida
and
Santa Monica, California

29

NUCLEAR TERRORISM: MORE MYTH THAN REALITY

STANLEY P. BERARD
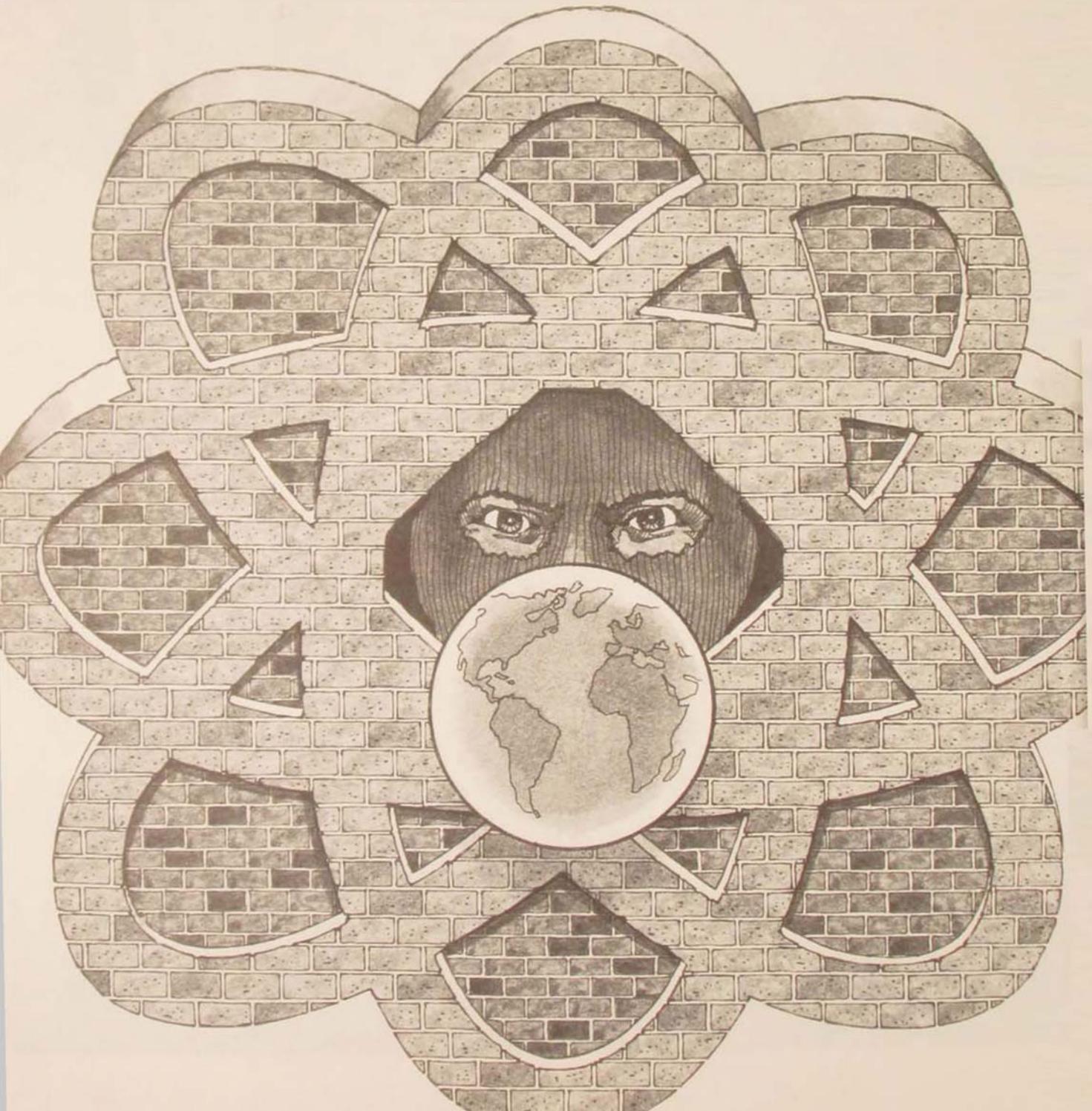
MEMBERS of a political extremist group have overpowered the security guards of a nuclear power plant and have taken control of the facility. In the few hours they have been inside, the terrorists have built an atomic bomb using nuclear material from the reactor. They now threaten to detonate their weapon unless their demands are met. Detonation of their weapon would cause extensive damage to the reactor and would spread deadly radioactive particles over a wide area.

A terrorist group has planted a nuclear bomb in a Manhattan building and is demanding that a Latin American government release five political prisoners. If the prisoners are not released in twenty-four hours, the bomb will explode.

These are among the types of scenarios that have been suggested as possible by some writers on nuclear terror. All of the scenes put forward by these writers are frightening; many are implausible. To ascertain whether nuclear terror is a likely danger facing the world, a detached and unemotional examination of potential nuclear terorrism must be made. Three questions must be considered in this examination: Could terrorists acquire and operate nuclear weapons? Of what use would a nuclear weapon be to terrorists? And will terrorists want to use nuclear weapons? The special case of very small extremist groups and of the pathologically motivated can be considered separately from other terrorists in answer to the third question.

Could Terrorists Acquire and Operate Nuclear Weapons?

A terrorist group could consider two ways of getting nuclear weapons: steal them or fabricate them. It would be difficult, however, to gain workable nuclear weapons by either of these means.

Assuming a terrorist group could steal a weapon from a nuclear weapons site (an un-likely event, considering the security at these sites), the group would have great difficulty making it work. A coded sequence of events must be followed to arm the weapon, and the weapon may require separate firing equipment. Some weapons (those that fly to targets) will not fire except at a certain velocity, barometric pressure, and the like.

Atomic demolition munitions (ADM) do not have this second set of detonation requirements, since they are not used in bombs or missiles; however, a coded signal is needed to detonate the ADM. If the terrorists were to attempt to remove the core of the ADM or any stolen weapon, it would very likely fail to produce a nuclear explosion, since these weapons depend heavily on the particular spatial relationships between the nuclear core and the outer explosive.

If terrorists are very unlikely to be successful in stealing an intact weapon or in exploding one if they acquired it, perhaps there are terrorist groups that could build their own nuclear devices. It is widely recognized that a great amount of unclassified literature is available that would be of much help to a group seeking to build a nuclear weapon. The U.S. Atomic Energy Commission and its successor, the Nuclear Regulatory Commission, have made much previously classified material available since the 1960s, and there is a large nuclear-skilled labor force from which to draw people to produce a bomb.

The ease with which material from a commercial reactor could be used to produce a nuclear explosion is questionable. Spent fuel from uranium reactors would not produce explosions above the force of a kiloton of TNT; how much less force the explosion might yield is unpredictable. The spent fuel from thorium reactors is highly radioactive; terrorists might not want to risk their lives working with it. A possibility does exist, however, of terrorists using reactor-grade enriched uranium successfully in a nuclear weapon, although not just anyone could convert it to usable form.

If a terrorist group actually did have weapons-usable material, could the group build a nuclear weapon? Physicist Theodore Taylor and nuclear policy expert Mason Willrich describe a bomb-building scenario in which perhaps one person could develop a nuclear weapon within a few weeks. They state that "the key persons or person would have to be reasonably inventive and adept at using laboratory equipment and tools . . . used by students in chemistry and physics laboratories and machine shops" and would have to have an understanding of "nuclear explosives, nuclear reactor technology, and chemical explosives."[1]

Inventiveness in using laboratory equipment and tools and understanding of essential nuclear and chemical concepts come generally from significant training in the sciences, as does the ability to understand technical publications on the subject. The field from which people who are capable of directing the production of a nuclear weapon can be recruited is thus significantly reduced. Terrorists themselves tend to be well educated but in the humanities rather than in the sciences. Because of these considerations, nuclear bomb-building would be a much more extraordinary undertaking than Taylor and Willrich believe.

It could well require ten to twenty persons to construct a usable weapon. Among this group, it would be necessary to have a nuclear physicist, a nuclear engineer, a chemical engineer, a metallurgist, people skilled in nuclear laboratory procedures, and perhaps an assembler who can work with metals. They would be working with equipment costing $50,000 to $100,000.[2]

A less reliable weapon could be produced at a higher safety risk by four to six people—among them, a nuclear engineer, a nuclear physicist, and someone with extensive knowledge of explosives. Lacking safety precautions, the members of this four- to six-man team might be killed by radiation.[3] If this small group were itself the entire terrorist organization, the organization might not survive its effort to build a bomb.

A nuclear bomb, however, is not the only weapon that can be produced with plutonium. The toxicity of certain isotopes of plutonium has caused many to believe that a device that disperses plutonium aerosol would produce casualties in high numbers. The release of finely separated particles of plutonium in the air-conditioning system of a large building is the most common such scenario envisioned.

However, the release of plutonium aerosol into a building's air-conditioning system is not without problems: the large surface areas of the air ducts of large buildings on which many of the particles will "plate out"; humidity that creates a drag on the particles; and the effects of air filters.[4] Other limits to the effectiveness of plutonium dispersal have to do with human physiology. As much as 25 percent of inhaled aerosol particles 0.5 to 7 microns in diameter will lodge in gas exchange sacs deep in the lungs. Specialized cells may remove particles less than 0.5 microns in diameter, or these particles may leave the lungs by slipping between its cells. About 80 percent of all particles less than 7 microns (and an even greater percentage above 7 microns) will be trapped in the nose and in the airway through the trachea. Cilia and mucous will remove the small fraction of particles that deposit in the tracheobronchial zone that leads to the deep lung tissue where gas exchange takes place. Few particles above 7 microns can deposit in the small exchange sacs. However, if enough plutonium were deposited there, it could be fatal.[5]

Plutonium must be inhaled or ingested to be lethal; mere contact with it will not be lethal, unlike chemical and biological substances such as the nerve gas Sarin. At least a milligram of insoluble reactor-grade plutonium must be deposited in the gas exchange sacs of the human lungs to cause rapid death. Factors affecting the distribution of the aerosol, the time it remains effective, and the proportion of inhaled particles that reach the pulmonary region result in a requirement that a million times the lethal amount of material be released

in an uncontrolled environment. That is, it would require a total of only one gram of material to cause 1000 fatalities if those people were forcibly confined to a room and administered breathing devices; but, in an uncontrolled environment, it would require a total of approximately 1000 kilograms to hope to overcome all the factors affecting the dispersal.[6]

Lesser amounts of plutonium would cause a shortening of life for those exposed, but the purpose of terrorism is not served by such long-delayed consequences. If a terrorist wants fatalities, he wants them immediately.

Of What Use Would a Nuclear Weapon Be to a Terrorist?

Although it may not be impossible for committed, technically educated terrorists to acquire nuclear weapons, terrorist groups would presumably examine the situations in which they might use nuclear weapons before making the considerable investment of time and resources required. Great publicity would arise for a group known to possess a nuclear capability, but mere possession may be inadequate in forcing legitimate authorities to comply with demands. Most other groups would have to use their weapons (at least once) in order to gain from possessing them. (For the Palestinians, the mere possession of a weapon might be advantageous, but most terrorists do not hold a role similar to that of the Palestinians in the Middle East.)

A group seeking the removal of a government or the liberation of a territory could possibly use nuclear weapons against a nation's armed forces, economically important structures, or symbolic targets. Because of the international attitude toward nuclear weapons, an explosion would be intimidating and alarming. A government's legitimacy could be eroded. Widespread and lasting world attention would be gained by the group.

On the other hand, the destructive use of nuclear weapons might involve a significant loss of respectability and support for the terrorist group. For this reason, it might be to a group's advantage to use underground, underwater, high-altitude, or remote land detonations of nuclear weapons that would cause little damage while demonstrating a group's nuclear capabilities. However, underground and underwater explosions might escape public notice and might not be revealed by nations with the appropriate detection devices, and detonation over a remote land area might prompt the government with sovereignty over the land area to seek revenge on the terrorists. A high-altitude explosion would be the best demonstration of nuclear capability, since many could see it, there could be little fallout, and there would be no damage other than retinal burns among people who looked directly at the fireball.

Having demonstrated that it possessed atomic weapons, the group would presumably be in a position to demand special treatment. Would possession of nuclear weapons enable a terrorist group to demand greater concessions than terrorists in the past have demanded? To achieve permanent policy changes, the terrorist threat would have to be maintained indefinitely. How long could a terrorist nuclear group expect to maintain a threat before its weapon is captured? Governments would certainly demand in negotiations that the threat be eliminated; they would not wish to give in to demands, knowing that new threats might be forthcoming. Brian Jenkins, an expert on terrorism for the Rand Corporation, points out that, in the case of nationalist groups like the Palestine Liberation Organization (PLO), "they could not create a homeland . . . without offering the victims of the blackmail a future set of hostages to retaliate against."[7] And certainly terrorists could not demand more nuclear weapons and expect their delivery.

Unenforceable demands such as policy changes are thus ruled out. If a terrorist group is to hold a city or government hostage with the threat of nuclear explosion, the demands would

have to involve something that can be complied with in a short time, such as the release of prisoners. However, the release of maybe a dozen prisoners would probably not justify a threat to kill thousands, even to a terrorist. It is difficult to find an enforceable demand that would be worthy of the threat. Also, there are limits to what a government or a people would be willing or able to relinquish. All things considered, terrorists would find little use for a nuclear threat, as opposed to actual use of a weapon.

On the other hand, nuclear terrorists might find some use in a threat to detonate a weapon if and when a government took a particular action—a deterrent threat similar to that practiced by today's nuclear powers. Compliance with a negative threat would involve *not* doing something, which is far easier for governments and other highly visible, structured organizations than conceding to a demand to take some action not previously planned. Such a threat could take the appearance of diplomacy, with the victim saving face while the terrorists preserved respectability among their "constituents" as a responsible group.

Will Terrorists Use Nuclear Weapons?

Certainly it is technically possible for terrorists to acquire nuclear weapons; and the weapons *could* be used to pursue terrorists' goals through a deterrence strategy. However, it does not directly follow that terrorists *will* acquire and use nuclear weapons. Why, one might ask, have terrorists generally limited themselves to such weapons as submachine guns and dynamite? Biological weapons have been viable threats for terrorist use in mass destruction activities at least as long as nuclear weapons, and chemical weapons have been around longer. Both types of weapons are easier to obtain and use than nuclear weapons. Why have terrorists not gone on a rampage using all the nonnuclear technology and weaponry at their disposal?

Perhaps they have not done so because they do not want to commit mass murder. As Brian Jenkins writes, "terrorists want a lot of people watching, not a lot of people dead. . . . Mass casualties may not serve the terrorists' goals and could alienate the population."[8] Thus, the main appeal of a nuclear weapon in a terrorist group's arsenal is not the weapon's ability to kill thousands of people simultaneously; instead, terrorists are likely to be attracted to nuclear terrorism because of public perceptions of the word *nuclear*. A terrorist action involving nuclear material would cause great public fear and perhaps panic.

That reaction is the sole attraction of a nuclear capability to the terrorist. A political group needs to be respected internationally to receive aid and friendship; even a terrorist group needs some friends and allies. A nuclear detonation that caused high rates of death and destruction would work against these supportive relationships. A terrorist group that has received significant, widespread support and is therefore more likely to be able to acquire nuclear weapons would find that "nuclear escalation" is not a desirable substitute for broader action and is thus a waste of energy.

Consider revolutionaries based within the territorial boundaries of the government under attack: they cannot afford to alienate the general population by resorting to a nuclear detonation that would result in significant death and destruction. A nuclear detonation in such a circumstance would likely increase support for the established government and stir opposition to the revolution. Latin American guerrillas, for example, have been consistently careful in choosing targets, usually selecting symbolic ones. The only situation in which violence against one's own people is advantageous is when guerrillas would like to demonstrate the consequences of collaborating with their enemy. Fidel Castro learned this lesson during the Cuban revolution against the Battista government, abandoning the use of random violence when he found that the Cuban people were hostile to such violence.

Against an external power that supports the

targeted government, on the other hand, the destructive use of a nuclear weapon by a revolutionary group might advance the group's cause with little risk of alienating its constituency, potential or actual. However, such an action might still cause the terrorist group to lose the support of its sponsor states, thereby damaging the group's "respectability." Also, the nation attacked would almost certainly increase its efforts in support of the targeted government and against the terrorist group.

Some groups are based outside the territory of the target government. The Irish Republican Army (IRA) and the PLO, for instance, can contemplate mass destruction in "enemy territory" that would bring no harm to their own people. But would the government of the territory where such a group is based tolerate the group's possession of nuclear weapons? It and nearby states would certainly resist such an increase in the group's power, fearing the group might become uncontrollable. It would be difficult for a terrorist group to complete a bomb before the intelligence agencies of the terrorists' host government detected the extensive activities connected with nuclear weapons manufacturing. Would political groups that have gained the support and financial backing to carry out such a sophisticated operation want to risk losing that support in pursuit of a nuclear weapons capability that would be of questionable utility at best?

Terrorists might be provided nuclear weapons by some state, but such an act would likely be traced to the sponsoring state. Which state is likely to risk retaliation for nuclear acts perpetrated by terrorists? Not only would the victim state be certain to retaliate against the sponsoring nation, but also suppliers of nuclear fuel, reactors, parts, and technical assistance might embargo these and other items in response to what would be a blatant violation of treaty agreements and commercial contracts. Only if the gift of nuclear weaponry could be kept secret forever could the sponsoring state escape retaliation. Is maintaining such a secret likely?

One can observe the PLO and the other Palestinian terrorist groups and find evidence that many of the inhibiting factors discussed here are actually at play. The Arab governments that support these terrorists tend to restrain them, fearing Israeli retaliation for extreme acts of terror. The terrorists, not wanting to lose Arab support, are always attempting to improve their respectability. In the specific realm of nuclear weapons, the PLO has revealed an interest in the acquisition of nuclear weapons by Arab states in response to Israel's supposed nuclear capability. However, the Palestinians publicly regard reports that they themselves might somehow acquire a nuclear weapon as unrealistic and as intended to bring harm to their cause.

Will Those Who Have Nothing to Lose Use Nuclear Weapons?

It is difficult to distinguish terrorists who use force for political gain from people who seem to receive a perverted pleasure from violence. Groups such as the Japanese Red Army, participants in the Lod Airport massacre, and the radical Baader Meinhof Gang resemble criminals and psychopaths more than they do political groups like the PLO and the IRA. Terrorist groups who are interested in attacking society in general rather than in altering the political order in a specific manner and who therefore lack a constituency appear to have little to lose from a destructive nuclear detonation. Assuming that the group views deliberate killing and suicidal missions as moral acts when directed toward overthrowing "corrupt" existing societies, one might think that these groups would, in fact, welcome mass annihilation.

However, that these groups have extremist goals does not mean that they will attempt to obliterate mankind; they may wish to crush society as we know it, but they also want to have people left with which to build a new society. Generally, they hope that the violence they carry out will gain them publicity, avenge

specific "wrongs," or rally others to their defiant course of action. Mass murder is not necessary for achieving any of these objectives. Practically the only situation in which mass destruction might be contemplated by even the most fanatical group is the imminent dissolution or destruction of the group. However, such a retaliatory death-throe action would need to be prepared in advance, when group members were rational enough to anticipate their possible demise and to plan the contingent procedures, yet irrational enough to elect mass destruction as a deliberate recourse.

Admittedly, the small extremist group, particularly when in desperate circumstances, has less to lose from initiating nuclear terror than the larger political group does. However, since extremist groups have virtually no constituencies, they are less likely to be able to recruit the talent necessary to acquire a nuclear capability. Similarly, groups that are opposed by virtually all national governments would find it extremely difficult to gather the materials and equipment necessary to build nuclear weapons, and their efforts to do so would be subject to extensive surveillance. Thus, the groups most likely to contemplate nuclear terror seem also to be those least likely to succeed in achieving the capability.

More likely than groups inspired toward indiscriminate violence are individuals with pathological motivations. A person motivated by revenge or paranoia might seek a nuclear capability. Some of the low-level breaches of security that have occurred at nuclear facilities as well as the nuclear hoaxes that have been perpetrated are probably the products of such people. However, for a crazed person to acquire a mass destruction capability, he or she would have to find people with the appropriate skills who would be willing to assist the person's efforts: one person probably could not do the job alone.

AN act of nuclear terrorism would be a terrible thing. We should be happy that the possibility of its occurrence is not what many doomsayers would have us believe. That is not to say that the possibility can be ignored. But instead of instilling fear and a sense of helplessness in the public, those studying the subject should be working to isolate those areas in which the possibility is real. Given present conditions, an act of nuclear terror is highly unlikely.

St. Martinville, Louisiana

Notes

1. Theodore B. Taylor and Mason Willrich, *Nuclear Theft: Risks and Safeguards* (Cambridge, Massachusetts: Ballinger, 1974), pp. 20-21.

2. R. W. Mengel, "Terrorism and New Technologies of Destruction: An Overview of the Potential Risk," in *Studies in Nuclear Terrorism*, edited by Martin H. Greenberg and Augustus R. Norton (Boston: G. K. Hall, 1979), pp. 214-15.

3. Ibid., p. 215.

4. Robert K. Mullen, "Mass Destruction and Terrorism," *Journal of International Affairs*, Spring/Summer 1978, p. 80.

5. Ibid., pp. 80-81.

6. Ibid., pp. 81-82.

7. Brian M. Jenkins, "The Potential for Nuclear Terrorism," in *Studies in Nuclear Terrorism*, pp. 170-71.

8. Ibid., p. 169.
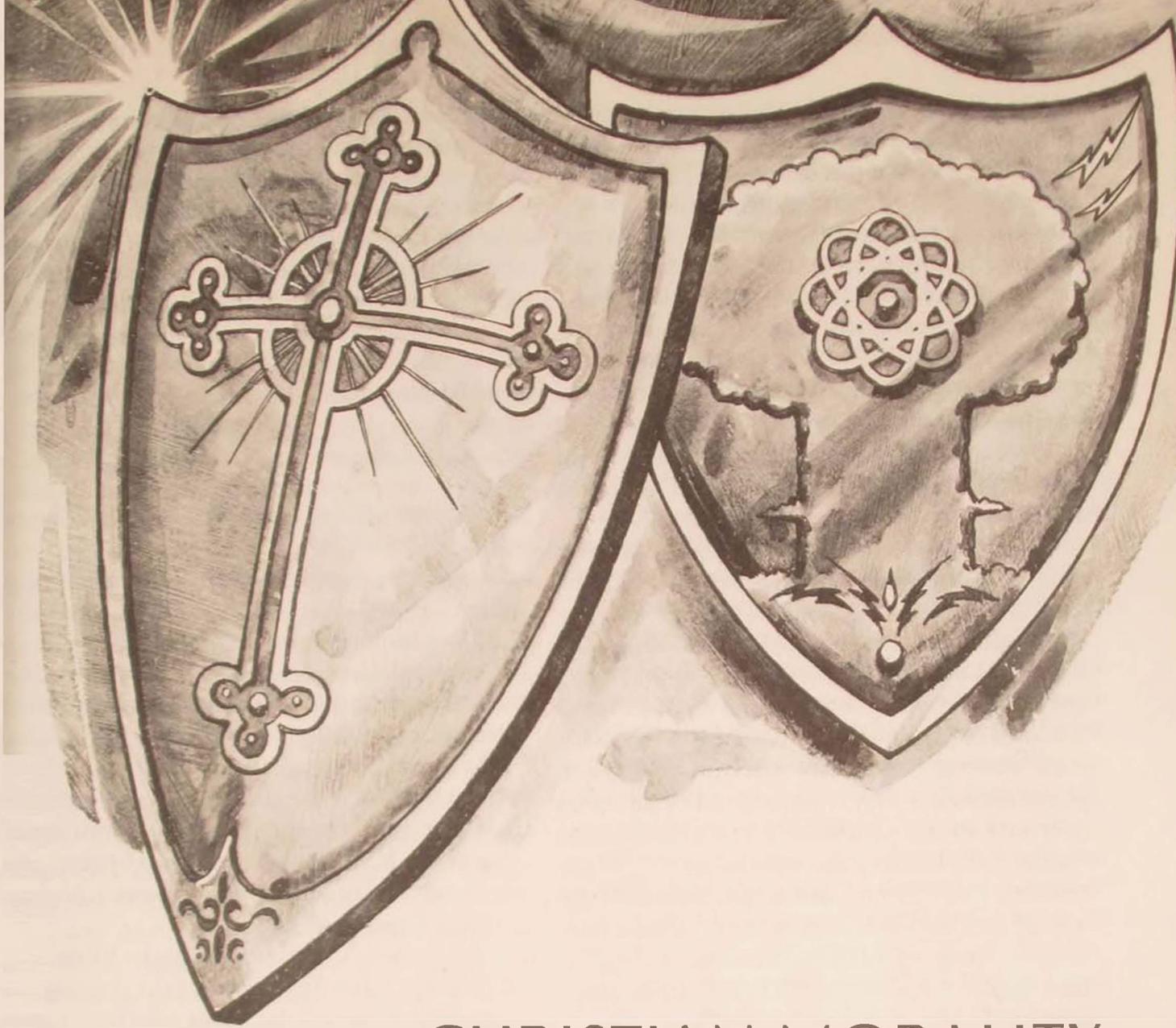
CHRISTIAN MORALITY
AND NUCLEAR DETERRENCE

CAPTAIN CHARLES H. NICHOLLS

CHRISTIAN churches are taking stronger stands on the ethics of nuclear deterrence. Such statements as the U.S. Catholic bishops' Pastoral Letter on War and Peace are important to me, since I am both a Christian and a professional military officer serving in America's nuclear deterrent force. Many Christian churches have made ethical judgments about nuclear deterrence that strand me in an intolerable moral paradox. The churches condemn the strategy of nuclear deterrence as an indiscriminate attack on civilians and as a disproportionate threat to mankind, yet they acknowledge this strategy as the best method available now to prevent war.

This simultaneous devotion to both discrim-

ination and deterrence is an unseemly moral compromise. An absolute requirement to discriminate between the enemy's military forces and civilian noncombatants is physically impossible. Moreover, this principle of discrimination would indict the God who commanded his people to exterminate the Canaanites. I believe in the proportionate good of defending the freedom of the human race by retaliating against the aggressor who attacks that freedom. I believe in the superiority of spiritual life and values over mortal life and earthly values. I am a Christian professional military officer; I serve a purpose greater than my mortal life.

The churches attack nuclear deterrence and retaliation as immoral under two criteria of the just war doctrine. Of all these Christian condemnations of national policy, the May 1983 Pastoral Letter on War and Peace approved by the U.S. Catholic bishops is the most influential and representative. The bishops assert both noncombatant immunity (discrimination) and proportionality (the preponderance of good over evil in the results of a moral action) as "universally binding moral principles."[1] Their ensuing commentary can be summarized: the use of nuclear weapons against almost any target is immoral because the massive destruction these weapons produce will indiscriminately kill large numbers of civilians. The bishops do not allow an intention to strike only military targets to excuse the use of nuclear weapons:

> We cannot be satisfied that the assertion of an intention not to strike civilians directly or even the most honest effort to implement that intention by itself constitutes a "moral policy" for the use of nuclear weapons. . . . Such a strike would be deemed morally disproportionate even though not intentionally indiscriminate.[2]

The bishops continue their condemnation of deterrence:

> A nuclear response to either conventional or nuclear attack can cause destruction which goes far beyond "legitimate defense." Such use of nuclear weapons would not be justified.[3]

Nevertheless, the bishops declare an illogical "strictly conditioned acceptance of nuclear deterrence."[4] This astonishing reversal seems intended to keep the pastoral letter in line with the position of Pope John Paul II.[5] However, the bishops' subsequent encouragement to military professionals, acknowledging their service to defend and maintain peace, offers little practical value for moral guidance.[6] Indeed, the bishops conclude:

> In simple terms, we are saying that good ends (defending one's country, protecting freedom, etc.) cannot justify immoral means (the use of weapons which kill indiscriminately and threaten whole societies).[7]

Thus, deterrence becomes morally unmanageable.

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.[8] This paradoxical position requires me to corrupt myself. My best moral 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.

So I turned in my research to the Bible itself, which the Catholic bishops said provided no "detailed answers" but does provide "urgent direction."[9] Christ commanded us to love our enemies (Matt. 5:44) and not to resist one who is evil but rather to turn the other cheek (5:39). But there is considerable debate over whether these principles are intended for all possible circumstances and for nations as well as individuals. For when Jesus was slapped, he questioned the justice of the blow. (John 18:23). More significantly, Christ used a whip to drive the merchants out of the temple (John 2:13-17). I note an important principle here: Christ was defending the spiritual welfare of a people and not his own physical safety.

Both Christ (Matt. 22:21) and Paul (Rom. 13) counsel us to give obedience to the state. But most biblical commentaries hold this principle

to be a matter of ensuring domestic tranquillity rather than providing the common defense. We must be careful not to misapply Jesus' standards of individual conduct to international relations. As an individual, Christ refused to defend himself but attacked evil when it threatened the spiritual life of the nation or the world.

The only biblical war outside of the Apocalypse is found in the Old Testament. Here I find God ordaining the Jewish conquest of Canaan, a campaign that included the intentional slaughter of noncombatants in their cities (Deut. 7 and 20; Josh, 6:21; 8:24, 10:28-40, 11:11-23). Now I have faith in God's absolute goodness, and I am not trying to demonstrate the moral validity of total war against so-called godless Communists. But I do question absolute sanctification of the man-made principle of discrimination in war, especially when it proscribes our best morally legitimate option.

WAR must always be considered as an evil, even when, as the least of all other evils in a crisis, it is the best moral choice. The just war doctrine should be cherished as an attempt to limit that evil, not as a standard of absolute morality, because the God who redeemed us through Calvary also ordained the complete destruction of the Canaanites. Peter C. Craigie, Professor of Religious Studies at the University of Calgary, comments:

> The war narratives of the Old Testament are a safer guide to the reality of war than are the various formulations of the "Just War" theory that have emerged in the history of Christianity.[10]

The principle of proportionality is a natural and obvious law: the benefits of an action must be proportional to the evil results of that action in order for the action to be a moral choice. The difficulty occurs in objective judgments on the good and evil probabilities and their relative proportions.

Nuclear retaliation repays the enemy with the destruction he is inflicting on our own nation. This attack and the counterattack are stupendous evils. Is there a good proportional to the evil of adding to the destruction through retaliation? Once the certainty of our country's actual or impending annihilation is established, what is our moral duty at that moment?

I submit that nearly all of this decision must be made prior to such a crisis, at a time when reason and resources can be used to make intelligent, objective choices. Certainly, the commander in chief would make the decision at the moment of crisis, weighing his limited information against prior contingency plans and options. But the limits on time and information available at such a moment require that the moral dimension of this decision be considered ahead of time.

Those of us on missile or bomber crews must also make the decision now. Before taking the oath of office or donning the uniform, we must commit ourselves to duty. We must decide now that our mission is compatible with our morality, or else we must resign our commissions.

My own decision is to prepare to retaliate. I believe that the good of minimizing further Soviet aggression against world freedom would justify the evils of nuclear retaliation. The surviving postwar world would be worthy of, and in need of, defense against modern Communist totalitarianism and oppression. I have studied the controversy over the predicted effects of a major nuclear war enough to be satisfied that major portions of today's world would survive intact. Should the Soviet Union or its Warsaw Pact allies also survive, their military power would achieve the global domination that has long been their goal.

Communist world domination is an evil that merits prevention even if the American nuclear deterrent force must be unleashed. If this statement sounds like a "better dead than Red" philosophy, then I deny that label. The purpose of our retaliation would be to guarantee the end of this threat to world freedom after deterrence has failed.

Potentially, the evil of modern Soviet communism endangers the spiritual life of mankind; therefore, the American nuclear deterrent must be used to prevent Soviet domination of the world. This danger is evident in both the political and spiritual life that must be endured under Communist tyranny. Reinhold Niebuhr describes the nature of Communist evil as having four dimensions:

• A monopoly of political and economic power vested in the state, leaving the citizenry defenseless.

• A secular religion that worships the state, which becomes an end justifying any means.

• Determinism among nations, requiring violent revolution in other countries.

• Dogmatic tyranny, which prevents reexamination of these dogmas when the facts refute them.[11]

Thus, the state becomes the only entity to enjoy political life, expression, or freedom in a Communist country.

Spiritual life in a Communist country is simply repressed as a subversive distraction from absolute loyalty to the state. State control of everything in the Soviet Union includes subjugation of the church itself for political purposes. Pro-Soviet and anti-American peace demonstrations are tolerated, but independent and more genuine peace movements are ruthlessly suppressed. The Russian Orthodox Church is a vocal supporter of the regime, even as the regime attacks the religion and persecutes its worshiping members. The state's secret police (KGB) are in control of the priesthood. A recent defector from the KGB has explained that the Russian Orthodox Church is often a front for Soviet intelligence, with priests sometimes giving lists of the names of people attending church to government officials.[12] In a Communist-ruled world, an individual's spiritual and political life is repressed by a ruthlessly totalitarian state.

These realities are evils that make the good of nuclear retaliation proportional to its collateral damage—a view expressed in the 1983 pastoral letter of the German Catholic bishops, whose conclusion on the issue of proportionality differs from that of the American bishops:

> Physical death of the human race is not the worst evil. But spiritual evil is when we choose it because we have neither the moral courage or the intellectual acumen to recognize it and prevent it.[13]

Similarly, the author of just war doctrine, Saint Augustine, recognized the spiritual war waged against the souls of those who live in the grip of tyranny:

> He, then, who prefers what is right to what is wrong, and what is well-ordered to what is perverted, sees that the peace of unjust men is not worthy to be called peace in comparison with the peace of the just.[14]

A third concept of the just war doctrine used to declare American nuclear deterrence policy immoral is the "likelihood of success" criterion. This principle demands that there be a reasonable likelihood of success before a war is engaged. I pray for peace and especially the avoidance of nuclear war. I believe that our strategic nuclear deterrent force is our best morally practical option for preventing war; but should deterrence fail, I am confident in the success of the mission to defend the people of the postwar world from political and spiritual tyranny.

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. Deterrence through nuclear strength is the best moral option of preventing such a war. Condemning this strategy as immoral under the just war doctrine is both absurd and immoral in itself. The vast majority of opinions on this subject support the deterrence strategy, at least for the short run. Invoking the principle of discrimination, some religious leaders place themselves and our nation in an untenable moral position. They accept the preparations

and intention to do what they convict as immoral. Also, I find the principle of discrimination violated in the Scriptures by the ordained Jewish conquest of Canaan. I have confidence in the likely success, and the proportional good, of the mission to destroy the threat to the world's spiritual and political freedom. Each of us in the strategic nuclear deterrent force must establish a moral foundation for our service. Our will to unhesitantly fulfill our duty will strengthen deterrence, the morally best choice of action to defend peace and freedom.

Castle AFB, California

Notes

1. "The Challenge of Peace: God's Promise and Our Response," Pastoral Letter on War and Peace, Catholic Conference, Inc., 1983. Reprinted in *Origins*, 19 May 1983, p. 2.

2. Ibid., p. 18.

3. Ibid., p. 16.

4. Ibid., p. 18.

5. Ibid., p. 17.

6. Ibid., p. 28.

7. Ibid., p. 30.

8. Gregory S. Kavka, "Some Paradoxes of Deterrence," in *War, Morality, and the Military Profession*, edited by Malham M. Wakin (Boulder, Colorado: Westview Press, 1979), pp. 505-25.

9. "The Challenge of Peace: God's Promise and Our Response," p. 7.

10. Peter C. Craigie, *The Problem of War in the Old Testament* (Grand Rapids, Michigan: William B. Eerdman's Publishing Company, 1979), p. 53.

11. Reinhold Niebuhr, *Christian Realism and Political Problems* (New York: Charles Scribner's Sons, 1953), pp. 33-39.

12. Vladimir Sakharov, quoted in "Priests Who Spy for KGB," *The Register*, 1 April 1984, p. 5.

13. "Out of Justice, Peace," Joint Pastoral Letter of the German Bishops, edited by James V. Schall in *Vital Speeches of the Day* (Southold, New York: City News Publishing Company, 18 April 1983), p. 74.

14. Saint Augustine, *The City of God*, Book XIX, Chapter 12, in *Great Books of the Western World* edited by Robert Maynard Hutchins and Mortimer Adler (Chicago: Encyclopaedia Britannica, 1952), p. 518.

To be a good soldier you must love the army. But to be a good officer, you must be willing to order the death of the thing you love. That is . . . a very hard thing to do. No other profession requires it. That is one reason why there are so very few good officers. Although there are many good men.

Robert E. Lee, speaking in
Michael Shaara's novel *Killer Angels*, pp. 195-96

U.S.-EAST ASIAN RELATIONS SINCE WORLD WAR II

a historical overview

Dr. Gerald W. Berkley
Dr. Donald B. Dodd

SEPTEMBER of this year will mark the fortieth anniversary of the Japanese surrender aboard the USS *Missouri*. Since that time, Japan has undergone both occupation and reemergence as the leading economic power of Asia; the United States has fought both the North Koreans and the Chinese in the Korean War; and the People's Republic of China (**PRC**) and the United States have gone from intense antagonism to full diplomatic relations. Also, in the near future, U.S. trade with

East Asia (PRC, Japan, and Korea) will surpass American trade with the countries of Europe. All of these factors compel us to reexamine postwar U.S.-East Asian relations and to search for a more comprehensive understanding of the past so that future interaction will be based on more knowledge than has been displayed by both sides in previous dealings.

To gain some perception of U.S.-East Asian relations between 1945 and 1984, it is useful to divide these years into four discernible eras. The first, 1945 to 1950, is best approached in the context of the bipolar cold war.[1] The United States and the Soviet Union were competing over spheres of influence in East Asia, and despite whatever official statements may have been forthcoming concerning self-determination for China, Japan, or Korea, the long-range goals of both America and Russia were not, for the most part, based on a concern for, or understanding of, the peoples and cultures of East Asia. What most often determined foreign policy decisions in Washington and Moscow was a pragmatic consideration of strategic and economic interests of the United States and the Soviet Union.

The second era, 1951 to 1968, was marked by direct confrontation between the United States and the People's Republic of China.[2] Beginning with the PRC's entry into the Korean War, the United States viewed itself as being in a struggle to prevent Chinese domination of the whole of Asia. Until 1960, China was seen as acting, more or less, as a surrogate of the Soviet Union. After the Sino-Soviet split, China became an independent antagonist, and at times, even replaced the Soviet Union as the nation for whom the United States had the greatest enmity. During this time, the PRC portrayed America as an imperialist warmonger operating in opposition to Asian nationalism. Korea and Japan certainly felt the ramifications of these cold war confrontations, but both were most often relegated to supporting roles.

The 1969-79 years featured normalization of relations between the People's Republic of China and the United States. This shift not only drastically altered the cold war picture but resulted in considerable change in U.S.-Japanese relations. The economic and political maturity of Japan, coupled with new concerns over the nature of Japanese-American interactions (concerns that were prompted by several circumstances, including the Vietnam War and Nixon's surprise visit to the PRC), caused Japan to begin to modify its position vis-à-vis both the U.S. and the PRC.[3]

Since 1979 and the establishment of full diplomatic relations between the United States and the People's Republic of China, one might argue persuasively that the cold war is no longer the central issue determining U.S.-East Asian relations.[4] Economic interests, with particular reference to Japanese-American trade, seem to loom almost as large as another cold war confrontation over Korea or the "playing of the China card" by the United States in its dealings with the Soviet Union.

1945-50

President Franklin Roosevelt and his advisors wanted to create a new balance of power in East Asia, one that was susceptible to American influence. At Yalta, Roosevelt and Stalin agreed to a division of spheres of influence in East Asia. The Soviet Union was to be the dominant power in Manchuria and Outer Mongolia, and the United States was to have hegemony over Japan. Both America and Russia would cooperate to maintain a balance in China.

As for Korea, the Cairo Declaration, issued on 1 December 1943, had pledged independence in "due course," with the idea that there would be a multilateral administration of Korea that would end unilateral colonialism. On 9 August 1945, the Soviet Union, as part of its promise to join the war against Japan, launched an attack against the Japanese Kwantung Army in Manchuria. Pursuing the retreating Japanese forces, the Russians entered the northern half of Korea. By the time the Japanese had surren-

dered, Soviet troops had arrived near the thirty-eighth parallel. This point was designated as the demarcation line between the American and Russian occupation zones.[5]

For the United States to achieve strategic hegemony in East Asia required a strong alliance with a major state in East Asia: either China or Japan. Roosevelt had operated on the premise that China would be that country. In April 1945, when Harry Truman became President, he faced the question of whether a revitalized Japan might not be a desirable option should China prove unable to fulfill its assigned role as the pro-U.S. dominant power in East Asia.

What caused the consideration was the civil war in China. Truman and his advisors viewed the situation in China as linked to the adversarial relationship (cold war) developing between the United States and the Soviet Union. Soviet troops were in Manchuria, and it was assumed that Stalin had designs on China. Contributing to this assumption was the fact that one of the contenders in the Chinese civil war was the Chinese Communist party, presumably linked to Moscow. General George C. Marshall was sent to China in December 1945 in an effort to limit Soviet influence.[6] When Marshall ascertained that the Russians were neither actively engaged in the Chinese civil war nor intent on remaining in Manchuria, Truman was temporarily satisfied concerning China.

Japan, the other candidate as a base for U.S. power in East Asia, also had a Russian problem. At Yalta, the Soviet Union was promised the return of various parts of the Japanese Empire. Convinced that Russia should be satisfied with this, Truman insisted at the Potsdam Conference of July 1945 that the occupation of Japan should be solely an American enterprise. The Soviets objected and instead attempted to make the occupation of the main Japanese islands a zonal undertaking. Truman eventually prevailed, and Japan was placed under the direct control of the United States, with General Douglas MacArthur serving as military governor.[7]

Japan in 1945-46 was a demoralized, destitute, and outcast nation. Its industry and agricultural production had been destroyed. Japanese cities were in ruins. There was a popular revulsion against war, a bitter antimilitary sentiment, and a great enthusiasm for pacifism. One of MacArthur's first acts was to demilitarize Japan and ban ultra-nationalist groups. This was followed by the dissolution of the major business firms in Japan, the Zaibatsu. MacArthur believed that these firms, holding and desirous of maintaining an excessive concentration of wealth and power, were the real villains behind Japanese imperialism. Land reform was also undertaken, as was the release of political prisoners, the legalization of labor unions, and the granting of rights to women.[8]

Meanwhile, the United States maintained its interest in China. America continued to support the pro-U.S. government of Chiang Kai-shek, although no longer with an open-ended commitment. While Washington did not want the Chinese Communists to win the civil war, China was no longer the sole option. The result was limited aid to Chiang, coupled with an attempt to get the generalissimo to renovate his government in order to outflank the Communists via reform. Chiang refused to heed the advice, and by the time General Marshall was recalled in early 1947, the United States had all but given up hope of an East Asia hegemony based on China. By the second half of 1947, Washington had decided to rebuild Japan as the cornerstone of U.S. interests in East Asia.

Through its occupation reforms in 1945-46, the United States had attempted, with considerable presumption, to uproot virtually all the traditions of Japan and to replace them with Western political, social, and economic structures. The Japanese accepted this cultural restructuring because they had no choice and because they had suffered severe psychic damage as a result of losing World War II. By 1947-48, however, the honeymoon of the occupation was turning sour; and when American bases were proposed as a permanent fixture in Japan,

the Japanese offered considerable resistance. The Japanese felt that such action would inevitably involve Japan in the cold war. U.S. military presence not only would serve as a magnet drawing retaliation from either the Soviet Union or the PRC but also would trample on Japan's constitutional renunciation of war.

In China, the limited role that the United States had played in the civil war had failed to prop up Chiang Kai-shek as the anchor for American interests in East Asia, and it had also alienated the Chinese Communists. The inability or unwillingness of U.S. leaders to assess correctly the internal forces in China and to work toward some accommodation with Mao Tse-tung caused long-term problems.

When the Chinese Communists emerged victorious in October 1949, Washington decided to formulate a new Asian policy. The United States would support non-Communist forces in taking the initiative in Asia and exert influence to advance its own interest. Concerning China, the United States would withhold recognition of the People's Republic. It would also attempt to exploit any rifts between Moscow and Peking.[9] In February 1950, a Treaty of Friendship and Alliance was signed between the People's Republic of China and the Soviet Union. The formalization of the Moscow-Peking relationship caused the United States to give up hope of encouraging a Yugoslavian-style Communist nation in China.

In Korea between 1945 and 1946, the Soviet Union moved inexorably toward the establishment of a satellite state north of the thirty-eighth parallel. The United States, with little expertise on Korea and few plans for exerting influence south of the thirty-eighth parallel, eventually supported, albeit reluctantly, Syngman Rhee. Rhee's rightest, undemocratic Republic of Korea was formally established in April 1948. In September 1948, Kim Il Sung set up his Soviet-backed Democratic People's Republic of Korea. Thus, Korea was separated by hostile governments under the tutelage of the two cold war antagonists.

In January 1950, Secretary of State Dean Acheson made his now famous statement that the United States should make no military effort to control the affairs of China or Korea.[10] He did not deny either American interest or the presence of the Soviet influence in these countries; he simply rejected China and Korea as primary areas within the U.S. defense perimeter. The test of this statement came on 25 June 1950 with the Korean War.[11] President Truman, under pressure from the Joint Chiefs of Staff, decided that Korea was an escalation of Soviet involvement from subversion to invasion and that the United States must act to limit Kremlin control of East Asia. Truman and his advisors saw Korea as analogous to Munich. Not to respond would signify a lack of U.S. will, determination, and confidence.

By 30 June, the United States was totally committed to defend South Korea. U.S. action had the sanction of the United Nations. Forces were sent from Britain, Turkey, and thirteen other United Nations member countries, although South Korea supplied two-fifths of the ground forces and the United States one-half, as well as most of the naval and air power. All were put under the unified command of General Douglas MacArthur.

The war progressed in stages. First, the Soviet-armed North Korean People's Army (NKPA) assault forced the Republic of Korea (ROK) Army back into a space some eighty by fifty miles around the southeast port city of Pusan. Next, MacArthur, in a brilliant stroke, carried out a massive amphibious landing at Inchon, a port city midway up the Korean Peninsula. The NKPA was caught between the ROK Army at Pusan and the United Nations forces at Inchon. The North Koreans were not simply defeated; they were annihilated.

The U.S. decision to cross the thirty-eighth parallel and to unify all Korea by military means marked a new stage. Washington acted not simply to limit Soviet control but actually to remove an area from Russian influence. Within the context of Russian aggression in

Asia, this decision seemed logical. To America, the North Korean invasion was additional proof of Soviet designs on East Asia. Such action called not only for containment but for rollback. American officials were sure that China would exercise good judgment and refrain from involvement in the Korean conflict. The PRC's subsequent intervention in November 1950 seemed to demonstrate not only Mao's irrationality but also the fact that he was a puppet of the Soviet Union. This was further evidence of the existence of a monolithic Communist enemy, with its center in Moscow, and additional rationale for rejecting Peking from membership in the United Nations.

1951-68

In January 1951, the United States introduced a resolution in the United Nations condemning the PRC as the aggressor in Korea. In February, the General Assembly adopted the resolution by a vote of forty-four to seven. During the summer that followed, Washington announced a policy of nonrecognition of the People's Republic of China. China responded with its platform of "leaning-to-one-side" and professed total indifference concerning the fact that the United States did not recognize the most populous nation on earth. By September of 1951, Truman had forged a series of military alliances in Asia, with Japan as the key to this new alliance structure.

The Korean War had had a substantial effect on Japan. It had hastened the signing of a peace treaty between the United States and Japan, without the participation of the Soviet Union or China. With the peace treaty came a security treaty, which permitted the retention of American military bases in an independent Japan and the commitment of the United States to Japan's defense. In addition to the security treaty, cold war concerns manifested themselves in other ways. As the Premier of Japan observed when the United States proposed the arrest of the Japanese Communist leadership: "Americans are very interesting people. When

you came here in 1945, we had all the Communists in jail. You made us let them all out. Now you tell us to put them back in jail again. That's a lot of work, you know."[12] Also, during 1952, the United States pressured the Japanese government to recognize Taiwan as the legitimate government of China.

In 1953, Dwight Eisenhower and his Secretary of State, John Foster Dulles, inherited the Korean War, the enmity toward the PRC, and a Japan resentful over being entangled in American efforts to maintain U.S. hegemony in East Asia. Soon after taking office, Eisenhower removed the buffer of the Seventh Fleet between Taiwan and the mainland in an act that was referred to as the "unleashing of Chiang Kai-shek." The U.S. President also rejected Peking's efforts to improve relations and continued the blockade of the PRC's entrance into the United Nations. When, in 1954, Peking's forces threatened the Taiwan-held islands of Quemoy and Matsu, the United States provided Chiang Kai-shek with the logistical support necessary to hold the islands.

These actions went substantially beyond what Truman had done concerning Taiwan and the PRC. Essentially they constituted a de facto "two China policy." As part of this policy, in 1954 Washington concluded a Mutual Defense Treaty with Taiwan. The treaty stopped short of allowing Chiang Kai-shek to involve America in hostilities initiated by Taiwan, but it did provide U.S. recognition of Taiwan as both an ally and as the legitimate government of China. Despite this treaty, or perhaps because of it, in April 1955, the PRC's Chou En-lai offered to negotiate with the United States. Dulles, however, was not interested in accommodation and refused to meet with Chou. Moreover, the Secretary of State moved to strengthen Taiwan's defenses, offering support that included the placement of missiles capable of hitting the mainland with tactical nuclear weapons. This military buildup was part of Dulles's proclaimed policy of "massive retaliation."

During the late 1950s, as Nikita Khrushchev spoke of "peaceful coexistence," the People's Republic of China emerged as the implacable enemy of the United States in East Asia. While there was no acknowledgment that China had achieved independence from the Kremlin, for this would have shaken the monolith theory, Washington now concluded that Peking had replaced Moscow as the primary source of aggression in Asia. The Quemoy crisis of August 1958 was used to substantiate this idea.

Despite the considerable evidence of a Sino-Soviet rift by the time John F. Kennedy was inaugurated as President, the new administration appears to have, at least initially, accepted the assumptions and postures of the Truman and Eisenhower years. Even if this had not been the case, fear of public opinion and congressional opposition would have dissuaded Kennedy from altering U.S. policy toward East Asia immediately. By 1962, however, certain individuals within the administration, most notably Adlai Stevenson, Averell Harriman, Chester Bowles, and several young China specialists, openly supported the idea of ending the rigid opposition to the PRC that had marked the Dulles China policy. Before any action could be taken, the Chinese attacked India. In spite of evidence that India had provoked the attack, Peking's willingness to use force, coupled with the ease with which the Chinese achieved victory, had the effect of reviving the orthodox view of the People's Republic of China as irrational, aggressive, and expansionistic. Those who had been most voluble in advocating a new policy toward China were stilled. There are suggestions that Kennedy would have attempted to moderate hostility toward the PRC had he been elected to a second term, but his assassination came before any intentions could be proved.[13]

The Johnson administration was also inclined to be less antagonistic toward China but was bound by the exigencies of the war in Vietnam. Despite growing U.S. involvement in Vietnam, however, in 1966 President Johnson publicly called for an improvement of relations between the United States and China. Unfortunately, China was in the throes of the Great Proletarian Cultural Revolution at the time and was not responsive. The only substantial contact that existed between China and the United States during the entire 1951 to 1968 time period was a series of ambassadorial-level talks held in Geneva and Warsaw. These meetings did not reduce significantly the tension that existed between the two countries, but they did serve as a forum for the exchange of views on critical issues.

During the U.S.-China talks, Japanese politics continued to focus on the presence of American bases and opposition to the security treaty with the United States. The revision of the treaty in 1960 produced a violent political explosion, a direct result of Japan's growing desire for equal treatment and her rising self-esteem.[14] Tension mounted again after 1965 with the deepening American involvement in Vietnam. The specter was once again raised of Japan becoming embroiled in war because of its linkage with the United States.

Korea largely passed out of the consciousness of the American public after the 1953 armistice and the rapid reduction of U.S. military personnel. Washington, however, continued to provide resources to help rehabilitate South Korea both economically and militarily. As part of the latter, in 1954 America concluded a Mutual Security Treaty with Seoul. In April 1960, Rhee's corrupt, authoritarian government was overthrown, an act that was not displeasing to the United States. With the coming to power of Park Chung Hee, political stability and economic development became more of a reality. In 1965, thanks in large measure to pressure from Washington, South Korea and Japan normalized relations.[15] Also, at the same time, South Korea, in contrast to Japan, began to send troops to assist the U.S. effort in Vietnam.

Meanwhile North Korean reaction to the Sino-Soviet split was to regard China as the

more preferable friend and ally while tactically maneuvering back and forth between Peking and Moscow. The only major exception to this pro-China attitude was during the height of the Cultural Revolution, when, in response to Red Guard criticism, Pyongyang verbally attacked Mao's domestic policies on doctrinal grounds. Relations between North Korea and both Japan and the United States remained extremely hostile during this time period.

1969-79

When Richard Nixon became President in 1969, the time for a change in U.S.-China relations was more propitious than it had been during either the Kennedy or the Johnson eras. Internationally, China was recognized as an independent power. Within the United States, due to the anti-Vietnam War movement and the call for a reassessment of Washington's Asian policy by politicians, academicians, and business interests, there were clear indications that the American public was probably ready and willing to move toward accommodation with Peking. Nixon and his foreign policy advisor, Henry Kissinger, postulated that the old bipolar balance of power—characterized by the cold war between the United States and the Soviet Union—was obsolete and needed to be replaced by a multipolar structure consisting of five power centers: America, Russia, Western Europe, China, and Japan.

In 1970 and 1971, Nixon laid the groundwork for rapprochement with the People's Republic of China; and in February 1972, his efforts culminated with his trip to Peking. The PRC welcomed the visit for a variety of reasons, the most important of which was probably the perceived imminence of a Soviet attack on China. Friendly relations with America, the Chinese reasoned, would create a climate antithetical to any rash action on the part of the Kremlin. A second factor was Peking's concern that Japan's tremendous economic growth might serve as the basis for a revitalization of

Japanese militarism. Since Japan was linked to the United States by security treaty, America should be able to prevent Japanese rearmament.

Following the Nixon visit in 1972, there was little progress in Sino-American relations, largely due to internal events in both countries. The Watergate scandal in Washington and Mao's death, which was followed by instability in Peking, caused full normalization of relations to be put on hold. In 1977 and 1978, the Chinese began to express impatience with the lack of progress toward full normalization. Finally, in December 1978, President Carter announced that he had set 1 January 1979 as the date for full diplomatic recognition of the People's Republic of China, including the exchange of ambassadors and the establishment of embassies on the following 1 March. The United States agreed to break official relations and to abrogate the 1954 Mutual Defense Treaty with Taiwan.

The Japanese had been shocked by Nixon's 15 July 1971 announcement of his pending visit to Peking. In the past, America's leaders had urged close consultation and cooperation between Washington and Tokyo, and, in fact, such collaboration had occurred over the issue of Okinawa. Japan had viewed the fact that the nearly one million Japanese living on Okinawa should still be ruled by Americans some twenty years after World War II as intolerable. From the U.S. point of view, America's extensive bases on the island were extremely important, and there was considerable reluctance among U.S. leaders to relinquish full control over them. Nevertheless, after substantial discussion, in November 1969, Prime Minister Eisaku Sato and President Nixon issued a joint communiqué stating that Okinawa would be restored to Japan soon.

This consultative approach, unfortunately, was not the way Nixon handled Sino-U.S. rapprochement. Tokyo, which would feel the impact of a drastic alteration in the relationship between Washington and Peking as much as anyone, was not even given advance notifica-

lion of the Nixon announcement, much less afforded the courtesy of consultation on the matter. From the Japanese perspective, this cavalier act was a callous disregard of America's most faithful ally in the Pacific.

Exactly one month after this Nixon blockbuster announcement about the presidential trip to China, Washington announced a temporary 10 percent surcharge on imports and a suspension of the U.S. dollar's convertibility into gold. This action was aimed primarily at Japan and caused the dollar to be devalued against the yen by nearly 30 percent. Following almost immediately on this proclamation was a series of prolonged and acrimonious meetings over a textile quota, the result of which was that Japan, in October 1971, was forced to accept U.S. demands for a curb on Japanese textile imports.

Given this sequence of events, Japan decided to demonstrate its independence and protect its interests by normalizing relations with the People's Republic of China herself. On 11 August 1972, the new Prime Minister of Japan, Kakuei Tanaka, made a formal request to visit Peking. Dr. Kissinger responded to this news with a surprise visit to Japan. He wanted assurances that Tokyo would make no commitments to the PRC that would compromise the U.S.-Japan Security Treaty. The Japanese agreed to this limitation but made it clear that they felt Nixon's visit to China had altered U.S.-East Asian relations to the point where other issues would require reconsideration. In late September 1972, the Tanaka entourage arrived in Peking. The visit did not immediately change the pattern of Sino-Japanese relations. Japan continued its own "two-China" policy, except that the PRC replaced Taiwan as the site of the official Japanese diplomatic mission.[16]

During the summer of 1973, Washington further undermined Japanese faith in U.S.-Japanese relations. Nixon suddenly announced an embargo on all soybean exports, ignoring the fact that soybeans were a principal source of protein in the Japanese diet. The embargo was lifted after the Japanese expressed their anxiety, but Japan again had another example of America's easy oversight of the Japanese and Washington's seeming disregard of Japanese interests.

In 1978, Tokyo agreed to a Treaty of Peace and Friendship with Peking. A central feature of the treaty was the clause that attacked hegemony of any form in Asia. Japan's acceptance of this clause, which was clearly directed at the Soviet Union, indicated a tilt by Japan toward Peking. This was a considerable alteration of Tokyo's previously studied neutrality in Sino-Soviet affairs. The treaty signaled both a change in the East Asian strategic landscape and a possibility of further modification in the relationship between Tokyo and Peking.

As far as Korea was concerned, normalization of relations between the PRC and the United States appeared ironic, being achieved before the condition that had been the principal cause of the delay in diplomatic relations—the turbulent situation in Korea—was fully resolved. Had the Chinese not fought America in Korea, the United States may well have recognized the Peking government in the 1950s. Korea is the only divided nation where both Washington and Peking have defense treaties with the opposing sides.

Sino-American normalization gave rise to hope in Korea. The new détente seemed to usher in a peaceful environment in East Asia that would reduce the bellicosity in Korea. Unfortunately for Korea, this hope turned out not to be the case. What North Korea wanted was a total withdrawal of U.S. forces from the peninsula; and in 1977, President Carter provided reason to expect this outcome when he indicated a desire to remove American military presence from Korea. In response to this encouraging sign, Pyongyang toned down its usual vitriolic attacks on the United States. By July 1979, however, Carter reversed himself and, during a visit to South Korea, proposed tripartite talks among the two Koreas and the United States. North Korea made it clear that she

wanted only bilateral talks with the United States.

In October 1979, with the assassination of Park Chung Hee, North Korea called for a new dialogue between North and South. There was no response from Seoul. Two months later, Pyongyang issued only a mild statement in response to the establishment of full diplomatic relations between the United States and China. Within that statement was the usual call on Washington to demonstrate its rejection of hegemony in the region by getting out of Korea.[17]

1980-84

During his 1980 election campaign, Ronald Reagan talked of reversing the Carter-initiated normalization process with the People's Republic of China and restoring diplomatic relations with Taiwan. Continued arms sales to Taiwan during the first few months of the Reagan presidency led to a visible worsening of relations between the United States and China. Reagan sought to calm the situation somewhat by sending then-Secretary of State Alexander Haig, Jr., to Peking in June 1981. Haig's announcement that Washington would consider any requests for weapons by the PRC on a case-by-case basis did little to lessen China's concern over Reagan's Taiwan policy.

As a result of Peking's anxiety and pressure from both within the administration and from the American business community, in August 1982, the Reagan policy on Taiwan shifted with the signing of a U.S.-China joint communiqué. Peking promised to seek reunification with Taiwan by peaceful means, and Washington promised to gradually reduce arms sales to Taiwan. With the signing of this document, bilateral relations between China and the United States began to improve, and trade between the two countries picked up markedly.

In February 1983, Secretary of State George Shultz visited Peking. The purpose of this trip was to further improve the climate of Sino-U.S.

relations generally and to discuss the sale of U.S. high-technology items to the People's Republic. During the course of the visit, Shultz reaffirmed the August 1982 commitment and assured the Chinese that the United States would approve future increased sales of sensitive goods. The Shultz visit was followed in September by a trip by Defense Secretary Caspar Weinberger. The visit was as much a confirmation of the improved nature of Chinese-American relations as it was a harbinger of significantly increased military cooperation. Some working-level military exchanges were reestablished, and a forum was created for discussions concerning the Chinese desire to co-produce antitank, antiaircraft, and radar equipment.

The exchange of visits in 1984 between Chinese Premier Zhao Ziyang and President Reagan signified a partial triumph of pragmatism over ideology as far as U.S.-China policy is concerned. The visits, despite Reagan's anti-Soviet rhetoric in Peking and Shanghai, represented less of an interest in "playing the China card" and more of an interest on the part of the United States in assisting China's economic modernization by increasing the pace and quality of U.S. high-technology exports. Certainly, in Reagan's view, U.S.-PRC bilateral relations contain an inherently strategic component, but the relationship is now much more independent of the vicissitudes of U.S.-Soviet antagonism.[18]

U.S.-Japan relations in the 1980s have continued to revolve around the two issues of defense and trade. The latter topic, and probably the more serious of the two in terms of future U.S.-Japanese relations, is extremely problematic. The United States is Japan's best international customer, and Japan is America's best overseas customer. The difficulty lies in the imbalance of trade between the two countries (estimated to be some thirty billion dollars in Japan's favor in 1984). The United States places the blame for this growing problem on the yen's undervaluation, high Japanese tariffs,

nd nontariff trade barriers. The Japanese believe that the problem is caused by low-labor productivity and low levels of efficiency in American companies due to poor management techniques and excessive taxation and over-regulation by Washington.

The approach that the Reagan administration has taken to redress the trade deficit with Japan is to try to expand economic opportunities for American business in Japan, while issuing vague threats of draconian protectionist retaliation if Japan fails to mend its ways. While increasing U.S. business possibilities in Japan is certainly laudable, the accompanying threats are an indication of a continuation of America's "occupation-era mentality" as far as the Japanese perspective is concerned. Harsh dictums were possible when the United States was dealing with a defeated and demoralized Japan. However, Japan is now an independent, highly productive nation-state that views itself as fully entitled to compete with the United States and other nations in international markets on an equal basis. U.S. failure to recognize these realities could severely strain the bilateral alliance between the United States and Japan—an alliance that is pivotal in ensuring U.S. interests in the entire region.

On the second issue, that of defense, in mid-January 1983, the newly elected Prime Minister of Japan, Yasuhiro Nakasone, visited Washington. Nakasone's stance on Japan's defensive role, particularly in regard to defending sea lines of communication, was very close to the U.S. government's view of what Tokyo should be doing. However, while the Nakasone visit went over well in the United States, it received less applause in Japan. The prime minister's talk of the Soviet Union as a threat to world order and his mention of a common destiny with the United States conjured up a return to the cold war U.S.-Japanese military linkage, with images of Japan being drawn into a nuclear holocaust between the superpowers. Nakasone's known desire to further strengthen Japan's Self-Defense Forces, coupled with his

announcement that there would be a transfer of Japanese military technology to the United States added to Japanese concern.[19]

A majority of Japanese are probably against a total commitment to an American military alliance. Two major reasons support this stance: first, the old U.S.-Japan alliance was often ill-used and ill-understood; and, second, the Japanese have recovered their sense of pride and nationalism to the point where they are giving serious consideration to the option of playing a lone, adroit, diplomatic game in the current multipolar world.

Meanwhile, events have created some shifts in U.S.-Korean relations in the 1980s. After the assassination of Park Chung Hee in October 1979, the United States hoped for a smooth return to stability in South Korea. Such was not the case, as massive student demonstrations inflamed emotions and an accompanying general social instability resulted. To deal with the situation, a declaration of nationwide martial law was issued in May 1980. When President Reagan took office, the first foreign head of state he invited to the White House was South Korean President Chun Doo Hwan. During the visit, Reagan gave the Korean government assurances of support, including a promise to strengthen the U.S. military posture south of the thirty-eighth parallel. The joint communiqué which came out of the meeting stated that not only did the United States have no plans to withdraw American ground troops from the peninsula, but also that Washington would make available to South Korea "appropriate" weapon systems and military technology.

In regard to U.S.-North Korean relations, Reagan insisted that any change in the relationship must be based on symmetrical action taken by the PRC toward South Korea. Ideally, what both Washington and Seoul wanted was a "cross-recognition" formula under which the United States and Japan would establish official relations with North Korea while the Soviet Union and China would do the same with

1966).

15. Kim Kwan-bong, *The Korean-Japan Treaty Crisis and the Instability of the Korean Political System* (New York: Praeger, 1971).

16. Gene T. Hsiao, "The Sino-Japanese Rapprochement: A Relationship of Ambivalence," *The China Quarterly*, January-March 1974, pp. 101-23.

17. Bruce Cumings, "North Korea: Security in the Crucible of Great-Power Confrontations," *The Great-Power Triangle and Asian Security*, edited by Raju G. C. Thomas (Lexington, Massachusetts: Lexington Books, 1983), pp. 153-72.

18. Robert A. Manning, "Reagan's Chance Hit," *Foreign Policy* Spring 1984, pp. 83-101.

19. Ellis S. Krauss, "Japan in 1983: Altering the Status Quo?" *Asian Survey*, January 1984, pp. 81-99.

20. Bruce Cumings, "Korea—The New Nuclear Flash Point," *The Nation*, 7 April 1984, pp. 401, 414-19.

When Sampson took the fresh jawbone of an ass and slew a thousand men therewith he probably started such a vogue for the weapon, particularly among the Philistines, that for years no prudent donkey dared to bray.

George S. Patton, Jr., quoted in Martin
Blumenson, *Patton Papers*, I, p. 956

NEW PERSPECTIVES ON SOVIET THINKING

Implications of the systems approach

MAJOR KENNETH A. ROGERS

The systems approach is one of the methodological trends in modern science that was born of the need to find a way out of the crisis in scientific knowledge.[1]

E. Yudin

ONE of the basic principles of a Soviet ideology founded on the tenets of Marxism-Leninism is that man has the ability to determine the future. However, the growing

complexity of many issues (e.g., the rapid development of science and technology, the necessity for increasingly intricate economic planning, the revolution in military affairs, etc.) has made it more difficult for the Soviet leadership to manage many of these areas, let alone, control their development. Eventually, the realization that many of these contemporary issues were becoming increasingly difficult to control prompted a reexamination within the Soviet Union of the existing approaches for managing these problems. This reexamination pointed to a need for a fundamental review of existing Soviet management techniques. This rethink ultimately produced a shift in thinking to what can best be described as a "systems perspective" (i.e., where individual issues are not looked at in isolation but as subsets of a larger whole; where each component has a relationship to the system; and where each component is viewed as interacting with other components of the system). To illustrate this point, Dzhermen Gvishiani, Deputy Chairman of the State Committee for Science and Technology, U.S.S.R., stated that *"systems studies* emerged in response to the growing complexity of the technicised world."[2]

development

The development of the Soviet systems perspective can best be described as evolutionary rather than revolutionary. Soviet systems literature indicates Soviet use of a systems approach that extends back to the early part of the century.[3] However, it was not until the 1960s that a real systems perspective began to develop in the Soviet Union. The publication of two books on Western systems theory in the Soviet Union during the late 1960s appears to have played a role in spurring the development of the Soviet systems perspective.[4] The 1970s were marked by a considerable expansion of the systems approach. For example, a notable increase in the amount of systems literature published in the Soviet Union took place during the early

1970s.[5] Moreover, a review of Soviet literature indicates that since the 1970s, a systems perspective has been applied to a wide variety areas, such as economic planning and development, science (including the social science environmental protection, and military affairs As one Soviet systems researcher noted:

> Within the last decade systems ideas have penetrated the field of management and control; the formed the basis for rapidly developing method for the solution of major complex problems *defense*, economics, education, communication transport, city development, etc.[7]

At the same time, a number of research centers dedicated to systems research were founded various locations in the Soviet Union, further confirming the Soviet commitment to a systems approach.[8]

These developments attest to the fact that systems research not only was becoming progressively accepted as a useful discipline for managing complex problem areas but also has the approval and support of the Soviet leadership. Professor John Erickson, a well-known authority on the Soviet military, recently pointed out:

> The systems approach is one that is apparently being adopted with some enthusiasm by Soviet specialists, one objective being to investigate responsiveness and adaptiveness to change.[9]

The increased emphasis on using a systems perspective to manage complex problem areas has continued apace into the 1980s. Undoubtedly, this trend will intensify in coming years as issues facing the Soviet leadership become increasingly complex.

Due to the fact that the vast majority of current Soviet systems ideas and concepts have been borrowed from the West, there is a close correlation between Western and Soviet systems perspectives. Nevertheless, differences exist, primarily in the areas of terminology usage and the role of ideology. For example while much of the Soviet systems terminology is similar to that used in the West, there has

een a proliferation of a unique and freqently esoteric Soviet systems terminology (e.g., *sistmotekhnika, globalistika*, and *bionizatsiya*).[10] With regard to the role of ideology, the principal Soviet criticism of Western systems approaches centers on their failure to incorporate Marxism-Leninism. The fact that the systems approach has been characterized in Soviet writings as "an object of acute ideological struggle" highlights the importance some Soviet systems proponents attach to the role of ideology.[11]

It is important to note that ideological differences exist within the Soviet Union, as well as between East and West. For example, there appear to be considerable differences among Soviet systems specialists on the exact role of ideology in the development of the Soviet systems perspective. These internal differences are apparent in a 1977 Soviet publication which states that the relationship between the systems approach and Soviet ideology "remains a subject of lively discussion."[12] While it is essential not to overemphasize the importance of ideology in the Soviet systems approach, it is nevertheless necessary to realize that ideology does have an influence on the content and direction of the Soviet systems perspective.

The proliferation of a systems perspective within the Soviet Union raises some important questions. For example, what are the implications of this shift in Soviet thinking? More important, what approach should Western analysts take to better understand the impact of the systems perspective on Soviet affairs?

Implications

Nowhere has the impact of the scientific and technological revolution been more evident than with respect to military affairs. The effect of the rapid development of science and technology on a number of areas, such as weapons procurement, tactics, and even strategy, has been far-reaching. For example, the increasing sophistication of technology has made many weapon systems and associated tactics obsolete shortly after and even before they become operational. One Soviet military writing states: "The scientific and technical revolution has become the basis of a revolution in military affairs."[13] Hence, a Soviet desire to cope with the military implications of an increasingly sophisticated technological environment should come as no surprise.

During the 1960s, a restructuring of Soviet military thinking began to take place, prompted by a desire to cope with the phenomenon of an increasingly complex and rapidly changing environment. During the 1970s, this restructuring intensified. In the early 1970s, General Viktor Kulikov, now Marshal and Commander-in-Chief of the Warsaw Pact, alluded to the rethinking process then under way by acknowledging that the sophistication of modern warfare had led to the emergence of new branches of knowledge within Soviet military science, such as *forecasting, modeling,* and *cybernetics* (integral concepts of the systems approach).[14] This rethinking received even greater impetus during the late 1970s, after senior personnel changes took place within the Soviet military establishment. Professor John Erickson has stated:

> [The] rethinking and restructuring [of the Soviet military] now went almost hand in hand, a process accompanied by the increasing technocratization of the Soviet officer corps, the advent of Dimitri Ustinov as Defense Minister, and the arrival of Nikolai Ogarkov at the General Staff in 1977.[15]

Both Ustinov and Ogarkov have been key proponents of the systems approach.

Eventually, this rethinking process within the Soviet military led to concrete results. For example, since the 1960s the development of some weapon systems, as well as the reorganization of some portions of the Soviet military, can be traced directly to the adoption of a systems perspective.[16] In fact, systems analysis has been characterized as having been "originally developed as an instrument for the solu-

tion of military strategic problems."[17]

While the advent of a systems approach to manage complex military affairs can be traced back as far as the 1950s, the period from the early 1970s to the present has witnessed the most intensive development of a military systems perspective. During this period the effects of rapidly changing technology have become pronounced. One Soviet systems expert states:

> The efficiency of systems ideas and methods was demonstrated, in particular, in solving problems that arose during the construction of complex technological and defense systems.[18]

The trend of using a systems approach to solve complex military-related problems is likely to continue into the 1980s and should intensify in the coming years as technological development continues to accelerate.

forecasting

What is forecasting from the Soviet perspective? In order to answer that question, it is first necessary to understand Soviet use of forecasting terminology. For example, it is important to note the difference between the Soviet meanings of the terms forecasting (*prognozirovaniye*), planning (*planirovaniye*), and prediction (*predskazaniye*).

Forecasting is intended to establish *"what may occur in the future and under what conditions"*; whereas, planning is "determining *what is supposed to occur in the future.*"[19] In reality, forecasting is viewed as the first stage in the overall planning process. The concepts of forecasting and prediction are used to convey the meaning of foresight or recognition. However, forecasting is considered to be a research process; while prediction is an art.[20] In this sense, "forecast (*prognoz*) denotes a probabilistic statement about the future with a *relatively high degree of reliability*," and "prediction (*predskazaniye*) is an apodictic (nonprobabilistic) statement about the future *based on absolute reliability.*"[21]

Soviet forecasting theory and methods are similar to those used in the West. In fact, considerable amount of theory and current application in the Soviet Union has been borrowed from the West.[22] The differences that exist generally are based on either ideological or philosophical considerations. For example, some Soviet writings extol the virtues of socialism and state that forecasting must be based on the "scientific approach" (i.e., Marxism-Leninism). In addition, Soviet forecasters claim that their Western counterparts do not dwell sufficiently on the philosophical aspects of the problem under study and thus do not have a thorough understanding of the problem being addressed.

In the Soviet Union, as elsewhere, forecasting is viewed not as an end in itself but as an aid to the decision-making process. As previously noted, forecasting is viewed as a research process in which the end result has a relatively high degree of reliability. According to Soviet systems literature, "a forecast, together with an analysis and diagnosis, is assigned the important function of providing the scientific basis of a decision."[23] As one well-known Soviet forecaster has pointed out, forecasting aids the decision-making process first by highlighting a problem, then by aiding the problem-solving process.[24] Basically, the forecasting sequence includes five stages: information analysis, model construction, determination of the unknown parameters, the actual forecast, and, finally, an estimate of the forecast error.[25]

Soviet forecasting generally is subdivided into short-term (up to five years), midterm (five to ten years), and long-term (usually ten to fifteen years). However, it is important to note that the time categories can vary and depend to a certain extent on the forecaster's perspective as well as the subject being forecast. For example, one Soviet specialist subdivides forecasting into *four* separate divisions: short-term (up to ten years), medium-term (up to thirty years), long-term (up to fifty years), and superlong term (four to five centuries or longer).[26]

While 150-200 different methods of forecast

ing reportedly exist, only about 15-20 (e.g., heuristic and mathematical forecasting are used extensively) have become widely adopted in the Soviet Union.[27] As forecasting has become more accepted as a method of aiding decision making, it has been applied to additional problem areas. For example, beyond the fields of science and technology and military affairs (which account for the majority of forecasting research), forecasting has been applied to economic affairs, town planning, education, demography, law, philosophy, and political affairs.[28]

One of the most evident areas of a Soviet systems perspective has been military forecasting. As one senior Soviet military officer pointed out in 1972:

Scientific prediction and forecasting are of particular importance in military affairs. This is due to the very nature of this particular field of social activity. It is perhaps precisely here that scientific and technical progress has the keenest effect and where it is implemented most rapidly and decisively.[29]

Soviet military forecasters view forecasting in much the same way as their Western counterparts. The basic goal of Soviet military forecasting is to predict the nature of future conflict in order to reduce the uncertainty of the outcome of warfare and the concomitant potential for adversely affecting national and military objectives.

Naturally, military forecasting has had a profound impact on a number of military-related areas, such as weapons development and procurement, tactics, and military art. In fact, weapons development and procurement, along with military art, have been singled out in Soviet writings as the areas most affected by the rapid developments in science and technology. Several reasons why weapons development and procurement are so greatly influenced by science and technology have been cited:

• modern weapons cannot be created and controlled without using the most recent scientific advances;

• modern scientific knowledge has outstripped developments in military affairs;

• the time gap between discovery and application is being continually reduced; and

• modern military equipment is so complex that its creation, production, operation and control require increased technical ability.[30]

In addition to affecting weapons development and tactics, forecasting has influenced Soviet military art. For example, one senior Soviet military officer specifically referred to the impact of forecasting on Soviet military art:

Scientific prediction and forecasting in military affairs, verified and confirmed by military practice, *accelerate the process of the development of military art* [and] enable us to see the long-range development of the armed forces and to improve the style of their work and the methods of leadership.[31]

Like other types of forecasting, military forecasting is divided into short-term, midterm, and long-term. However, the time interval applied to each of the categories varies according to the subject being forecast. For example, the time frames associated with the flight times of ballistic missiles would be measured in terms of seconds and minutes. For combat operations, the time factors would be longer and may vary from just hours (short-term) to days (midterm) and weeks (long-term). For weapons development, the time frames would be considerably longer and might be measured in terms of years or decades.[32]

In Soviet military writings, forecasting has been divided into a number of subject areas (i.e., strategic, operational-tactical, economic, and technical).[33] Strategic forecasting in the military realm encompasses the conduct of future conflict and includes such areas as military objectives, missions, plans, and force composition. Operational-tactical forecasting includes the detailed investigation of future methods of conducting combat operations and employing existing and future weapon systems. Economic forecasting involves budgetary matters of a

military nature (while taking into consideration the overall economic situation of the nation). Finally, technical forecasting, which has been characterized as "the most rapidly developing division of military forecasting," focuses on weapons development.[34]

What is the future of Soviet forecasting? In 1976, Robert Randolph, an American futures researcher, questioned future Soviet progress in the field:

> Despite its prominence, Soviet futures research has a somewhat uncertain future; further growth will depend both on its own achievements and on any realignment of official policy which may come with the inevitable leadership changes in the Kremlin.[35]

While Randolph's basic doubt has not been confirmed, his assessment that the continuing success of Soviet forecasting would depend not only on its achievements but also on the support of the Soviet leadership has proved correct. Since 1976, forecasting in the Soviet Union has flourished, in part because of continued support from Soviet leaders. Moreover, the Soviets have perceived a demonstrated need for more extensive forecasting, particularly in science and technology, economic planning, and military affairs.

modeling

Soviet modeling *(modelirovaniye)* is closely patterned after concepts used in the West and is viewed as a method for aiding forecasting and decision making at both the national and global levels. While attempts at modeling can be traced back to the 1950s, it was not until the 1970s that modeling began to emerge as a major approach to help manage complex issues facing the Soviet system. This change in Soviet thinking occurred because of two major factors: the rapid development of sophisticated computers and the publication of non-Marxist Western global models dealing with a variety of topics. Sophisticated computers have aided the construction of complex models. These complex models have helped planning and decision making, since they are able to replicate real-world phenomena more accurately. The development of non-Marxist Western global models was an important event also, since it served to stimulate Soviet interest and dialogue in modeling. Moreover, the early models helped to establish the foundations for more complex follow-on models.

At the national level, models have been developed to help manage more effectively a variety of areas. For example, modeling is used extensively for economic planning. As one Soviet economist points out, a comprehensive "system of economico-mathematical models is being fostered by the need to further improve management and planning, the requirement of economic practice."[36] Environmental protection and the management of military affairs are other areas in which modeling plays an important role at the national level.[37] More recently, modeling has been used extensively in Soviet military forecasting.

Soviet modeling practices are patterned closely after Western concepts and methods. Thus, as Western military modeling proliferates and displays more sophisticated methods, it should not be too surprising to see a similar occurrence in Soviet military modeling.[38] While there exists a wide range of different types of models available, Soviet military specialists have described their existing models as being based on either a heuristic or a mathematical approach, or a combination of both. Heuristic modeling and forecasting—characterized as the oldest methods used in military affairs—are quite subjective and are based on a sampling of qualified specialists' predictions of future developments. Heuristic modeling is used in such areas as assessing a combat situation, discerning the tactics of friendly and opposing forces, forecasting the intentions of opposing forces, and adopting a concrete plan of operations.[39] Naturally, heuristic modeling is affected by both subjective factors (e.g., knowledge and thinking patterns, combat experience

mmander's will, etc.) and objective ones
g., laws of armed conflict, specific combat
nditions such as weather and terrain, etc.).[40]
In contrast, mathematical modeling tends to
more objective than heuristic modeling and
s several phases:

• the selection and substantiation of the
odel of the process being forecast;
• the calculation (determination) by means
the model of the characteristics of the process
phenomenon being forecast for a predeter-
ined moment of time in the future; and
• analysis of the forecasting results and esti-
ation of their accuracy.[41]

cording to Soviet military writings, a short-
rm forecast can be modeled effectively by us-
g the mathematical approach, but the heuris-
approach should be factored into the model-
g process when the time frame under study
ecomes greater.[42]

Global modeling also receives a great amount
attention in Soviet systems literature.[43] One
the primary reasons for this is based on ideo-
gical considerations. Soviet writings clearly
hibit an ideological uneasiness with Western
obal models. One of the basic ideological
jections to non-Marxist global models is the
istence of future global forecasts independ-
t of the principles of Marxism-Leninism.
zhermen Gvishiani, a Soviet expert in the
stems field, provides an insight into the basic
viet view of Western global models:

It is evident that global modelling cannot but
become a sphere of fierce ideological struggle,
because it is linked with the shaping of a more or
less concrete idea of the future of humanity.[44]

his quotation highlights the basic ideologi-
l concern of Soviet systems specialists—the
istence of a potential alternative to Marxism-
eninism as a prescription for the future. De-
ite the perceived challenge posed by Western
obal models, however, Soviet systems spe-
alists appear reluctant to advance compara-
e global models that could demonstrate the
inefficacy of the Western models and the super-
iority of their own. While comparable Soviet
global models may exist within certain circles
in the Soviet Union, they are not readily avail-
able outside them.

Although Soviet writings still are generally
critical of non-Marxist Western global models,
there does appear to be a slowly emerging shift
away from outright rejection of Western global
models. Initially, during the 1970s, Soviet lit-
erature was singularly critical of the global
modeling advanced by Western modelers such
as Forrester, Meadows, Mesarovic, and others.
However, since the late 1970s, Soviet writings
have become somewhat less critical of the early
models, and even have exhibited—albeit some-
times grudgingly—a more objective and posi-
tive appraisal of Western global models. For
example, Gvishiani has stated:

The Forrester and Meadows models have focused
attention on the really existing problems of a
global character and dealt a telling blow at in-
competent optimism with regard to these prob-
lems.[45]

Basically, the predominant Soviet view now
appears to be that, in spite of their ideological
faults, the early models served to call attention
to important problems as well as establish the
foundation for follow-on models to deal with
these problems. Nevertheless, the Soviet as-
sessment is that Western models exhibit a
number of shortcomings (e.g., they are too pes-
simistic, underrate the ability of man to influ-
ence future developments, and do not account
for different social systems).

In the final analysis, modeling is becoming a
widely accepted method for managing internal
Soviet problems as well as global-oriented
problems. One of the primary reasons for this
development is the proliferation of increas-
ingly sophisticated computers.

cybernetics

The Soviet approach to systems analysis has
been affected profoundly by developments in

computer technology. No where is this more apparent than in the field of cybernetics (kibernetika), which is defined in Soviet writings as "a science studying the most general laws of control in systems of any nature and complexity."[46]

Over the years, Soviet systems literature has displayed a considerable enthusiasm for cybernetics.[47] This enthusiasm generally has centered on the potential that cybernetics offers for managing complex problem areas. According to V. Afanasyev, chief editor of Pravda and a leading proponent of the systems approach, "cybernetics is one of the most brilliant offshoots of contemporary scientific and technical progress."[48]

Several cybernetic concepts have proved important for the Soviets. For example, the concept of "feedback" has made a significant contribution to their systems approach. Feedback is the idea that certain actions affect the object under study, and that the effects of these actions should be taken into consideration in one's analyses. Feedback is an important element in the development of modeling and forecasting. According to Soviet military writings, other important cybernetic concepts include "information," the "algorithm," and the "control device."[49]

While cybernetics has been applied to a variety of problem areas facing the Soviet system (e.g., economy, production, science and technology, etc.), military affairs is one of the areas in which cybernetics has been applied widely. Military cybernetics (kibernetika voyennaya) is a rapidly developing specialized field within the Soviet military. The Soviet Dictionary of Basic Military Terms defines military cybernetics as:

> A military-technical science which is a branch of cybernetics. Military cybernetics deals with the structure and laws of operation of systems for the control of troops and weapons, and also defines the tactico-technical requirements which the technological equipment of such systems must meet.[50]

While the Soviet Military Encyclopedia tra[ces] the development of military cybernetics ba[ck] as early as the late 1950s, it was not until t[he] 1970s that cybernetics really became an i[m]portant factor in Soviet military affairs.[51] T[he] primary emphasis in military cybernetics is [on] troop control (upravleniye voyskami).[52] O[ne] senior Soviet military officer noted that due [to] the increasing complexity of military affairs [a] special branch of cybernetics (i.e., military c[y]bernetics) was created for command and co[n]trol.[53] In support of command and contr[ol] military cybernetics reportedly uses

> automated control systems, including the tra[ns]mission, storage, processing, and use of situati[on] data (information) for its evaluation and wo[rk]ing out decisions, defining problems (the dire[ct] link in the fundamental cybernetic system of t[he] control process), and receiving reports on t[he] completion of missions, the status, position, a[nd] the character of operations of friendly and enem[y] forces (feedback).[54]

It is also important to note that military cybe[r]netics has had an important impact on oth[er] areas, such as operations research, missio[n] analysis, training, and weapons developmen[t].

THE CONFLICT between the increasing com[m]plexity of many issues and the Soviet desire [to] control future developments has led to a fu[n]damental shift in Soviet thinking. One result [of] this shift has been the adoption of a Sovi[et] systems perspective. A review of Soviet writing[s] shows that over the years, the systems approac[h] has been applied to a variety of disciplines—especially military affairs. The proliferation [of] Soviet systems literature over the past few year[s] coupled with the creation of several institute[s] dedicated to systems research, suggests that th[e] Soviet leaders made a conscious decision t[o] pursue a systems perspective. As the rapid d[e]velopment of science and technology accele[r]ates during the 1980s, reliance on the system[s] approach undoubtedly will grow.

What should be the Western response to th[e] Soviet shift to a systems approach? First, it [is] important that analysts recognize that th[e]

doption of a systems approach is an important development that can have a major impact n Soviet planning, and hence, decision making. Second, the impact of the systems approach on Soviet affairs must be factored into oviet studies in the West. Finally, a more thorough investigation of the impact of the systems approach on the Soviet Union should be undertaken. Only by broadening our efforts beyond conventional analytical methods in our Soviet studies and considering the Soviet systems perspective will we understand fully the events now taking place in the Soviet Union.

University of Edinburgh, Scotland

otes

1. I. V. Blauberg, V. Sadovsky, and E. Yudin, *Systems Theory: hilosophical and Methodological Problems* (Moscow: Progress blishers, 1977), p. 15. Emphasis mine.

2. J. Gvishiani, "The Philosophical Basis of Systems Studies," cial Sciences, vol. XIII, no. 3, 1982, p. 62. Emphasis mine. It is portant to note that Gvishiani's first name is translated into nglish sometimes as "Dzhermen" and other times as "Jermen." hile "Dzhermen" (abbreviated—Dzh.) is a more proper transla- on, "Jermen" (abbreviated—J.) will be cited where it has been ed.

3. For example, see I. Blauberg, "The History of Science and the stems Approach," *Social Sciences*, vol. VIII, no. 3, 1977, p. 98, for discussion on a supposed shift to a "systems point of view" in arxist theory of value in 1927. However, it is interesting to note at the Soviet systems perspective really began earlier with A. ogdanov's theory of "Tektology." While Bogdanov's theory was verely criticized by Lenin as a deviation from Marxism-Leninism nd is still so criticized in Soviet systems literature today), Bogdan- 's theory really advocated using a systems approach. For a synop- of Bogdanov's theory, see Julius Hecker, *Russian Sociology* ondon: Chapman and Hall, 1934), pp. 279-96.

4. See V. Altayev, editor, *General Systems Theory*, abridged trans- tion from M. Mesarovic, editor, *Views on General Systems The- y*, *Proceedings of the Second Systems Symposium at Case Insti- te of Technology* (New York, 1964; Moscow, 1966). Also see V. adovsky and E. Yudin, editors, *Issledovaniya po obshchei teorii stem* (Studies in General Systems Theory), a collection of transla- ons (Moscow, 1969).

5. A survey of systems-related books and articles shows a dramatic crease in the amount of Soviet systems literature published dur- g the 1970s. In addition to the numerous books published, see the oviet journal *Social Sciences*, published by the U.S.S.R. Academy Sciences, which had a notable increase in systems-related articles ublished during the 1970s.

6. A review of Soviet literature published since the late 1970s veals a noticeable increase in the use of a systems perspective or stems approach for investigating a wide range of phenomena that fect Soviet society. For example, see V. Stepansky and A. Osnitsky. Systems Approach in the Study of Psychic and Physiological henomena," *Social Sciences*, vol. IX, no. 4, 1978, pp. 179-84. Also, e systems approach has been used in other areas, such as envi- onmental protection. See Yu. Trusov, "The Ecological Approach nd Problems of Moulding the Noosphere," in A. Ursul, editor, *hilosophy and the Ecological Problems of Civilisation* (Moscow: rogress Publishers, 1983), pp 58-66. Also see Yu Svirezhev and D ogolet, *Stability of Biological Communities* (Moscow: Mir Pub- shers, 1983). A systems perspective was even evident in the 1977 oviet constitution. For an analysis of the presence of a systems erspective in the 1977 Soviet constitution, see Robert Sharlet, *The ew Soviet Constitution of 1977: Analysis and Text* (Brunswick: ing's Court Communications, 1978), pp. 10-15.

7. Blauberg, Sadovsky, and Yudin, p. 12. Emphasis mine.

8. For example, the Institute of Systems Studies located in Mos- cow is oriented purely to systems studies and reportedly has a research staff of more than 400 people. Created in 1976, the institute has eight main departments: Social and Economic Studies, Man- agement Studies, Global Models, Scientific and Technology Devel- opments, Computers and Man-Machine Systems, Simulation of Scientific Progress, Optimization, and Computers and Software. In addition, the Institute of Control Sciences and the Institute on Management of the National Economy (both founded during the 1970s) are concerned with systems studies. Information was ob- tained in discussions at Defence Studies, University of Edinburgh, with Professor John Constable of Cranfield Institute of Technol- ogy, on 17 February 1984, after his visit to the institute. Also see I. Bestuzhev-Lada, "Futures Research in the Soviet Union," *Futures*, April 1976, pp. 184-85, for a discussion on systems research-oriented centers located in the Soviet Union. For example, in Kiev, the Ukrainian Academy of Sciences acts as a central coordinating body for forecasting; in Leningrad, the Scientific Forecasting Section of the Leningrad Department of the Soviet Sociological Association acts as an information exchange center; in Novosibirsk, the Social Forecasting Section of the Siberian Department of the Soviet Socio- logical Association acts as a central information exchange; and in Moscow, the State Committees for Planning, Science and Technol- ogy, Construction, and the U.S.S.R. Academy of Sciences act as central coordinators in the field of forecasting. Also see Blauberg, Sadovsky, and Yudin, pp. 80-82, for a further elaboration of Soviet systems-oriented organizations that were founded to explore sys- tems studies.

9. John Erickson, "Toward 1984: Four Decades of Soviet Military Policy," *Air University Review*, January-February 1984, p. 31. Pro- fessor Erickson's view that the emergence of a systems perspective in the Soviet Union is a major event that requires careful considera- tion is the prime motivating factor for undertaking this study.

10. For example, *sistemotekhnika* (systems engineering) has been described as follows:

> It [*sistemotekhnika*] is a discipline, which includes the theory, methodology and apparatus for the preparation of solutions, and the theory, methodology and apparatus for the creation of systems, with the capacity for single-minded and purposeful activities in complex situations (of complex systems).

See V. Druzhinin and D. Kontorov, *Voprosy voyennoy sistemo- tekhniki* (Moscow: Voyennoye izdatel'stvo, 1976), p. 33. Also see *Voyennyy entsiklopedicheskiy slovar'* (Moscow: Voyennoye izda- tel'stvo, 1983), p. 675, for a more lengthy definition of *sistemotek- hnika*.

11. See I. Naumenko, review of *The Systems Principle in Marxist Theory and Methodology*, by Vsevolod Kuzmin, in *Social Sciences*, vol. IX, no. 1, 1978, p. 250.

12. Blauberg, Sadovsky, and Yudin, p. 103.

13. Yu. Chuyev and Yu. Mikhaylov, *Prognozirovaniye v voyen- nom dele* (Moscow: Voyennoye izdatel'stvo, 1975), translated and published under the auspices of the USAF in *Forecasting in Mili-*

tary Affairs: A Soviet View, Soviet Military Thought Series, No. 16 (Washington: Government Printing Office, 1980), p. 1.

14. See General V. Kulikov, "Sovetskiye vooruzhennye sily i voyennaya nauka" (The Soviet Armed Forces and Military Science), *Kommunist*, No. 3, Moscow, February 1973, translated and published under the auspices of the USAF in *Selected Soviet Military Writings 1970-1975: A Soviet View*, Soviet Military Thought Series, No. 11 (Washington: Government Printing Office, 1977), p. 99.

15. Erickson, p. 33.

16. One apparent result, for example, has been a reorganization of some portions of the Soviet military (e.g., the Soviet Air Defense Forces, restructuring of the Military District, etc.). For an excellent discussion on some of the restructuring of the Soviet military, see John Erickson et al., *Organizing for War: The Soviet Military Establishment Viewed through the Prism of the Military District*, College Station Paper 2 (College Station: Texas A&M, 1983). Also see Julian Cooper, "Scientific and Technical Change in the U.S.S.R.," *Futures*, December 1979, p. 473, where Cooper states that a major forecasting exercise in 1965 "helped to focus the attention of the Soviet aircraft industry on the importance of vertical takeoff, variable-geometry wings, on-board computers and the use of liquid hydrogen as a fuel."

17. Blauberg, Sadovsky, and Yudin, p. 259.

18. Ibid., pp. 110-11.

19. Chuyev and Mikhaylov, p. 6. Emphasis in original.

20. Ibid., p. 8.

21. Ibid., p. 7.

22. Soviet writers may not always acknowledge the direct influence of the West. Thus, Bestuzhev-Lada states: "The methods and techniques of forecasting [in the Soviet Union] are developing along general world lines." Bestuzhev-Lada, p. 182.

23. Ibid.

24. Ibid., p. 181.

25. Chuyev and Mikhaylov, p. 29. However, also see V. Kosolapov, *Mankind and the Year 2000* (Moscow: Progress Publishers, 1976), pp. 41-43, where he divides forecasting into eight basic stages: define the object to be forecast; retrieve and process information on the object of the forecast; identify its direction and determine the time limits; bring the three preceding stages together; adjust the forecast; coordinate the forecast with other forecasts; evaluate and reappraise the forecast in the light of an analysis of the objective social needs; and utilize the information obtained from the forecasts.

26. Kosolapov, p. 42.

27. Bestuzhev-Lada, p. 182. Also see Dzh. Gvishiani, "The Scientific and Technological Revolution and Scientific Problems," *Social Sciences*, vol. 1, no. 7, 1972, p. 51, where he states that over 100 different forecasting methodologies exist.

28. For a fairly comprehensive list of Soviet writings on forecasting published during the 1970s on a variety of areas, see Bestuzhev-Lada, pp. 182-84.

29. Lieutenant General I. Zav'yalov, "Nauchnoye predvideniye v voyennom iskusstve" (Scientific Prediction in Military Art), *Krasnaya Zvezda*, Moscow, 3 August 1972, translated and published under the auspices of the USAF in *Selected Soviet Military Writings 1970-1975: A Soviet View*, Soviet Military Thought Series, No. 11 (Washington: Government Printing Office, 1977), p. 214. Also see John Erickson, "From Prophecy to Prediction," *Futures*, August 1977, pp. 335-39, for a discussion on the military implications of Soviet forecasting.

30. Colonel General N. Lomov, editor, *Nauchno-tekhnicheskiy progress i revolyutsiya v voyennom dele* (Moscow: Voyennoye izdatel'stvo, 1973), translated and published under the auspices of the USAF in *Scientific-Technical Progress and the Revolution in Military Affairs (A Soviet View)*, Soviet Military Thought Series, No. 3 (Washington: Government Printing Office, 1977), pp. 30-31.

31. Zav'yalov, p. 218. Emphasis mine.

32. For a discussion on forecast time intervals for military-related areas, see Chuyev and Mikhaylov, pp. 14-15.

33. Ibid., pp. 17-20.

34. Ibid., p. 20.

35. Robert Randolph, "Social and Technological Forecasting [in] the Soviet Union," *Futures*, December 1976, p. 485.

36. N. Fedorenko, "Mathematical Methods in Economic Science," *Social Sciences*, vol. VII, no. 3, 1976, p. 75. For an extended discussion on using models for economic management, see pp. 75-77. For example, Fedorenko lists seven "economico-mathematical" models used in management: economic forecasting models; economico-mathematical models used directly in drawing up national economic plans; models of individual industries; economico-mathematical models of the current planning of industrial, civil engineering, transport, and other associations and enterprises; territorial simulation; economico-mathematical models of the organization of material and technical procurement and supply; and models of functional blocks of the economic system.

37. For examples of using models to manage environmental problems, see I. Frolov, *Global Problems and the Future of Mankind* (Moscow: Progress Publishers, 1982), pp. 126-43; Dzh. Gvishiani, "Methodological Problems of Modelling Global Development," in Ursul, pp. 233-52; and Svirezhev and Logofet. For discussions about the use of models for managing military affairs, see Chuyev and Mikhaylov, pp. 65-111; and V. Druzhinin and D. Kontorov, *Ideya, algoritm, resheniye* (Moscow: Voyennoye izdatel'stvo, 1972), translated and published under the auspices of the USAF [in] *Concept, Algorithm, Decision: A Soviet View*, Soviet Military Thought Series, No. 6 (Washington: Government Printing Office, 1975), pp. 17-22, 89-91, and 227-29.

38. For example, see Constance Holden, "World Model for the Joint Chiefs," *Science*, 11 November 1983, p. 595, for a discussion [of] FORECASTS, a new, extremely sophisticated, global model being developed for the U.S. military. Also see Marjorie Sun, "The Pentagon's Ambitious Computer Plan," *Science*, 16 December 1983, pp. 1213-15, for a discussion on the Defense Department's proposal for an ambitious program to further develop the military applications of computer technology and artificial intelligence.

39. Chuyev and Mikhaylov, p. 114. Chuyev and Mikhaylov give a rather detailed explanation of the differences between heuristic and mathematical modeling.

40. Ibid., p. 133.

41. Ibid., p. 117.

42. Ibid., p. 121.

43. For a comprehensive review of Western global models, see Lapin, "Social Indicators in Global Models," *Social Sciences*, vol. X, no. 1, 1979, pp. 80-92. Also see Dzh. Gvishiani, "Theoretical Aspects of Modelling Social Processes," *Social Sciences*, vol. IX, no. 3, 1978, pp. 104-23, for an extended discussion on global modeling. On the same subject, also see V. Gelovani, S. Dubovsky, and Yurchenko, "Methodological Aspects of Modelling," *Social Sciences*, vol. XII, no. 2, 1981, pp. 55-65. These latter writers divide global models into two categories: simulation models and optimization models. Simulation models use a closed system of equations (i.e., functions and parameters are given prior to beginning the model), whereas, the equations used to describe an optimization model are not closed. (pp. 59-61)

44. Gvishiani, "Theoretical Aspects of Modelling Social Processes," p. 113.

45. Ibid., p. 106. Also see Dzh. Gvishiani, "Methodological Aspects of Global Development Modelling," in *Society and the Environment* (Moscow: Progress Publishers, 1983), p. 33, where [he] states:

> The criticism leveled at the models in existence is largely justified, especially where one-sided assumptions which distort the historical perspectives are concerned [i.e., non-Marxist-Leninist]. However, even these defective models show the *positive creative* potential offered by methods of analysing social development. [Emphasis mine.]

46. Lomov, p. 165.

47. As one Soviet specialist stated, "The advent of cybernetics promised (and we may say, still promises) a revolutionary overturn in forecasting." Shakhnazarov, *The Destiny of the World: The Socialist Shape of Things to Come* (Moscow: Progress Publishers, 1981), p. 14. It must be noted that much of the initial euphoria exhibited in Soviet writings over the potential benefits of cybernetics has been tempered more recently with a far more pragmatic view. Nevertheless, the current Soviet view of cybernetics remains positive.

48. V. G. Afanasyev, *The Scientific and Technological Revolution—Its Impact on Management and Education* (Moscow: Progress Publishers, 1975), p. 35.

49. For example, see Lomov, pp. 175-78, for an extended discussion on these concepts. Basically, "information" is defined as "the aggregate of intelligence concerning the processes occurring in nature, society, and technical devices." (p. 175) The "algorithm" is defined as "an aggregate of rules, the following of which inevitably must lead to the solving of one or another problem." (p. 177) "Control devices" are "devices designed for automatic information

processing." (p. 178)

50. *Slovar' osnovnykh voyennykh terminov* (Moscow: Voyennoye izdatel'stvo, 1965), translated and published under the auspices of the USAF in *Dictionary of Basic Military Terms: A Soviet View*, Soviet Military Thought Series, No. 9 (Washington: Government Printing Office, 1977), pp. 37-38. Also see *Sovetskaya voyennaya entsiklopediya (SVE)*, vol. 4 (Moscow: Voyennoye izdatel'stvo, 1977), p. 151, which defines *military cybernetics* as

an area of cybernetics studying the axioms of the command and control of troops and weapons on the basis of the standard concepts for cybernetics; the theoretical basis for the automated command and control of troops and weapons.

51. For example, see *SVE*, vol. 4, p. 151.

52. See *SVE*, vol. 4, pp. 151-53, for an extended discussion on Soviet military cybernetics and troop control. Also see John Hemsley, *Soviet Troop Control* (Oxford: Brassey's Publishers, 1982), for a discussion on military cybernetics and Soviet troop control.

53. Lomov, p. 166. Emphasis mine.

54. *SVE*, vol. 4, p. 151.

Tactics are an art and not a mere bout of fisticuffs, and in war the tactical object of this art is disorganization and not destruction.

J. F. C. Fuller
Machine Warfare, p. 142

scientific and technological perspectives

ARTIFICIAL INTELLIGENCE

Colonel Pat O. Clifton
Dr. John Romo

COMPUTER systems featuring artificial intelligence (AI) technology may finally provide relief for overburdened commanders. The popular press has been replete with stories about the unlimited horizons of AI applications. Military, academic, and commercial research facilities are investing significant sums to exploit this new technology. But can AI technology really help military commanders? How much of the media coverage is simply "hype" without substance?

The Defense Advanced Research Projects Agency (DARPA) recently launched a $600 million Strategic Computing Program that could lead to completely autonomous weapons, battlefield management systems, vision and speech systems, and an automated copilot that can understand a human voice. Near-term applications are to be in the areas of tactical targeting and natural language interfaces. General Robert T. Marsh (former Commander, Air Force Systems Command), in an article previewing future technology, discussed the potential of AI:

> We also see value in using expert systems to relieve the work load of commanders and command post controllers in the battle-management arena. AI can help in handling the immense amounts of data generated in support of the battle commander.[1]

Realizing AI's full potential depends not only on technological developments but also on maintaining an awareness of how these new techniques can be intelligently applied. We must avoid being rushed into unsound AI projects. Computer technology already has a tremendous impact on all facets of our daily lives. We are now entering an era in which computer systems may come to dominate the central core of our existence. Fifth-generation computers, for example, may provide legal and health advice, control transportation systems and traffic flow, educate our young, and serve as lifetime personal advisors. Knowledge and information may become the critical commodities of power in the future. To survive in this new environment, military leaders will have to become aware of the promises and associated problems of artificial intelligence technology.

What Is Artificial Intelligence?

The problem with modern communications systems is not that they cannot provide support, but rather they provide an overabundance of data. The difficulty, in fact, is that commanders have too much information. We seem far better at producing systems that churn out data than at developing machines that sort out the superfluous. When computers were intro-

uced into the military, it was hoped that they would help limit data to meaningful information. Unfortunately, the opposite has been the case. The amount of data that commanders must sift through has increased as computer support systems have multiplied. Now, yet another promise of relief is being discussed. Artificial intelligence is being hailed as the long-waited computer breakthrough that will provide effective decision support systems for the future. Will artificial intelligence computer systems actually help make a commander's job easier, or will they merely add to the burden? to answer this question, we should look first at what the term *artificial intelligence* means.

Artificial intelligence does not refer to facts or information about a potential adversary.

Rather, intelligence in this context refers to the power or act of understanding. There is no doubt that AI means different things to different people. To the nontechnician, it could mean mystique; to researchers, a specific discipline with complex problems to be solved. The *Handbook of Artificial Intelligence* (1981), edited by Avron Barr, Paul Cohen, and Edward Feigenbaum, describes artificial intelligence as "that part of computer science concerned with designing intelligent computer systems, that is, computer systems that exhibit the characteristics we associate with intelligence in human behavior—understanding language, learning, reasoning, solving problems, and so on."[2] In other words, artificial intelligence is an attempt to give machines the capability of per-
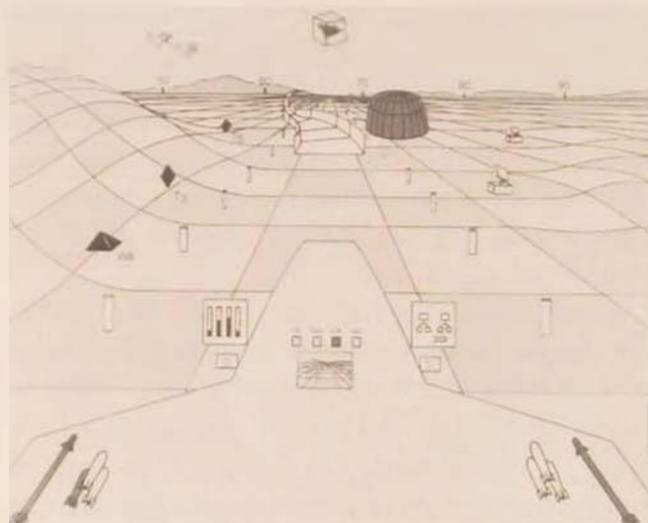
"Take that, antediluvian Grombots!" Our "starwarriors" (and other pilots) of the near future may wear Visually Coupled Airborne Systems Simulators (VCASSs), which will eliminate the need for most cockpit instruments. . . . Inside the helmet, the pilot will see a panoramic scene of the battle area with flight data and weapons status superimposed. In the scene shown here are a ground threat (indicated by the dome-shaped symbol), hostile targets and potentially hostile threats, friendly aircraft (white symbols at the upper left), and other information that should help a pilot in combat. The pilot will interact with the display by looking at or pointing toward objects in the scene and giving voice commands.

forming intelligent human-like tasks. The recent media hype belies the fact that men and women have been working for years to achieve this goal.

Pamela McCorduck in *Machines Who Think* (1979), perhaps the best history of artificial intelligence, discusses man's continuing attempts to replicate his own abilities. Modern-era efforts to create artificial intelligence began with the advent of the first electronic "calculating machine," ENIAC, in 1946. Pioneers in the field of AI, such as Herbert Simon and Allan Newell of Carnegie-Mellon University, Marvin Minsky of the Massachusetts Institute of Technology, and John McCarthy of Stanford, realized that machines could be made to manipulate symbols for words or thoughts.[3] The mainstream of computer development during the early years dealt with straightforward numerical or data manipulation. A few individuals struggled with the concept of creating machines that could demonstrate reasoning and learning capabilities. Early projects centered on games, such as checkers and chess. If a machine could be made to play chess reasonable well, it was argued, then machines could be considered intelligent.

By the late 1950s and early 1960s, articles on computers were already discussing both the promise of this new technology and its threat to man's superiority. A 1961 *Life* magazine article titled "The Machines Are Taking Over" stated that computers were slowly replacing man in many endeavors but that man could always "reach down and pull the plug."[4] Sales executives at IBM were afraid that their computers would be psychologically threatening and customers would refuse to buy them. Ads were developed to show that computers were really pretty dumb after all.[5] Arguments over whether machines could actually think were initiated with these early computer developments.

Can machines think? No present models for understanding knowledge formation or how the mind works allow us even to begin to answer this question. Certainly this article, as

an introduction to AI, will not dwell on what may be a moot point. But we can examine a few of the basic arguments surrounding this debate, and perhaps by so doing, we can remove some of the mystique surrounding AI and pro

The hypertechnologies tested aboard the Advanced Fighter Technology Integration F-16 are those that will improve and help automate aerial combat capabilities, reducing the pilot's workload to allow him to concentrate on the ultimate mission: flying and fighting.
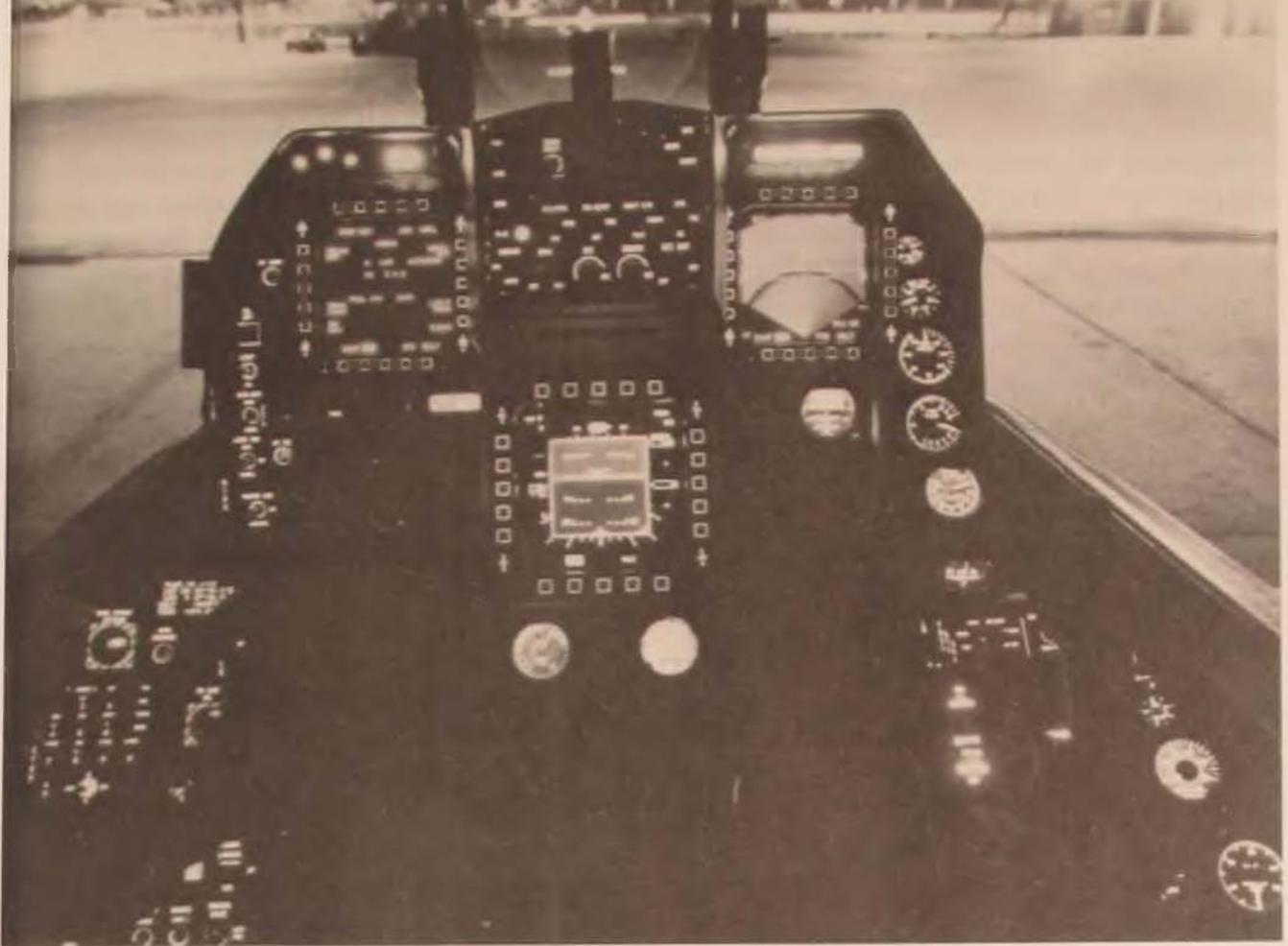
The Advanced Fighter Technology Integration F-16 cockpit incorporates innovative technologies with digital flight controls, a cathode ray tube for mapping, and an electronic instrument display. After flight tests and other testing are completed in 1986, the aircraft will be made available for further modification and testing of additional emerging technologies.

vide a common basis for understanding such terms as *intelligent machine* or *smart systems.*

Early researchers who said that machines could be made to demonstrate human-like intelligence developed the "Turing Test" (named for A.M. Turing, a British AI pioneer) to prove their point. In the test, an interrogator would be separated from the person or machine being interrogated and could communicate only by teletype. If the interrogator could not tell whether he or she was communicating with a person or machine, then a machine could be said to think.[6]

Opposite these believers were those who questioned the very idea that machines could be intelligent. The following is a summary of the primary arguments against the concept of thinking machines:

Intelligence is an exclusive human property; for reasons of divine origin or biological accident. Human beings are the only creatures on the planet who have or will ever have genuine intelligence. . . . Machines can't be said to think because intelligence requires creativity or originality, and no machine has been or can be creative and original. . . . Given that computers might be capable of intelligent behavior ought we to pursue the possibility? Can we foresee the outcome of such an awesome step?[7]

Despite such arguments, a number of AI researchers today believe that some machines do perform thinking functions. They argue that just because computers can't write like Shakespeare does not mean that they aren't intelligent. AI expert Patrick Winston stated the case in this way: "Of course to believe in human superiority is a tradition. Once our intelligence

was unchallenged, yet someday computers may laugh at us and wonder if biological information processors could be really smart."[8] The arguments go on and on. Regardless of the position taken, it is a fact that AI developments will require computer systems that are physically and operationally different from conventional computers.

how conventional computers work

To understand how AI systems work, first let us briefly review a few fundamentals about conventional computers. Computers, in general, are devices that accept and manipulate data in a sequence ordered by some prearranged program. These operations result in some further action or output. Computers that perform these operations are generally divided into two basic types—analog and digital. Analog computers operate on a constant but varying input (like an automobile speedometer), while digital computers operate on inputs that are either on-off or incrementally stepped quantities represented by numerical digits.[9] AI systems employ digital computers.

Digital computers have three main components: an input/output device, a memory module, and a central processing unit (CPU). The input/output device (keyboard, monitor, printer, etc.) provides the means to enter programs and to display or view results. Programs and instructions are stored in the second basic component, the memory module. Interim results, computations, and data are also stored in memory until they are needed for further operations. Memory modules may also use storage devices such as magnetic tape or discs. The key component of a conventional computer, the central processing unit or CPU, processes the programs or instructions in the memory module and executes the required operations. It controls the entire operation.[10]

All conventional computers, from the first-generation machines built in the late 1940s and early 1950s through the current fourth-generation systems, are essentially the same in design

and operation. Generational dividing lines came about as a result of changes in hardware technology rather than operational techniques. First-generation machines, for example, used vacuum tubes, created a great deal of heat, and were very large. Second-generation machines featured transistors that reduced both size and heat problems. Integrated circuit computers introduced the third generation, and very large-scale integrated (VLSI) computers initiated yet a fourth generation. Edward Feigenbaum, a leading AI expert, believes that we are currently at the end of the third generation and that fourth-generation VLSI (computers) will dominate the 1980s.[11]

Conventional computers built during all four generations follow an operational design known as the Von Neumann process. (John Von Neumann was a computer pioneer and mathematician.) This means that computer programs are processed serially in a step-by-step operation. Each step that the computer takes is spelled out in a detailed program. It can do only what it is instructed to do. It cannot assimilate new facts that were not included in the program, and it cannot be creative. A conventional computer is simply an arithmetic machine that receives data, performs simple arithmetic, and produces answers consisting of individual digits. Special programs in the computer can convert individual digits to alphabetic characters.[12] Conventional computers, then, follow rigidly formatted programs, completing one process at a time; but technological improvements have enabled conventional computers to perform these tasks at remarkable speeds. Artificial intelligence computers operate in a fundamentally different fashion.

how AI computer systems are different

Artificial intelligence systems differ in both their hardware and operational programs. AI computers are built to manipulate symbols rather than numeric values. These special computers are made primarily by three companies: Symbolics of Cambridge, Massachu-

etts; Lisp Machines of Culver City, California; and Xerox Electro Optical Systems, Pasadena, California. These machines are constructed to use unique AI programming languages such as LISP (List Processing Language). LISP was developed by John McCarthy in 1957 for the express purpose of handling complex concepts and symbol manipulation.

Conventional computers and AI systems also have a number of significant differences in the way they operate. You will recall that conventional systems use primarily numeric operations, following very precise step-by-step directions. That is, to solve problems, they follow explicit algorithmic solutions. Data and operational instructions are part of the same program. Because information and instructions are structured, it can be very difficult to modify or change a program. Conventional computer programs are designed to provide specific answers to a given problem. They are not designed to guess, but rather to process data and provide solutions stored in the computer's memory. It is this inflexibility that led AI researchers to design machines that could simulate more flexible human thought processes.

Artificial intelligence systems are primarily symbolic processors. Rather than following a predefined algorithm, the AI program sorts through its stored memory to determine its own sequence of steps. In this approach to problem-solving, solution steps are implied but are not specifically spelled out. The ability of AI systems to use "heuristics," instead of merely preset algorithms, gives them their most unique characteristic. Heuristics have been called the "art of good guessing." Heuristics enable us (or machines) to recognize promising approaches to solving problems, to break problems down into smaller problems, to overcome incomplete information, and to make educated guesses.[13] It is this flexibility that enables AI systems to develop satisfactory answers that may not be precisely correct but are acceptable. Another important aspect of this flexibility is the AI system's ability to ex-

plain why certain decisions were made. In an AI system, the knowledge base is separated from the instructions on what to do with that knowledge. As a result, programs can be modified easily, or new data can be added to the knowledge base. Knowledge "engineers," new technical specialists, have the job of capturing and translating expert knowledge into AI data bases.[14] Table I provides a comparison of conventional and AI systems.

Table I. AI-Conventional System Comparison

Artificial Intelligence	Conventional Computer
• Primarily symbolic processes	• Often primarily numeric
• Heuristic search (solution steps implicit)	• Algorithmic (solution steps explicit)
• Control structure usually separate from domain knowledge	• Information and control integrated together
• Usually easy to modify, update, and enlarge	• Difficult to modify
• Some incorrect answers often tolerable	• Correct answers required
• Satisfactory answers usually acceptable	• Best possible solution usually sought

From NASA Technical Memorandum 85836, Volume I, Part A, 1983

Thus, artificial intelligence is not a new field of endeavor, but it does use computer technology that differs from that of the conventional computing machine. The major challenge facing developers has been to find ways to apply AI systems effectively.

AI Applications

Converting AI into practical applications has not been easy. During the 1950s, for example, enthusiasts voiced extraordinary claims for this new technology. DARPA funded a computer program to translate Soviet documents into English. The difficulties of AI machine translation became clear when the Russian term *hydraulic ram* was translated as "water goat." Despite such setbacks, DARPA continued to almost single-handedly keep AI re-

It's MAGIC! No, these aren't sorcerers working in a mystic temple. They are modern-day wizards at Wright-Patterson's Aeronautical Systems Division's Flight Dynamics Laboratory who are working on their Microprocessor Application of Graphics with Interactive Communications (MAGIC) simulator. This machine evaluates pictorial formats that may tell our future pilots (and starwarriors) what's going on in and around their aircraft.

search alive in the United States. During the past two decades, DARPA has invested more than half a billion dollars in various types of computer research.[15] Because of this continuing support, equipment is now available to develop practical AI applications.

Another major investor in the future of AI is the Rome Air Development Center (RADC), which is spending more than $7 million per year on AI research. Application areas being studied include speech processing, tactical mission planning, intelligence data analysis, and software development.

Simultaneously, commercial companies are trying to apply AI technology, using expert systems for tasks ranging from diagnosing medical problems to helping repair cable systems and diesel locomotives. Expert systems are also helping to discover new oil and mineral deposits. *Business Week* reported that "optimistic analysts are predicting that AI will become a multibillion-dollar annual business well within a decade."[16]

Both military and commercial researchers have looked at the possibilities of applying AI technologies to vision systems. DARPA and the U.S. Army Engineer Topographic Laboratories (USAETL) have been trying to develop systems for years that could interpret imagery automatically. Finding a system that can learn to differentiate among various patterns and objects may be one of the toughest challenges AI researchers face. To make it easier to use these and other AI systems, some AI researchers are trying to develop "natural language" systems.

Natural language systems offer hope for all those who would like to use a computer but have neither the time nor the inclination to

earn formal computer languages. Such a system would allow an operator to talk naturally to the system. The burden of understanding would be on the machine rather than on the human. Intellect, a commercial software program, converts typed natural language (English) instructions into machine language. It then translates the instructions back into English and displays them on a monitor so the user can confirm that they were understood.

Automatic speech recognition (ASR), another form of AI natural language, is also being investigated. RADC has worked for more than ten years to develop systems capable of automatically interpreting speech, picking out key phrases, and identifying the speaker.[17] The problem is extremely complex. Humans interpret speech in the context in which it is heard. Even when words are run together, humans can pick out the ends of words, phrases, or sentences. Computers cannot yet understand continuous speech by a random speaker.[18] In natural language research, as in other areas of AI, a number of problems must be solved.

developmental problems

Given all the progress to date, one must understand that there are still many problems with AI technology that have not been solved. The difficulties range from misinformation and consumer confusion to specific technical difficulties. A number of AI publications now available offer lengthy discussions about technical developmental problems. Only a few such problems will be addressed in this overview.

Although AI has been researched for almost three decades, the number of AI experts is very limited. For example, the few knowledge engineers available are converting knowledge bases into machine coding largely by hand and are likely to continue to do so into the foreseeable future.[19]

Generally, military computer programs are written in a rigidly formatted language, such as FORTRAN. Complicating the picture even more may be the fact that the Department of Defense has adopted ADA (another highly structured language) as the official program language for embedded computer systems (missile guidance, for example). However, AI computers must use a more flexible language, such as LISP or PROLOG. If AI is to be generally accepted for military application, the computer language compatibility problem will have to be solved.

Many of the difficulties associated with AI are being downplayed by enthusiasts, while at the same time AI is being oversold. Some AI researchers are afraid that the media hype may have created expectations that cannot be met. They are concerned that there will be a backlash similar to the one that followed the disastrous failure of the machine translation effort in the 1950s. The layman's difficulty will be to separate facts from overzealous promises. *Business Week* reported in July 1984:

> With nearly 40 small companies vying for a place in the market, competition is intense. And some companies have already gotten into trouble in their rush to bring projects to the market. . . . Experts fear an "overselling" of technology. Without question, some of the AI products now entering the market are not derived from AI technology at all. Some companies openly admit that they have simply relabeled existing software to cash in on the AI boom.[20]

Despite these various maladies, the future of AI appears promising.

future prospects

Computer technology has developed at an incredible pace. The world is transitioning into a society that lives on information. Traditionally in the past, national power has been measured by such elements as territory controlled, annual production output, military troop strength and arsenals, and so forth. A new basic element of power may be added to the list. In the future, nations that control information or

knowledge may possess a major source of influence in international affairs. The systems that make such control possible are likely to be the products of the so-called fifth generation of computer technology. These new systems will represent a distinct break with conventional Von Neumann-type computers. Parallel or concurrent architecture will allow machines to do a multitude of operations at the same time. Advanced software designs, VLSI technology, and artificial intelligence technologies will give fifth-generation computers expansive capabilities.

The Japanese, who are devoting massive efforts to AI research, may be the first to exploit fifth-generation technology. Near the beginning of this decade, Japanese industrial leaders decided to launch a national campaign to take the world lead in computer development. At an international conference on computers held in Tokyo in October 1981, Japanese representatives announced their intention to produce fifth-generation computers for commercial use by the 1990s. Edward Feigenbaum, Professor of Computer Science at Stanford University, was one of a handful of Americans invited to the conference. The enormity of the Japanese proposal was immediately obvious to him. If they were successful, the Japanese could replace the Americans as the leaders in computer technology. They could also establish a "knowledge industry" in which knowledge itself would be a salable commodity. "The Japanese," Feigenbaum noted, "understand that if they succeed in this visionary computing project, they will acquire leverage over all kinds of industries, at home and abroad. The Fifth-Generation is an exquisite piece of economic strategy."[21] Professor Feigenbaum discusses the entire project in *The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World*, which he coauthored with Pamela McCorduck. He is concerned that if the United States continues with a business-as-usual attitude, it will squander its technology lead at the rate of one day for each day of delay.

The warnings of Feigenbaum and others have not gone unheeded. The United States responded to the Japanese challenge with a unique new business operation. Austin, Texas recently beat out more than fifty other cities to become the new home of Microelectronics and Computer Technology Corporation (MCC). This new venture, headed by retired Admiral Bobby Inman (former head of the National Security Agency), is being underwritten by nineteen major U.S. companies. MCC, which represents corporate America's most direct response to the Japanese plan, will concentrate research on software technology, microelectronics packaging, and advanced computer architecture. A *Newsweek* cover story on the fifth-generation race made the point that the winners will be able to use the new computers to design even more powerful and smarter machines for the future.[22] Other nations, realizing the stakes involved, have begun their own fifth-generation projects. The Soviets, for example, are joining with their East European allies in a new computer five-year plan to develop expert systems, VLSI microprocessors, improved operating systems, and problem-solving software.[23] Fifth-generation research is critical in every country because of the incredible potential for military and social applications that could ensue.

ARTIFICIAL intelligence research has progressed significantly in its first three decades. It has grown from a part-time pursuit of a few individuals on the fringes of computer science to a full-fledged field of study. AI researchers now hold international conferences, publish several journals, and collect a sizable share of Defense Department contract money.

From the formative years, through the lean times, and into the present period of popularity, one agency almost single-handedly ensured AI's survival. The Defense Advanced Research Projects Agency (DARPA) supported AI research through two decades of important (and highly risky) research efforts. DARPA's steady

support enabled AI researchers to develop the fundamental knowledge and tools that are finally delivering the long-promised intelligent systems. These AI systems already are being used as advisors or consultants in various professional and industrial applications. Artificial intelligence is not a panacea waiting to cure all of our technological problems. It would be foolish, however, for the military not to exploit its full potential. If the promise of this emerging computer technology is fulfilled, commanders will have computer support systems that will enable them to cope more effectively with the formidable challenges that lie ahead.

Center for Aerospace Doctrine,
Research, and Education
Maxwell AFB, Alabama
and
San Antonio, Texas

Notes

1. General Robert T. Marsh, USAF, "A Preview of the Technology Revolution," *Air Force*, August 1984, p. 45.

2. Avron Barr, Paul Cohen, and Edward Feigenbaum, *Handbook of Artificial Intelligence*, Vol. I (Stanford, California: Heuris Tech Press, 1981), p. 3.

3. William M. Alpert, "Computers with Smarts," *Barron's*, 23 January 1984, p. 13.

4. Warren R. Young, "The Machines Are Taking Over," *Life*, 3 March 1961, pp. 108-11.

5. Pamela McCorduck, *Machines Who Think* (San Francisco: W. H. Freeman and Company, 1979), p. 159.

6. Ibid., p. 57.

7. Ibid., pp. 171-72.

8. Patrick H. Winston, *Artificial Intelligence* (Reading, Massachusetts: Addison-Wesley, 1977), p. 252.

9. Roger S. Walker, *Understanding Computer Science* (Dallas: Texas Instruments, 1981), pp. 1-5.

10. Ibid., pp. 1-6.

11. Edward A. Feigenbaum and Pamela McCorduck, *The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World* (Reading, Massachusetts: Addison-Wesley, 1983), p. 17.

12. James A. Saxon and Robert E. Fritz, *Beginning Programming with ADA* (Englewood Cliffs, New Jersey: Prentice-Hall, 1983), p. 3.

13. Joel N. Shurkin, "Expert Systems: The Practical Face of Artificial Intelligence," *Technology Review*, November-December 1983, p. 74.

14. Feigenbaum and McCorduck, pp. 76-77.

15. William D. Marbach, "The Race to Build a Supercomputer," *Newsweek*, 4 July 1983, p. 62.

16. "Artificial Intelligence Is Here," *Business Week*, 9 July 1984, p. 55.

17. J. P. Woodard and E. J. Cupples, "Selected Military Applications of Automatic Speech Recognition Technology," *Spectrum*, December 1983, p. 38.

18. Raj Reddy and Victor Zue, "Recognizing Continuous Speech Remains an Elusive Goal," *Spectrum*, November 1983, p. 84.

19. Frederick Hayes-Roth, "Copying Human Knowledge," *Spectrum*, November 1983, p. 81.

20. "Artificial Intelligence Is Here," p. 55.

21. Feigenbaum and McCorduck, p. 13.

22. Marbach, p. 59.

23. Paul Walton and Paul Tate, "Soviets Aim for 5th Generation," *Datamation*, 1 July 1984, p. 53.
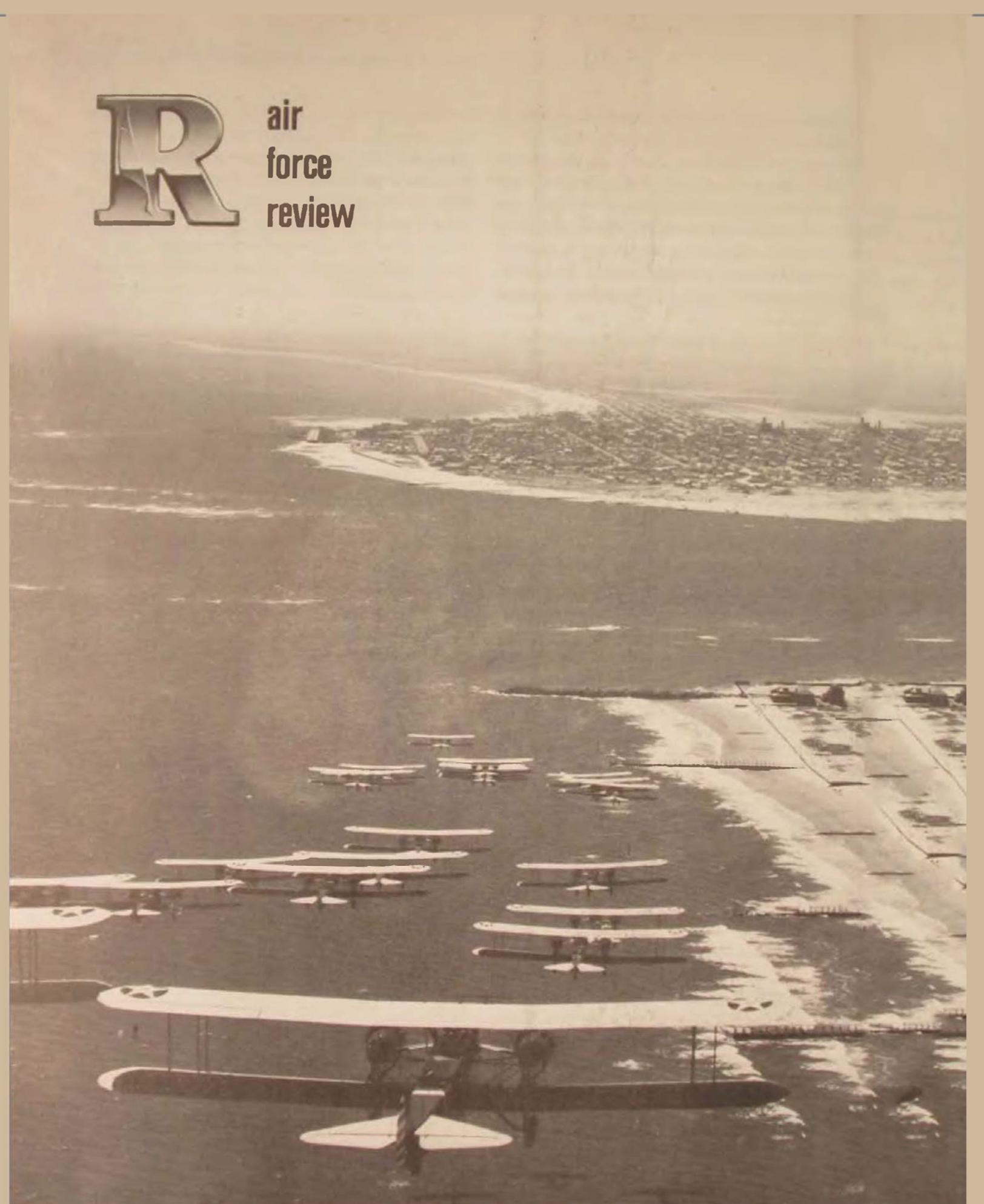
THE IRATE CITIZEN AND THE AIR CORPS MANEUVERS OF 1931

Dr. M. Maurer

A HALF century ago, in the days of Billy Mitchell and Benny Foulois, the U.S. Army's airmen placed high value on good public relations. They reveled in the kind of publicity that came with a flight around the world, a nonstop hop from coast to coast, or a performance by Chennault's acrobatic team, the "Three Men on the Flying Trapeze." They took every opportunity to show their skill in the air. When poor performance brought a bad press, as it did during airmail operations in 1934, they made excuses and resolved to try harder. By word and deed, they courted public support for air power. But they paid little mind to the general temper of the times or to political, social, and economic forces shaping public opinion. Seeing the War Department and the general staff blocking development of a powerful independent air force, they seldom looked further for the cause of their frustration. They showed little awareness that public attitudes toward government spending, America's position in the world, standing armies, and arms limitation could affect them. Regarding military aviation as a matter best left to experts (meaning themselves), they tended to brush aside opinion at odds with their own. Otherwise, these airmen might not have been so surprised by opposition to their annual maneuvers in 1931.[1]

Air Corps maneuvers in 1931 took the form of a gigantic demonstration. F. Trubee Davison, a wealthy New York politician serving as Assistant Secretary of War for Aeronautics, wanted to show the American people what the Air Corps could do. He decided to gather men and planes from all over the country and put on air shows over the chief cities of the East. These shows would give the public a better idea of the
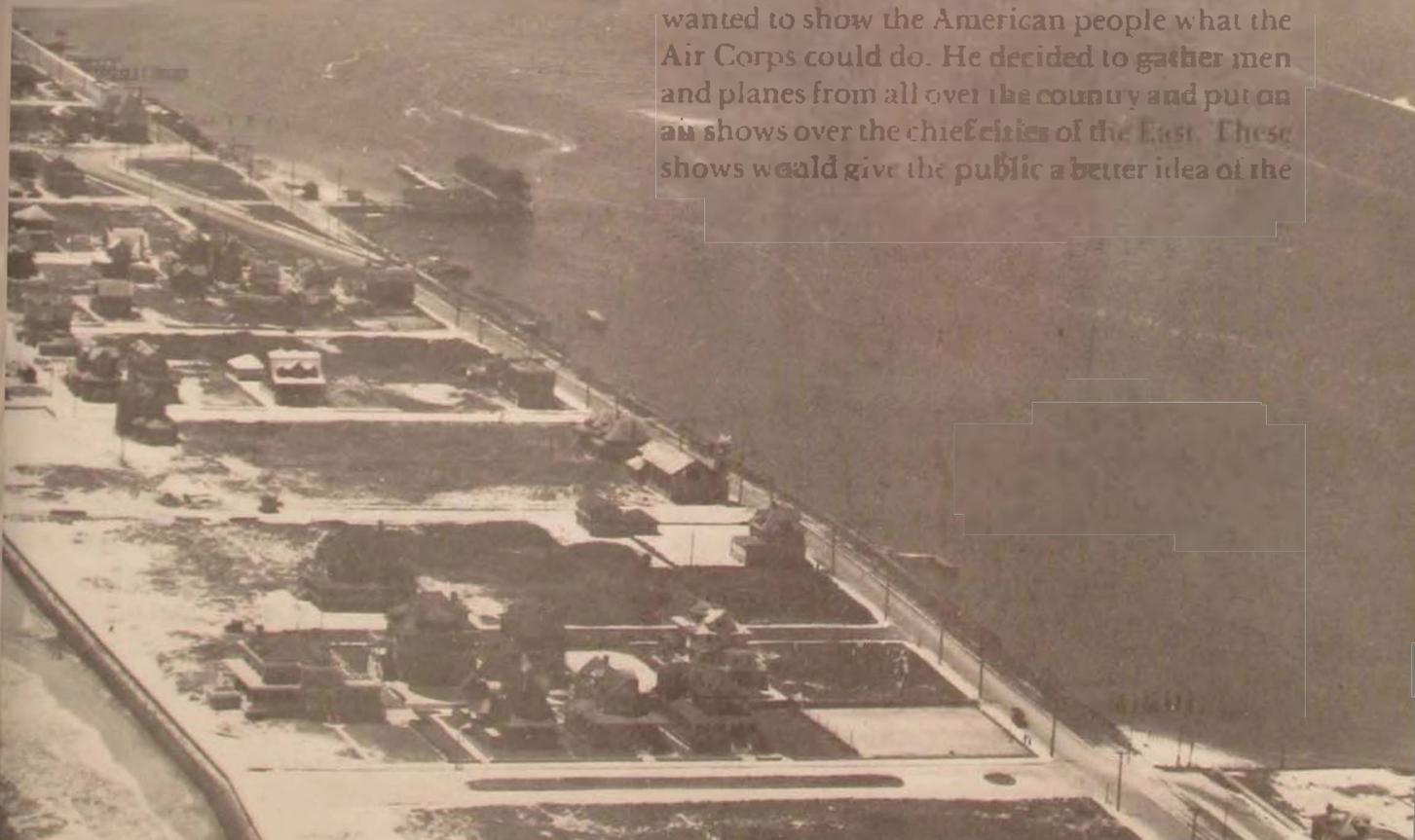
Army's effort in the air while giving the flyers opportunity for training in a large unit.

The Air Corps was then in the midst of a five-year expansion program. Progress satisfied neither Secretary Davison nor Major General James E. Fechet, Chief of Air Corps. Congress did not vote enough money. In fact, the appropriation for the coming year was less than half of what the Air Corps had requested. But the nation suffered economic depression. Unemployment mounted. Breadlines grew longer. The U.S. Treasury anticipated a huge deficit, the first since 1919. President Herbert Hoover looked for ways to reduce government spending. He believed in preparedness for defense but begrudged the money it took. He abhorred war and thought it a great waste.

Around the country, Americans wanted peace but did not agree how to maintain it. Some would use moral suasion; others would enforce it with military might. Some would abolish armies, even disarm unilaterally if international agreement could not be reached. Many would retain defensive forces while working for peace through international accord; others would isolate America from the world and keep armed forces strong enough to discourage attack. Antimilitarists at a number of universities opposed military training for the reserve officers corps. In Washington, the War Policies Commission sought ways to take profits out of war. While Congress investigated Communist activity in the United States, liberals urged diplomatic recognition of Soviet Russia. And the Air Corps prepared for maneuvers.

THE Assistant Chief of Air Corps, Brigadier General Benjamin D. Foulois, became maneuver director. Drawing men and planes from far and wide, he assembled them at Dayton, Ohio, in mid-May, formed a provisional air division, and on Wednesday, 20 May, took off on tour. His command included not only Regular Army and National Guard units but also instructors, cadets, and airplanes from the Advanced Flying School at Kelly Field, Texas. The armada put on its show at Chicago on Thursday, performed for New York on Saturday, moved to airfields in New England on Sunday, performed at Boston on Monday, returned to New York on Tuesday, flew over Atlantic City and returned to New York on Wednesday, took a day for maintenance, passed over Philadelphia and Baltimore on the way south on Friday, and completed the tour with a grand display over Washington on Saturday, 30 May. The show at the principal cities consisted of two parts, a combat demonstration by thirty-nine planes (Keystone bombers, Curtiss A-3s, and Boeing P-12s) and an aerial review with the division in formation. In addition, the Air Corps scheduled bombing raids on New York on Friday night, the 22d, and on Boston on Sunday night, the 24th.[2]

To prepare the public for the maneuvers, Hans Adamson, Secretary Davison's press representative, and Lieutenant Colonel Ira Longanecker, the Air Corps' Chief of Information, began putting out bulletins six months ahead. Adamson arranged for newspaper, newsreel, and radio coverage. Davison spoke in Washington, New York, Tulsa, and elsewhere about the forthcoming display.

The "largest concentration of air units" and the "largest military air demonstration ever undertaken in the United States," press releases proclaimed. Advance publicity described the division as consisting of 692 officers, 69 cadets, 643 enlisted men, and 672 airplanes, "the largest fleet ever flown." The planes would travel 2,000,000 miles, equal to four trips between earth and the moon. Approximately 75,000,000 Americans would have an opportunity to see all or part of the force in operation or on the way to or from the maneuvers, since participating aircraft would come from or pass over every state in the union. This operation, Adamson said, would awaken interest in aviation, but both he and Davison pointed out that more basically it was a training exercise in which the Air Corps would check the feasibility, effi-

ciency, and effectiveness of its methods of handling large units.

Some people got the idea, as did the *Baltimore Sun*, that this event was one big publicity stunt.[3] Davison vigorously denied it. The object was "not to create an impressive picture of aerial strength . . . but to test our tactical theories, equipment, and personnel."[4] War Department Chief of Staff Douglas MacArthur, coming to Davison's aid, told newsmen he was "sick of this circus ballyhoo!"[5] The exercises were "purely military." There was "nothing of a circus element about this training movement, except perhaps, the sight of many planes flying in formation."[6]

The way one journal, *New Republic*, saw it, the Army was arguing "that when six or seven hundred airplanes go barnstorming across the country putting on a spectacular show over half a dozen of the nation's largest cities, there is no attempt to work up popular interest in the subject of military aviation. It is just practice for the aviators." *New Republic* understood why the men in charge of military aviation wanted to create popular interest, but it "wish[ed] they would come clean about their purpose."[7]

Davison and Adamson labeled the maneuvers "Air Corps Defense Exercises." The division took on the role of defending the east coast against a mythical fleet. This objective, Longanecker said, identified the maneuvers with national defense. He thought that General MacArthur's presence during operations at Boston and Washington, leading the division as it passed in review, would add to public interest and help to show that the maneuvers were not just a stunt.[8]

Drew Pearson of the *Baltimore Sun*'s Washington bureau figured how much this "extravaganza" would take from taxpayers. According to the War Department, an observation plane cost $66.08 an hour to operate; a bomber, $144.50. The planes would average 50 hours in the air. Altogether, $3,300,000![9] Norman Thomas, Socialist leader who had been a candidate for President in 1928, could use a figure like that. So could other pacifists, like Katherine Blake of the Women's International League for Peace and Freedom.[10] John Haynes Holmes of the Community Church of New York labeled the maneuvers a "wanton expense in a period of economic disaster."[11]

Some irate taxpayers wrote to the War Department; others sent letters to editors. "A Member of the Minority" in Massachusetts called the maneuvers an "expenditure of the people's tax money for a useless glorification of war and at a time when the poor beg for food."[12] A resident of Boston thought the maneuvers a "piece of unwarranted expense . . . out of place at this time."[13] A man in Hamilton, New York, said that they were "a waste of public funds at a time when the country is facing a disastrous economic depression." He called such "misuse" of tax money "absolutely inexcusable."[14] A member of the American Friends Committee stated that the government had "no right to spend so much money on a meaningless gesture in view of the widespread suffering."[15] The Springfield, Massachusetts, section of the Communist Party denounced the maneuvers and called "Fellow Workers of America" to an antiwar rally: "Millions of dollars are being spent in this country to prepare for war, but there is no money with which to aid the unemployed."[16]

Hiram Bingham, U.S. senator from Connecticut and president of the National Aeronautic Association, defended the Air Corps. Former General William "Billy" Mitchell and Al Williams, the well-known racing pilot, did so also, as did many editors. The *New York Times* regarded such exercises as "essential."[17] Ralph T. O'Neill, National Commander of the American Legion, thought that the maneuvers deserved "the enthusiastic support of every patriotic American."[18]

General Fechet found Drew Pearson's figure of some $3,000,000 much too high. It cost only $4.50 an hour to maintain a plane in the air. The manuevers would result in an expenditure

of $35,000 over the Air Corps' allotted funds, and that amount would be made up during the coming year. He thought that people could not object when they realized that the Air Corps was "the country's biggest instrument for peace."[19] Foulois reinforced these views, explaining that money for the maneuvers came from appropriations for normal Air Corps operations. The air division was costing taxpayers nothing extra.[20]

But the figure $3,000,000 stuck in the public mind. Complaints continued. The Reverend C. Everett Wagner of the Union Methodist Episcopal Church of New York told his congregation that "with millions out of work, the inexcusable extravagance of the $3,000,000 pa-

rade in the air . . . is a colossal blunder."[21] This kind of talk made Secretary Davison angry. He called reports that the maneuvers were adding $3,000,000 to the taxpayers' burden "a contemptible lie," an "insidious propaganda" spread by Communists. The exercises were "not costing an additional nickel."[22]

Davison also found that Air Corps publicity gave people the wrong idea about Air Corps

rength. Adamson, in early bulletins, pointed
ut that a display of 672 planes did not mean
hat the Army had that number available for
ombat in an emergency. Watching the di-
ision assemble in Dayton, William Mitchell
aw "only 100 combat planes out there."[23]
damson explained that only about 425 of the
72 were combat types, and half of the 425 were
bservation planes of limited offensive value.[24]
he Air Corps pointed out that it was using
verything available, including nontactical
ypes, to give as many men as possible an op-
ortunity for training. Davison told a group in
ulsa that he may have inadvertently given the

*ith the nation deep in depression, the $3,000,000 price tag
n the maneuvers seemed extravagant. While the goal was
 focus public attention on the Air Corps in order to
rompt Congress for increased funding, the impression
hich the maneuvers created was that American air power
as awesome. In reality, planes such as the P-12E (right)
ere barely state of the art by European standards. . . .
lthough photos of aircraft assembled for the maneuvers
ke that shown below were impressive, many of the aircraft
ictured were observation planes or obsolete aircraft pressed
nto the maneuvers to further the public relations gimmick.*

impression that the Air Corps owned 670 combat planes. "Lest that should be the case," he said, "let me hasten to correct it."[25] The manual that Longanecker and his staff prepared for correspondents emphasized that the Air Corps did not possess 672 planes "to throw into the fray."[26] Nevertheless, part of the press and some of the public saw in the aerial armada proof that the Army's air defenses equaled those of other leading nations. "No conclusion," Davison responded, "could be more erroneous."[27]

Advance publicity about the maneuvers drew fire from peace organizations and liberal groups celebrating International Good-Will Day in Chicago, Baltimore, and elsewhere on 18 May, just as General Foulois completed preparations for his tour. In New York that day, James W. Gerard, former ambassador to Germany, presided at a mass meeting at Town Hall. Speakers included George Gordon Battle, a prominent New York lawyer, Harriet Burton Laidlow, wife of a New York banker and active in the League of Nations Association, and Channing Pollock, author and dramatist. Denouncing war as brutal, unthinkable, and uncivilized, they urged active steps to bring about international understanding. John Haynes Holmes offered a resolution asking President Hoover to stop the aerial exercises, which he condemned as "monstrous, arrogant, and shameless." Refusing Holmes's motion, Gerard tried to speak but was heckled repeatedly. Someone called for a standing vote on Holmes's resolution; about two-thirds of the 500 persons present stood up. Gerard's assertion that "we are at war right now with a nation of murderers who have destroyed religion" brought shouts and hisses from "openly avowed Soviet sympathizers." The organist played to calm the people as the meeting broke up in confusion. So ended Good-Will Day in New York.[28]

The bombing raids that the Air Corps planned for New York and Boston provoked a lot of opposition. Major Herbert A. Dargue, commander of the 2d Bombardment Group, got the assignment to lead the New York raid

on 22 May: Take off from Roosevelt Field on Long Island with thirty-six bombers; form twelve flights of three planes in a column a mile long at an altitude of 2000 feet; pass over Governor's Island; sweep up the Hudson; release 1,000,000-candlepower flares over the river; turn inland at Seventy-second Street; arrive over Central Park at precisely 11:00 P.M.; roar down Broadway to Times Square; circle the theater district; wheel across East River; drop more flares; and return to Roosevelt Field. Assuring the public that every precaution would be taken for the safety of the flyers and the public, the Air Corps promised a great show.[29]

People nonetheless protested the danger and the noise. General MacArthur called off the night raid after conferring with Fechet. Reporters caught up with the Chief of Staff as he was returning from the White House. No, the visit had nothing to do with the cancellation. He alone had made the decision. It was "purely military." He had not seen any of the many protests reportedly received by the War Department. He had called off the raid because the flyers would need rest before the strenuous exercise scheduled for New York the day following the proposed raid. Secretary of War Patrick J. Hurley said rumors about dissension in the War Department and about outside influence were unfounded. The division's program would be governed by the pilots' physical condition. MacArthur, in supreme command, would make the decisions.[30]

Colonel Peter J. Brady, chairman of Mayor Jimmy Walker's advisory committee on aviation, denied reports that official protests from New York caused the cancellation. He told Foulois that he hoped reconsideration would authorize the night attack, but MacArthur's order held.[31]

Nothing was said at that time about photographing New York City from the air at night. Earlier, however, the Air Corps had announced that Captain Albert W. Stevens would use a new kind of flashlight bomb of an amazing 3,000,000,000 candlepower to take pictures

sometime during the division's stay at New York, but he would not work over populated areas for fear that detonation of the bombs would break windows.[32] Colonel Longanecker did not notify newsmen that Stevens would drop two bombs over the Hudson on Wednesday night, 27 May. Stevens got good pictures, but his two bombs shook buildings, shattered windows, stopped traffic, sent women into hysterics, and raised many complaints. One woman thought it "an outrage that bombs should land near apartment houses, awakening children and throwing invalids into a state of collapse from which they will suffer a long time." She demanded an "energetic protest . . . to prevent such an outrage in the future."[33]

Earlier, in April, announcement of the plan for the raid on Boston on Sunday night, 24 May, followed by a combat demonstration and review the next day, brought objections from some Bostonians. People who remembered what a racket planes had made during the city's tercentenary celebration the previous year imagined how much worse it would be with seven times as many planes. The head physician at one hospital said that the flying would endanger the sick. People objected to night flying because it would disturb the city's slumbers. After telling Bostonians not to go to bed on Sunday night ("you will be just wasting your time"), Secretary Davison changed his tune to assure them that the airmen would not fire any guns or explode any bombs after 11:00 P.M.[34]

A rumor had the mayor of Baltimore inviting the War Department to transfer the attack from Boston to his city, which was scheduled for only a flyover.[35] Then came reports that, because of the protests and the general attitude of the people, the Air Corps had canceled all plans for Boston.[36] By the next report, the demonstration was still on but with changes in the plan—no night operations, no bombing, no acrobatics, just a flyby at 3000 feet, high enough not to disturb anyone.[37]

Boston officials, the American Legion, aviation enthusiasts, and other supporters of the maneuvers deplored this change. The Crosscup-Pishon Post of the American Legion sponsored a radio broadcast over a New England network to explain why the maneuvers should be held and why Boston should get the full performance. Speakers included Mayor James M. Curley. Paul Hines, post commander, urged the War Department to go ahead with the original plans. Harry D. Copland, state chairman of the aviation committee, asked each post to adopt a resolution for a complete show at Boston.[38]

After all the hubbub, the flyers got a warm reception in Boston. Calling the Air Corps the "first line of defense," Curley proclaimed 25 May "Air Defense and Aviation Day." Thousands of people turned out to see the combat demonstration and aerial review. The flyers omitted only the night attack from the events originally scheduled.[39]

Cancellation of Major Dargue's night raid on New York City did not affect the air division's plans for a combat demonstration and aerial review on Saturday, 23 May. Religious and peace organizations demonstrated in various parts of the city that day. Some 500 people, representing a dozen organizations, gathered at Cooper Union Square. At noon they marched northward, led by a six-piece volunteer band from the New York Federation of Musicians. Behind the band came the Reverend Clarence V. Howell, carrying the American flag. Alongside him strode John Haynes Holmes and Rabbi Sidney Goldstein. Elderly women and teen-age boys and girls made up most of the procession. Some carried placards: "Work For Peace" and "No More War." Spectators, in a thin line on either side of the street, watched with mild curiosity. Occasionally, some cheered, or someone jeered.

The parade stopped at Madison Square and Twenty-fourth Street, where A. J. Muste, president of Brooklyn Labor College, spoke against the aerial maneuvers. He thought it "an absurdity and crime to be prepared for another war." Holmes told the audience that aerial maneuvers had nothing to do with defense. The gov-

ernment, he declared, wanted to stir up the war spirit and take peoples' mind off unemployment. After more speeches, the marchers moved on.

At Columbus Circle, speakers included Mrs. Annie E. Gray, representing 3000 members of the Women's Peace Society, Dr. George Mitchell, Columbia University economist, and Rabbi Stephen S. Wise of the Free Synagogue. Dr.

Wise, director of the Peace Society of New York, and member of the League to Enforce Peace, feared the effect of the aerial maneuvers on the minds of children. Knowing nothing of the horrors, they might feel that some glory was attached to war.[40]

While the people marched, philosopher John Dewey of Columbia University addressed the League for Independent Political Action. He

w no meaning in the aerial demonstrations unless there was "a real prospect of war in the minds of Washington."[41] Other speakers at the league's meeting included Kirby Page, social-evangelist and author, who talked of the need for international cooperation. In his new book, *National Defense: A Study of the Origins, Results and Prevention of War*,[42] he had depicted the horrors of another great war with airplanes and poison gas. He now called on Americans to "repudiate and abandon the war system and be prepared to run the risks inherent in sole reliance upon pacific means of settling international controversies."[43]

Philadelphians who gathered at City Hall a few days later, on 29 May, to see the planes fly over, divided their attention between two demonstrations—one in the air and the other in the streets. The Pennsylvania Committee for Total Disarmament, the Friends Peace and Service Committee, the Women's International League, and six other organizations joined to protest the maneuvers. They distributed peace literature while Dr. William I. Hull of Swarthmore College harangued the crowd: "A stupid blunder. . . . Worse than a crime. . . . This is preparation for aerial conflict, the most brutal of all warfare."[44]

The air division's operations on Sunday, 24 May, when it demonstrated over several cities while moving to airfields in New England, brought condemnation from some religious leaders. Dean W. P. Ladd of the Berkeley Divinity School, for example, called plans for demonstrations over New Haven "an outrage to Christian people and a mutilation of Sabbath observance." The New Haven Council of Churches failed to get President Hoover to cancel this "desecration of the Sabbath."[45] Several congregations in Springfield, Massachusetts, heard sermons denouncing the demonstrations; but at Christ Episcopal Church, prayers were offered for the safety of the airmen.[46] At Grace Protestant Episcopal Church in New York, the Reverend Dr. W. Russell Bowie characterized the maneuvers as propaganda for "increased national defense."[47] The Reverend Frank Curtis Williams, pastor of the Epworth Methodist Episcopal Church of Queens and a member of
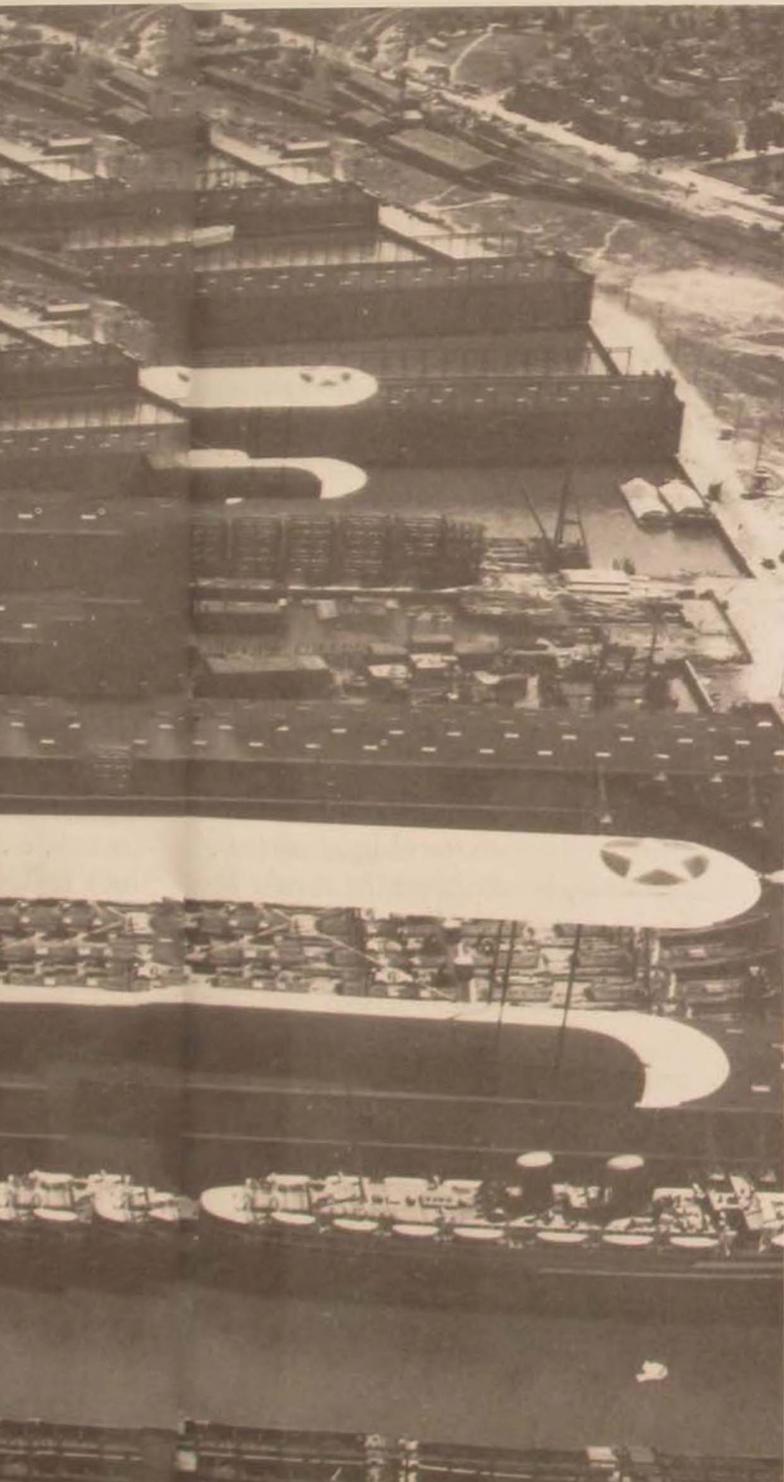
The "attack" on New York City drew the highest volume of public outcry. Air power enthusiast Billy Mitchell did not help matters when, in a radio interview, he boasted that bombers could devastate the city with flying bombs launched from 30,000 feet. He was fantasizing, of course.

the Flushing Peace Society, called the demonstrations "gestures of our national power of defense." Saying that they fed the "fires of national pride and international suspicion," he called for a gesture for peace, international goodwill, world cooperation, and disarmament.[48]

Some people regarded the maneuvers as an attempt "to foist militarism upon the American people,"[49] but the *Springfield Republican* found the aerial show lacking the emotional effect of the drum beat of soldiers marching up the street.[50] The *Stamford* (Connecticut) *Advocate* thought that the aerial demonstrations robbed "war of its lure for the pageantry-loving, hero-worshiping public" by giving a "hint of the terror of future war."[51]

Air Corps publicity frightened people when it talked of the armada being capable of firing at a rate of 2,000,000 shots a minute and dropping 100,000 pounds of bombs without reloading. "Billy" Mitchell did not allay their fears when he spoke over radio station WOR in New York on Friday night, 22 May. Dismissing the significance of the maneuvers scheduled for New York the following day, he said that bombing planes could destroy any city and need not fly over it to hit it. Using the present tense while gazing far into the future, he declared that bombers "can launch winged projectiles loaded with gas and explosives from miles away at five or six miles altitude." Nothing can stop them, not antiaircraft cannon or anything else, except other airplanes. American pilots are the best in the world, he said, but their planes are no match for those of European nations in speed, carrying capacity, or armament.[52]

Dorothy Detzer, brilliant lobbyist of the Women's International League, saw in the aerial maneuvers a change in warfare. Formerly armies fought armies, but now the civilian population would be attacked: "Defenseless women, children, the old, the sick, the helpless are at the mercy of the new war method."[53] Fiorello La Guardia, U.S. congressman from

New York and former Army flyer, thought that the safest place in the next war would be in the front-line trenches. Civilian casualties would be enormous.[54] Norman Thomas said that all the maneuvers proved was "the probability of human annihilation in the next war."[55]

One of the marchers at Union Square on 2 May carried a placard reading: "We represent 12,000 ministers who refuse to sanction any other war." The sign referred to a recent survey of Protestant churchmen. Sponsors included Harry Emerson Fosdick, pastor of Riverside Church, and Reinhold Niebuhr, professor of philosophy at Union Theological Seminary. Kirby Page published the results of the survey in his journal, *The World Tomorrow*. Questionnaires had been sent to 53,000 clergymen and 19,327 had responded. A great majority wanted the United States to join the League of Nations, reduce armaments, and abandon armed intervention in other countries. To the question, "Do you believe that the churches of America should now go on record as refusing to sanction or support any future war?" 12,076 responded yes; 4723, no. Asked if they were personally prepared not to sanction future wars or participate as armed combatants, 10,427 clergymen said they were; 6801 were not.[56]

When the maneuvers ended, MacArthur got around to Page's request for comments on the questionnaire. Expressing surprise that clergymen took the position they did, he linked faith and patriotism, spoke of the obligations of citizenship, quoted Luke 11:21 and Matthew 10:34, and suggested that clergymen tend to their own business—"the individual sinner." Writing to Page, MacArthur said:

> I confidently believe that a red-blooded and virile humanity which loves peace devotedly, but is willing to die in the defense of the right, is Christian from centre to circumference, and will continue to be dominant in the future as in the past.[57]

The *Army and Navy Journal* took solace in the way William T. Manning, Protestant Episcopal bishop of New York, defended the need for armament and preparedness for war. Dedi-

ating a war shrine at St. Paul's Church in Hoboken, New Jersey, on 24 May, Manning stated that "pacifist ideas . . . are not really Christian." Sensible people knew that the army and navy existed to uphold law and maintain peace, not promote war. "The air squadrons which passed over the city on Saturday, to which some well-intentioned but misguided people had seen fit to object, were no more a demonstration for war," he said, than the annual police parade on Fifth Avenue was for "promotion of crime."[58]

The *Journal* assiduously collected and published editorial opinion from the *Washington Post*, *Moline* (Illinois) *Dispatch*, *Beaumont* (Texas) *Enterprise*, and other papers supporting the Air Corps and national defense. The *Philadelphia Bulletin*, for instance, saw "no basis of reason" in the cry against the aerial maneuvers. Believing public condemnation of maneuvers "the height of folly," the *Pottsville* (Pennsylvania) *Republican* said that to be unprepared for war "might be fatal to our national existence." The *Philadelphia Public Ledger* thought it the government's duty to maintain effective fighting forces "regardless of criticism from clerical or other pacifists."[59]

CONFRONTED with sharp criticism of the maneuvers, the airmen found the President of the United States an ally. They enjoyed the support of the Secretary of War, the Army Chief of Staff, the American Legion, other "100% Americans," the Aeronautical Chamber of Commerce of America, the National Aeronautic Association of the U.S.A., the *Army and Navy Journal*, most newspaper editors, and the majority of the American people. Critics of the maneuvers, tagged as pacifists, antimilitarists, isolationists, internationalists, socialists, and Communists, included clergymen of many faiths, professors of some of the nation's leading institutions, liberal journalists, lobbyists for special interests, crusaders for noble causes, and many ordinary tax-paying citizens. Sufficiently aroused, they were capable on occasion of impressing their will on the government, as they did when they caused the War Department in 1926 to abandon its annual Mobilization Day.[60] Though they failed to halt Air Corps maneuvers in 1931, they displayed sufficient strength and made enough noise to embarrass the government and cause some changes in Air Corps plans.

Colonel Longanecker, reporting later on his work as public relations officer for the air division, dismissed the protest march in New York as "hardly worthy of attention" because something like that went on all the time in Union Square. While admitting that pacifist activity "assumed almost serious proportions" in Philadelphia, he thought that the American public in general had been interested in the division's work. The results, Longanecker believed, would "only be beneficial to the Air Corps and the Army."[61] Secretary Davison thanked the public, the press, the broadcasting companies, and the pictorial services for their "sympathetic support."[62]

With demobilization of the provisional air division following its Memorial Day performance at Washington, the Air Corps maneuvers of 1931 slipped quietly into history. Except for one thing: Months later Secretary Davison was still trying to correct the false impression that the Air Corps possessed 670 combat planes.[63]

Montgomery, Alabama

Notes

1. Looking for exceptions to test these generalizations, one thinks of Mitchell, who in the early 1920s appeared as a shrewd judge of public opinion. Later, however, he fell out of step with the times and adopted methods that cost him much public support. See Alfred F. Hurley, *Billy Mitchell: Crusader for Air Power* (New York: Watts, 1964; Bloomington: Indiana University Press, 1975).

One might also cite the theorists of the Air Corps Tactical School, who on occasion acknowledged (though reluctantly and half-heartedly) that their concept of strategical warfare ran counter to national policy and that technology had not yet produced the means for the operations they envisioned. (See, for example, Air Corps Tactical School, "A Study of Proposed Air Corps Doctrine, Based Upon Information Furnished by the War Plans Division, General Staff," in Memorandum, 21 December 1934, in the USAF Historical Research Center (USAFHRC), file 248.211-65.)

2. The Air Corps side of this story is based principally on the "Report of the AC Field Exercises of 1931" and related documents, including staff reports, speeches, and press releases, in the USAFHRC, file 248.2122-2.

3. *Time*, 25 May 1931, p. 18. Also see Robert S. Allen and Drew Pearson, *More Merry-Go-Round* (New York: Liveright, 1932), pp. 216-18.

4. Speech at Tulsa, 26 March 1931.

5. *Baltimore Sun*, 16 May 1931.

6. *New York Times*, 16 May 1931.

7. *New Republic*, 3 June 1931, p. 57.

8. 1st Air Division (Provisional), G-2 Report, 1931.

9. *Baltimore Sun*, 8 May 1931; *New York Times*, 12 May 1931.

10. *New York Times*, 24 May 1931.

11. Ibid., 19 May 1931.

12. *Springfield Republican*, 23 May 1931.

13. *Boston Herald*, 18 May 1931.

14. *New York Times*, 2 May 1931.

15. *Philadelphia Record*, 19 May 1931.

16. *Springfield Republican*, 23 May 1931.

17. *New York Times*, 12 May 1931.

18. *Army and Navy Journal*, 6 June 1931, p. 946.

19. *Boston Transcript*, 22 May 1931.

20. Radio speech, 20 May 1931.

21. *New York Times*, 25 May 1931.

22. Ibid., 25 May 1931; *Chicago Tribune*, 27 May 1931; *Literary Digest*, 13 June 1931, p. 33.

23. *Chicago Tribune*, 17 May 1931.

24. War Department, Press Release, 10 May 1931; *National Aeronautic Magazine*, May 1931, p. 9.

25. Speech at Tulsa, 26 March 1931.

26. 1st Air Division (Provisional), Press Manual for 1931 Army Air Corps Coast Defense Exercises.

27. *Annual Report of the Secretary of War, 1931* (Washington: Government Printing Office, 1931), pp. 29-30.

28. *New York Times*, 19 May 1931.

29. War Department, Press Release, 22 April 1931.

30. *New York Times*, 16, 17 May 1931.

31. Ibid., 16 May 1931.

32. War Department, Press Release, 26 April 1931.

33. *New York Times*, 29 May, 2 June 1931.

34. *Boston Herald*, 1, 2, 13 April, 18 May 1931; *Baltimore Sun* May 1931.

35. *Boston Transcript*, 12 March 1931; *Baltimore Sun*, 12 Mar, 29 April 1931.

36. *Boston Transcript*, 31 March, 6 April 1931.

37. *Boston Herald*, 1 April 1931; *Boston Transcript*, 2 April 193 *New York Times*, 26 April 1931.

38. *Boston Transcript*, 6 April 1931; *Boston Herald*, 16, 18 Ap 1931.

39. *Boston Transcript*, 16 May 1931; *Boston Herald*, 21-26 M 1931.

40. *New York Times*, 23, 24 May 1931; *Literary Digest*, 13 Jur 1931, pp. 32-33.

41. *New York Times*, 24 May 1931.

42. Kirby Page, *National Defense: A Study of the Origins, Resu and Prevention of War* (New York: Farrar and Rinehart, 1931).

43. Ibid., p. 357.

44. *Philadelphia Record*, 30 May 1931.

45. Ibid., 23 May 1931.

46. *Springfield Republican*, 25 May 1931; *New York Times*, May 1931.

47. *New York Times*, 25 May 1931.

48. Ibid.

49. Ibid., 2 May 1931.

50. *Literary Digest*, 13 June 1931, p. 34.

51. *Army and Navy Journal*, 6 June 1931, p. 946.

52. *New York Times*, 23 May 1931.

53. War Policies Commission, *Hearings* (Washington: Govern ment Printing Office), 1935, p. 727.

54. *New York Times*, 21 May 1931.

55. War Policies Commission, *Hearings*, p. 722.

56. *New York Times*, 24 April 1931.

57. Ibid., 3 June 1931; *Army and Navy Journal*, 6 June 1931, pp 958, 967.

58. *Army and Navy Journal*, 30 May 1931, p. 932; *New Yor Times*, 25 May 1931.

59. *Army and Navy Journal*, 6 June 1931, p. 946.

60. Devere Allen, *The Fight for Peace* (New York: Macmillar 1930), pp. 47, 351-52, 366; Charles DeBenedetti, *The Peace Refor in American History* (Bloomington: Indiana University Press 1980), p. 119.

61. 1st Air Division (Provisional), G-2 Report, 1931.

62. War Department, Press Release, 31 May 1931.

63. *Annual Report of the Secretary of War, 1931*, pp. 29-30.
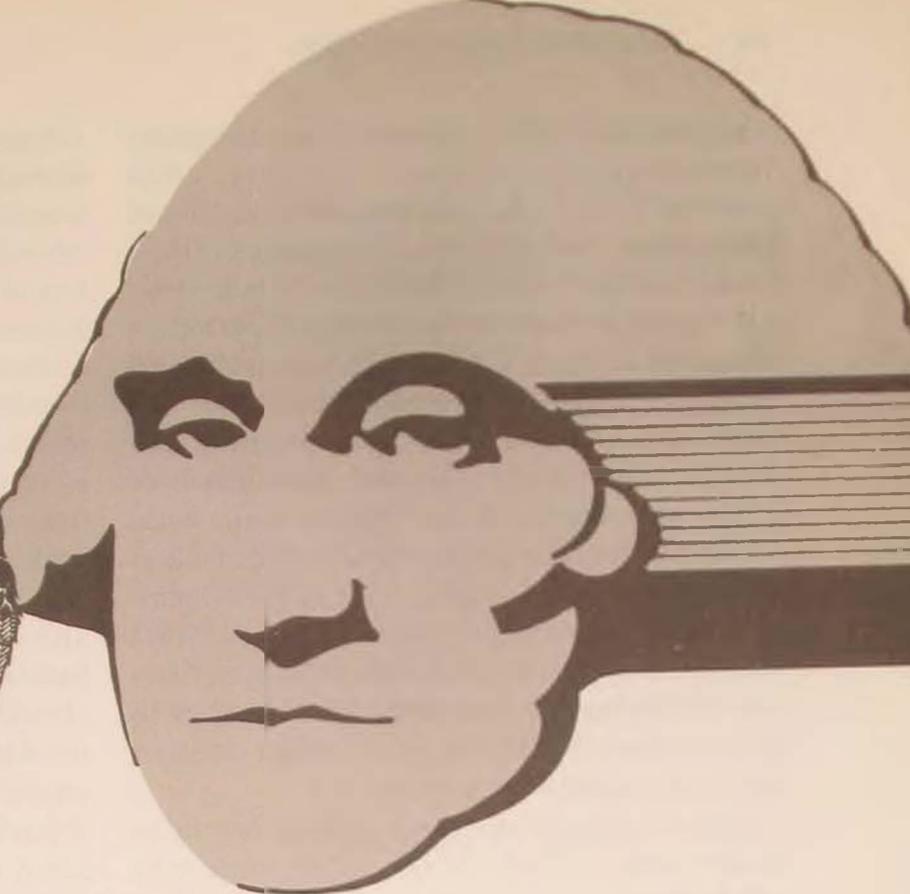
A VIEW FROM THE GROUND FLOOR

SECOND LIEUTENANT MICHAEL J. REED

THOSE of us who read *Air University Review* see articles in almost every issue that point out deficiencies in the "professional officer corps." Integrity has become one of those vague theories expounded on in theses rather than a living and dynamic entity which we all strive to sustain. We have become a body of paranoid individualists looking to further our personal causes, rather than a corps with synergistic energy. To paraphrase Mark Twain, everyone talks about professionalism, but only a precious few actively do anything about it, especially in the rating system. Integrity in the rating system is dead, and we should all mourn its passing.

What killed integrity? What was the vile serpent that assassinated our principles? Apathy. General Charles A. Gabriel identified the carriers of the death germ when he said, "Integrity demands of each individual the highest standards of personal and professional honesty, and an unfaltering devotion to duty. It is rarely the easy way. Integrity is constantly assailed by self-seekers, appeasers, and shirkers."[1] We appeased the self-seekers and shirkers, and they have triumphed.

Defective Followership

I saw for the first time the September-October 1983 issue of *Air University Review* while an officer trainee at OTS. My flight commander brought it to us as a visual aid for a class on Air Force publications. He also offered it to us as leisure-time reading material. I took it from him without realizing why he offered us

that particular issue. A man of high integrity, he wanted us all to be aware of the traps that await the junior officer so that we might better avoid them. In that issue, Lieutenant Colonel G. E. Secrist's article "Defective Leadership: America's Greatest Peril" identified five manifestations of defective leadership prevalent in this country, particularly in the military.[2] The article didn't have a great impact on me at the time because I was in an environment where things were done "Always With Honor" and where all the concepts of professionalism I had come to know and respect as an aircrew member were held in high regard. I was not naïve. I had heard of and seen examples of careerism, but OTS convinced me that careerists were to be ostracized. There was no room for them in the professional officer corps.

After a year as an officer, I have begun to realize that Colonel Secrist made some very valid points, especially those regarding careerism and image-enhancement. These problems manifest themselves to the greatest degree in the rating process, where integrity is at its nadir. Upward mobility is not defined in terms of accomplishment, but appearance. This point was made to me by a speaker at OTS, but I refused to believe him at the time.

The speaker was a lieutenant stationed in San Antonio, Texas, and an engineer who had been asked to speak to us engineers about our place in the Air Force. He began his talk by telling us that we would do no engineering, and then he explained what was required to succeed as an Air Force officer: visibility. He got his own visibility by escorting the wives and mothers of visiting senior officers and by speaking to engineers at OTS. These little tasks gave him solid accomplishments that could be included in his OER. His job wasn't very satisfying, but somebody had to do it. After the meeting, several younger students asked me what I thought about the presentation, because it was so contrary to what they had experienced so far at OTS. I told them that the speaker was a jerk and to forget everything he had said.

I arrived at my first duty station as a new second lieutenant eager to prove my professionalism as both an officer and an engineer schooled at government expense. I quickly found that the job was almost of secondary importance, and my supervisor encouraged me to get some visibility. He even "helped me out" by volunteering my services at awards ceremonies. I also spent an inordinate amount of time escorting visitors. I was discouraged and more than a little bewildered. A definition of upward mobility surfaced in my mind.

We define terms according to our outlook and experiences. We may laugh at the fighter jock whose idea of upward mobility is a burner climb, but he reveres his job and getting that job done. For too many officers, the job is not an end unto itself or even a means for achieving an end. It is only something that has to be done adequately so as not to hurt their chances for promotion. For them, upward mobility is defined in terms of their OER and how best to fill it with glorious words and the signature of a general officer.

A New Approach to OERs?

The OER system has been discussed in print and informal debates around the world. We experimented with the quota system, which caused such a furor that it was finally abandoned. The nice guy syndrome prevailed, or, as Chaplain Henry J. Meade put it, *"Minimums have a way of becoming maximums."*[3] Although the quotas were established in an attempt to have supervisors identify the outstanding performers, it often became a choice based on who was next eligible for promotion and who, therefore, needed that highest rating the most. No one was willing to take a chance on "hurting a subordinate's chances for promotion." Well, why not?

Even with our enlarged egos, we realize our own limits. How many officers honestly expect to become the Air Force Chief of Staff? When you look down the road of your career, what

ob and rank do you really expect to attain? Is there something in these questions that would lead to a new rating system?

What might a new and better rating system involve? As creatures of habit we resist change. No one could expect us to change our rating frame of mind simply by proposing an entirely new OER form, because, regardless of the form used, a voice in the back of our minds would be saying, "Nobody else will play fair, so why should I?" Thus we need to clean the slate completely and start building on the integrity that lies dormant in each of us by first establishing the appropriate frame of mind.

First and foremost, evaluate yourself at least once each week. Be honest in this evaluation, and ask yourself not only what you did but how and why you did it. Play the devil's advocate. You have to second-guess yourself, but don't let mistakes haunt you. Then, evaluate your boss. Be honest, but be fair. Ask yourself how you would have reacted in each case where he or she made a decision. Try to learn about decision making by making an honest appraisal of all the information influencing specific decisions. As the end of your reporting period nears, take stock of your strengths and weaknesses. Try to judge your abilities and attitude relative to peers and superiors alike.

As a rater, try to avoid looking at the subordinate as a friend who needs your help when you make your evaluation. Begin to look at what level of leadership the ratee would best fill. Look at the subordinate's decisions and their results with an open, analytical mind. It would even be a good idea to fill out a dummy OER with an accurate rating periodically to give to the ratee so that he or she will have an assessment of performance that can serve as guidance for improvement.

Fortunately, successful commanders usually are not motivated by the goal of personal aggrandizement or by strong needs to get along with subordinates. Rather, they want to influence others' behavior for the good of the organization. A rating given in good faith will be received in the manner in which it was given, that is, to show the subordinate where he or she can improve to benefit the whole Air Force. The system of honest evaluation works—and has for years—in the flying business, where each crewmember is rated several times each year.

Most important, don't wait until the end of the rating period and then demand of the ratee a list of accomplishments or, worse yet, a draft OER. The ones who eagerly scramble to the task are generally the image-seekers who don't feel that their supervisor can write as sterling an OER as they deserve. Take enough interest in their accomplishments so that you can reflect on their performance independently before you make such a request.

A New Rating Guide

The Air Force is interested in potential, not past performance. However, performance is used as the basis for establishing potential. The proposals I offer are simple steps toward finding ways to identify potential.

Flowery wording has replaced the rating block as the means of identifying potential by recognizing performance. A lot of thought, I'm sure, went into devising the current rating form. It is an excellent guide to use in evaluation, but it leaves the true meaning of the highest block to interpretation. And "minimums become maximums." Let's give each of the rating blocks a concrete title that would force the rater to reflect honestly on the ratee's potential.

The easiest labels to use would be a type based on rank or level of responsibility. If a captain is a valuable resource who needs to be retained but lacks the administrative or managerial (notice I didn't say leadership) skills required for command, mark the major or lieutenant colonel block. Unless subsequent raters saw an improvement in this area and rated higher, the individual's promotion would be stopped at major or lieutenant colonel. However, a senior captain or major who showed all

the skills necessary for command could be rated in the colonel or brigadier general block. A lieutenant colonel with exceptional ability might even be rated in the general block.

This type of system would simply redefine the uppermost block on the present rating form, since that block is used almost exclusively. It would eliminate the stigma of a less-than-top rating by showing that someone is still promotable, even with the lower rating. And it would make raters look at subordinates in something more than vague generalities. It would force raters to ask themselves: "Would I want to work for this person sometime in the future? Would I trust this individual's abilities in a realm of command decisions?" Such a system would also tend to make subordinates more responsive to mission requirements by demanding that they make timely decisions to demonstrate their abilities. This could start eliminating careerism and the concept of "if I don't do anything, I don't do anything wrong."

We can also begin to eliminate the image-enhancement problem by rigidly structuring the additional indorsement procedure. The push to get as senior an indorsement as possible is ludicrous. If a senior officer doesn't even know the ratee, why should he sign a prewritten indorsement? I have been amazed at the amount of nervous and anxious energy some people are willing to expend when working to get "visibility." It is prostitution. The effort expended is generally much more than that expended in doing their job. Let's remove the incentive for this lack of professionalism by allowing an indorsement only by the rater's reporting official. For most officers, that is the highest level of true knowledge of their ability and potential.

The additional indorsement is most often nothing more than a vague reiteration of what was previously written by the reporting official

and serves only as a prelude to the all-impo tant signature. For those who do somethir exceptional, a senior officer could write son form of commendation for attachment to tl OER. However, such commendations shoul be restricted to specifics, or the current practi will continue, with an increase in paperwork— something else we all want to avoid.

THERE they are, some ideas for consideratioi No, our ranks are not filled with self-seekei and shirkers, but they are among us, and must be shown that their attitudes will not l tolerated. They must attain the establishe moral standards and live by the code to whic we must all subscribe: Duty, Honor, Countr Many will adjust after being shown how othei see them. Others will require a swift kick in th pants by way of the OER.

Let's nurture integrity with honest asses ments and redefine upward mobility as the c pacity to grow and mature both professionall and intellectually. As Chaplain Samuel I Maloney wrote:

> Dishonesty, misrepresentation, and false repor ing can only be reversed if key professionals insi on honor and exemplify integrity. Selfish caree ism that exalts personal advantage above the wel being of others and of the whole can only l reduced if commanders stop rewarding self-ai grandizement and become models themselves responsible service.[4]

We can work together by discussing and d bating ways to improve the rating syster rather than just condemning the one we hav The OER is the conscience of a profession; force, and I hope my thoughts spur others action and help eliminate some of the actior and attitudes that prevent the officer corp from being truly professional.

Arnold AFS, Tennesse

Notes

1. General Charles A. Gabriel, *TIG Brief* 19, 1983.
2. Lieutenant Colonel G. E. Secrist, USAF (Ret), "Defective

Leadership: America's Greatest Peril," *Air University Review*, Se| tember-October 1983, pp. 12-19.
3. Chaplain (Major General) Henry J. Meade, "Commitment (

tegrity," *Air University Review*, March-April 1977, p. 89.
4 Chaplain (Colonel) Samuel D. Maloney, ANG, "Ethics The- ory for the Military Professional," *Air University Review*, March-April 1981, p. 71

A DUAL-TRACK CAREER SYSTEM FOR PILOTS

CAPTAIN CHARLES E. ROSS

AS an Air Force Academy freshman, I learned that "the mission of the United States Air Force is to organize, train, and equip air forces for the conduct of prompt and sustained combat operations in the air." A critical ingredient in successfully accomplishing this mission is how the Air Force structures and manages its fighting forces. In the Air Force today, all officers are expected to conform to the whole-person or generalist concept. With the officer pilot force, however, I believe that the Air Force can increase its fighting ability and simultaneously provide more job fulfillment for its members by allowing some officers to serve as career pilots or specialists.[1] By doing so, I believe that the Air Force can capitalize on individual diversity to produce a better fighting force.

The purpose behind the whole-person concept is to prepare officers to serve eventually in leadership and staff positions that do require a broadly generalized background. This background is achieved through career-broadening assignments and accomplishments. For pilots whose career ambitions include executive-type positions, the whole-person concept is a valid principle in their career development. But I believe that a significant percentage of pilots would prefer instead to be flying specialists for their entire careers. This judgment is based on five years' experience in an operational fighter squadron. For some officers, flying is not just a necessary and enjoyable experience on their path to command and staff positions, but it is a career in itself. Presently, however, these officers cannot find secure careers in the Air Force unless they are willing to conform to the whole-person concept, an objective that usually requires major diversions from their career goal of flying.

Perhaps the best evidence of the Air Force policy is contained in Air Force Regulation (AFR) 36-23, *Officer Career Development*, and Air Force Pamphlet (AFP) 36-22, *Officer Career Information*. AFR 36-23 contains desired career progression guides for officers in all "utilization fields." According to the regulation, the guides "give important milestones that can be used in measuring each officer's progress as related to desirable progression, and in planning assignment, training, and education actions when deficiencies are noted."[2] The guide for pilots divides the flying officer's career into several stages and lists the type of duties that an officer should be performing at each phase in his or her career. The regulation indicates that the guides provide a formula for crossflow from flying duties to support and technical duties to broaden pilots' managerial and executive skills. According to AFP 36-22, the rate of progression "should provide for an officer to remain at a given level long enough to profit by his or her experience, but not long enough to lose interest and initiative."[3] The pamphlet acknowledges that some officers may reach their peak performance at a level below

the top and that these officers can continue to serve in a lower grade. However, the thrust of both AFR 36-23 and AFP 36-22 is for flyers to move up and assume managerial and executive responsibilities. A career in which the officer specializes as a pilot until retirement is not encouraged in either document.

By examining the pilot career progression guide closely, one will readily see that the Air Force expects pilots to concentrate on developing and refining piloting skills only during the initial phase (zero to five years) and the intermediate phase (six to eleven years) of their careers. (See Figure 1.)

Even during the intermediate phase, however, some pilots are expected to leave the cockpit for staff and support functions. During the initial phase, the guide specifically states that officers

should consider applying for an ASTRA assignment (Air Staff Training Program), a year long tour of duty (usually at the Pentagon) designed to expose young officers to air staff operations. Thus, for new pilots in the service the ASTRA program is one of the first examples indicating that the Air Force identifies executive expertise as the desired goal for Air Force officers.

The pilots guide also emphasizes professional military education (PME) and graduate study as important career-broadening accomplishments during the initial and intermediate career phases. Presently, however, many officers view these tasks as "square-fillers," or necessary evils, tolerated for promotion.

Thus, after tabulating data from aircrew surveyed recently, the Tactical Air Command

---

*Figure 1. The Desired Career Progression Guide for an Air Force Pilot**

Initial Phase (zero to five years)	—Primary emphasis should be placed on establishing flying skills, including pilot training and qualification in an operational aircraft
	—Expect an overseas tour and possibly one or more changes of aircraft
	—Complete Squadron Officer School by end of phase
	—Consider application for ASTRA Program
		Advanced Development Phase (twelve to seventeen years)	—Some may be assigned as operations officers and squadron commanders
			—Officers in this phase will fill most operational staff positions
			—During this phase, MAJCOMs should identify officers with potential for command in the next career phase. Desirable prerequisites are:
			    Intermediate PME
			    Recent flying experience in mission aircraft
			    Diversified background, including Air Force or higher headquarters experience
			—Complete senior service school

Intermediate Phase (six to eleven years)	—Refine flight and leadership skills during first portions of the phase —Move into associated utilization fields, such as flight safety, flight test maintenance, or experimental test —Complete intermediate PME —Possible assignment in support functions —Possible assignment as instructor or to an advanced flight school —Exposure to staff positions in a wing or an air division for select officers	Staff Phase (eighteen to twenty-two years)	—Assignments to command/staff positions at wing/MAJCOM/Air Staff levels —Many officers will be removed from field operations for extensive periods
		Executive Phase (twenty-three years plus)	—Assignments as wing/air division commanders, vice commanders or high-level staff directors

*(Extracted from AFR 36-23, 26 December 1979, page 7-2)

Inspector General reported not only that "64 percent of the aircrews surveyed were enrolled in PME or advanced degree programs" but that 93 percent of those enrolled cited promotion as their primary motivation for off-duty education."[4]

Little concern or emphasis is placed on the quality of study; rather, getting the degree in the promotion folder is the goal. Command-level career advisors have told me to "buy a master's degree" from one of the courses that essentially require only a tuition fee and a token amount of work. In my active duty flying unit, I constantly heard officers debating which method of studying the Air Command and Staff College course is the least painful. AFR 36-23 states that intermediate PME should be completed during the intermediate career phase; furthermore, flying officers should have passed the master's degree milestone by their fourteenth year. For line officers reviewed by the CY 1983 majors promotion board, 58 percent of those eligible had completed a master's degree, while 66 percent had completed some type of intermediate PME. For those officers who were actually selected, however, the percentages are much higher. Of the successful candidates, 86 percent had a master's degree, and 85 percent had completed intermediate service school of some type.[5] Facing these types of promotion statistics, one can easily understand why young officers view PME and graduate study as necessary prerequisites for promotion to major.

The square-filling attitude gains the Air Force and the individual little that is beneficial. At the same time, it cheapens the accomplishments of those officers who do apply themselves to graduate work and PME in order to become better officers. Moreover, many officers resent the extra time it takes to complete the graduate work and PME. Pilots in all commands have heavy workloads that include numerous TDY periods, frequent evaluations, and long workdays. Recently, for example, the Tactical Air Command Inspector General reported the average duty day of its aircrews as 10.96 hours.[6] On the average, pilots in my active duty unit were TDY 30 percent of the year —and, from talking to peers in other flying units, I have learned that this amount of TDY is not unusual. Pilots often end up filling almost every off-duty day with a class of some sort. Fitting the work in is even more difficult because weather problems, aircraft maintenance problems, and late schedule changes make precise time schedules for line aircrews almost impossible. A captain just does not have the authority to cancel a late flight so that he or she can make a college class in the evening. Such irregularity is part of being a pilot, but it is not conducive to worthwhile study on a master's degree or PME. Nevertheless, both diplomas are career "facts of life" for any pilot who plans to stay in the Air Force.

After the intermediate phase, officers enter the advanced development phase (twelve to seventeen years). During these years, officers not only should expect to fill supervisory and staff positions but should plan on completing a senior service school. In the staff phase (eighteen to twenty-two years), successful officers will go to major command and air staff positions, and many officers will leave operations for extensive lengths of time. During the executive phase (twenty-three to thirty years), successful officers will be in high-level staff and command positions.

Putting this type of desired career progression in perspective, officers who fit the Air Force's mold will specialize in flying duties for only the first third of their thirty-year military careers, and even during this early period, they must spend a great amount of time on PME and graduate study in addition to flying duties in order to be competitive for promotion.

The briefing that the Military Personnel Center gives to people sitting on promotion boards contains further evidence of how important the whole-person concept is to an officer's career. The formal charge for the 1983 selection board for choosing captains for selection to major read:

> The purpose of the major promotion board is to select captains . . . for promotion to the grade of major. . . . In evaluating the eligible officers, you will use the whole person concept to subjectively assess each officer's relative potential to serve in the next higher grade. This requires careful review of the officer's entire selection folder to assess such factors as job performance, leadership, professional competence, job responsibility, academic and professional education, and specific achievements.[7]

Since the Air Force has no secure career provision for officers who do not make major, an officer must either be competitive when evaluated according to the whole-person concept or accept the risk that he or she will have to leave the Air Force for failing to be selected for major. The Military Personnel Center is very specific in describing what type of record is competitive. For officers who do aspire to be commanders, staff officers, and managers, such criteria usually coincide with his or her personal career goals. For the officer with purely flying ambitions, however, the criteria can change his mind about a military career.

Looking at the extensive training which a pilot must complete gives insight into why many military flyers want to be flying specialists for the duration of their careers. For example, consider a young high-school senior who dreams of flying and starts planning to accomplish that dream.[8] First, the graduating senior must complete a college course of study to earn a bachelor's degree and an Air Force commission—a process that generally takes a minimum of four years of work. (Right or wrong, the Air Force allows only commissioned officers to fly as pilots.) After gaining a commission, the aspiring pilot-to-be has only started on the way to being a military pilot. Now the aspirant will enter a year-long course of intense study and training in undergraduate pilot training. After graduation from pilot training, the person will have a pilot's wings but still will be far from being useful as an operationally ready pilot.

Assuming that the young flyer is going to a fighter aircraft, the individual then must complete approximately two months of fighter lead in training, mastering the elementary principles of fighter tactics and maneuvers. Specialized training lasting four to six months in the pilot's particular aircraft follows, but even then the training process is not over. Upon reaching an operational unit, the pilot will still have several weeks of flying and training before being deemed mission-ready. It will take approximately another two years at a minimum before the pilot will be cleared to fly when the weather is at airfield minimums or to fly as a leader of a formation of airplanes on a combat training mission. Throughout most of this training (especially the training before arriving at the operational unit), the pilot's study load is intense and fast-paced. To reach the point where he or she is cleared to fly as a formation leader, the individual has had to work for eight years (including college) and probably has a minimum of five years' commissioned service. Just as the pilot is reaching the point of starting to refine flying skills and exceed the basic proficiency level, though, the pilot must start planning for career-broadening assignments and accomplishments in order to be competitive for promotion in a few years. For many, this fact of life is not acceptable.[9]

Parallel situations in other fields support the idea that a person can find career fulfillment in a specialized skill. The engineer who thrives on design work and declines a management position, the scientist who turns down a job with industry in order to continue specialized research, and the commercial airline pilot who flies for a thirty-year career rather than filling an executive-type job are but a few examples. I believe that ample precedent exists for accommodating a certain number of specialists in an organization to provide a core of expertise and experience that can be achieved only through continuous long service in a particular skill area. In the Air Force, such individuals are not necessarily less committed to the military or their duty than the person who does want to

rise through the ranks to executive positions. Those who would specialize simply want to serve in a way that both contributes to the mission and fulfills their own personal career objectives. To expect a person to give up personal goals is not realistic or even desirable in a free society's peacetime military. To make room for such individuals, however, the organization's career policies must ensure that the person will be secure, both financially and in terms of organizational respect. I believe that the Air Force can establish such a career policy through a dual-track career progression for pilots.

THE general underlying principle of a dual-track career progression is to recognize two types of flying officers:

• specialists who fly for their entire careers while maintaining relatively low positions in the organization's rank structure; and

• generalists who also fly as part of their duty, but who, over the long term, will advance in rank and position to fill command and staff executive positions.

The specialists would have flying duties of different types and advance to such positions as instructor pilot, functional check pilot, and flight examiner. However, specialists could not expect to be involved regularly in policy-making and management except at low levels in the organization. They would retain the permanent rank of captain and could be awarded moderate pay raises as their time in the service and flying experience increased.

Generalists, on the other hand, could expect career-broadening assignments to prepare them ultimately for high-level executive positions. The whole-person concept would still be applied to generalists, and required activities to prepare the generalists for executive positions could be enhanced and expanded. Thus, greater emphasis might be placed on interservice exchange tours, PME, joint military operations, advanced degrees in disciplines directly relat-

ing to military science, and flying tours in different commands. Although a few exceptions might arise, such as the specialist who later shows an extraordinary natural ability to lead and manage, this dual-track system will, I believe, result in a greater degree of personal fulfillment among the pilot officer corps and a more effective fighting force because more individuals will be specializing in what they do best.[10]

In developing a dual-path career progression for flying officers, the Air Force could probably continue the practice of having all flying officers concentrate on flying duties during the early part of their careers. This service in the cockpit provides a base of operational experience that officers can use in assessing their career goals and in ultimately making their career decision. During this time, activities at Squadron Officer School, information packets, and career briefings from officers in both career paths could be used to help young pilots make their decisions on the career track they would prefer. At a point relatively early in an officer's career, however, the individual must choose between the two different pilot career paths. The Air Force, of course, would need to set limits on the number of officers in each career path. Thus, some officers still might have to accept a type of job that is not in line with their goals and expectations. For example, the number of pilot specialist positions available may be so low that pilots would have to compete for the positions. Nevertheless, I believe that the opportunity for a career choice will greatly enhance job satisfaction among pilots in the military. No system can please everybody, but the overall satisfaction level among pilots who have greater control over their own careers should certainly be an improvement over that derived from today's system of expecting every officer to be a generalist.

I also believe that the Air Force would gain a core of flying experience at the unit level that is currently missing. In our Air Force, most of the people with a great amount of flying expe-

rience are usually in the battle commander area or on a headquarters staff rather than in base operations or on the flight line, where flying questions invariably arise. Of those pilots in operational cockpits at the unit level in the tactical air forces (TAF), the experienced/inexperienced ratio is approximately 50/50. The current minimum objective in the TAF is a 40/60 ratio, but the long-term goal is a 60/40 mix. Besides falling short of the long-term goal, the 50/50 ratio is even more suspect if one considers how quickly a pilot can be labeled as an "experienced" fighter pilot. In the TAF, a pilot is "experienced" after only 500 hours in his particular fighter or after 300 hours in the fighter if the pilot has a total of 1000 instructor or first pilot hours.[11] Usually these levels can be reached within a couple of years in an operational unit. I was identified as an "experienced" fighter pilot after only eighteen months of operational flying in the F-106 interceptor—certainly not enough time to acquire the wisdom that the term *experienced* seems to imply.

This lack of experience is not unique to the tactical forces. In Strategic Air Command (SAC), a B-52 pilot is considered experienced after 1300 flying hours total and 300 hours in the B-52. For a KC-135 pilot, the time is 1200 hours and 300 hours respectively.[12] SAC wing commanders are now expressing concern that most first-assignment instructor pilots and some undergraduate pilot training graduates upgrading to aircraft commander meet the current experienced criteria with less than a year as a combat-ready pilot. According to Hq SAC, " 'experienced' should logically include performance of flying duties throughout the gamut of SAC mission scenarios," including operational readiness inspections, Global Shield exercises, Red Flag exercises, and low-altitude night terrain avoidance missions.[13]

Although the experience level in active duty units is low, the same is not true for the Air Force Reserve. According to the Air Force Rated Management Officer at Headquarters Air Force (HqAF/XOOTD), the experienced percentage among reserve aircrews is better than 90 percent. Ninety-three percent of Reserve pilots are former active duty officers, and 65 percent of Reserve pilots are professional flyers in their civilian work.[14] These statistics, combined with the structure of the Reserve officer promotion system (which retains officers in each grade for much longer periods than the active duty officer structure), indicate that many Air Force pilots do seek a flying specialist type of career rather than a generalist/executive type of career.

SOME would argue that the Air Force already has a provision for a flying specialist on active duty, since a few officers do end up flying for a full career in the Air Force today. Some officers who are passed over for promotion to major still obtain retirement eligibility now because the Air Force has an aircrew shortage currently and therefore is selectively continuing many passed-over captains. The difference in the two systems, however, is the way in which the organization views these individuals. With the present system, such officers are often viewed as people who have not quite made the grade. The stereotyping that these officers must often endure is that of the passed-over captain who is flying because the Air Force will not let him do anything more meaningful. The crucial difference lies in the degree of respect that the organization gives to the individual. Some of these officers who stay in the cockpit may deserve the mediocre label. For others, however, stereotyping is an injustice. Under the dual-track system, such an attitude would not be fostered because the Air Force would have clearly acknowledged that flying specialists are needed in the organization. Rather than being a lower-quality officer, the specialist would be officially accepted as a different type of officer who is contributing a valuable service to the military.

To be sure, changing to dual-track career progression for rated officers is a radical change

in personnel management. Such a change admits that the whole-person concept—for many years, a basic concept in the Air Force's career management and promotion system—is not appropriate for every officer. Implementing the dual-track system would raise many questions; for example, should the system apply to all career fields or only to pilots, and what is the proper number of officers in each field to produce the most effective force? I do not have the expertise to address all such questions. But I do believe that a dual-track concept for pilots is sound and will improve the Air Force's ability to fly and to fight. If I am right, perhaps it is time for such a change to be implemented for the good of the service and the country.

Minot AFB, North Dakota

Notes

1. As a pilot, I know that for many people flying can be a fulfilling career in itself. I do not feel qualified to apply this principle to all career fields in the Air Force. Therefore, I have limited my discussion to the officer pilot force.

2. AFR 36-23, *Officer Career Development*, 26 December 1979, p. 6-1.

3. AFP 36-22, *Officer Career Information*, 10 May 1982, pp. 50-51.

4. *Functional Management Inspection Report, Aircrew Duty Day, 22 October 1984-22 January 1985* (Langley AFB, Virginia: Tactical Air Command Inspector General), p. 6.

5. Statistics supplied by the Personnel Scientific Analyst Sustainment and Support Branch Analysis Division, AFMPC, Randolph AFB, Texas.

6. *Functional Management Inspection Report, Aircrew Duty Day, 22 October 1984-22 January 1985*, p. 3.

7. *Formal Charge to Central Majors Board*, 16 May 1983; supplied by AFMPC.

8. This example is not unreasonable. Several of my classmates at the Air Force Academy applied and entered the academy just so they could be assured of a pilot training position after graduation. Likewise, I knew cadets who decided to leave the academy when they lost their pilot qualifications due to physical problems.

9. I have chosen a fighter-pilot example because I am most familiar with fighter training. Officers who fly SAC and MAC aircraft have told me that the same approximate time is necessary before a pilot can fly as an aircraft commander in a multiengine aircraft.

10. This statement assumes that individuals will do their best work in occupations that they enjoy and choose to pursue. The conclusion that the pilot force will be a more effective fighting force under the dual-track system is based on the theory of comparative advantage, an economic theory which shows that greater total output can be achieved when producers specialize in what they do best rather than trying to produce in all areas. Though the theory is usually applied in economic markets where output can be easily quantified, the same general principles apply to the Air Force's output of fighting ability.

11. *Rated Management Document* (Washington: HqAF XOODT, 27 September 1983) pp. 2-5, 6-14, 6-21.

12. Ibid., p. 6-16.

13. Ibid., p. 2-5.

14. Statistics supplied by the Air Force Reserve Personnel Center Public Affairs Office, Denver, Colorado.

commentary

MORE SIMPLISTIC SOLUTIONS

CAPTAIN TOM LYTLE
CAPTAIN ALEX GIMARC

WE feel compelled to add our two cents worth to the argument on William Lind's article on policy review.* At the risk of incurring the wrath of Lieutenant Colonel Dennis Drew, we think that Lind has several valid points in his article. We also think that in his commentary, Colonel Drew has missed most of them.**

In commenting on Colonel Drew's article, "Beware of Simplistic Solutions," we believe that a small review of recent history is in order. The last time that a set of arguments was presented based on the phrase *simplistic solutions* was during the 1980 presidential election. In that election, voters rejected this argument rather convincingly. We feel that arguments using that phrase have no more validity today than they did then. If the fields of science, mathematics, and management are any guide, the simple elegant solutions are very often the most correct, most understandable, and most

powerful. It is only when the arguments become so muddled in complexities that a clear understanding of the problem and possible solutions does not take place. The point, however, is not about simplistic solutions. It is that Lind has called a spade a spade, and that call is not appreciated.

In our opinion, Lind's thesis was crystal clear. He expressed great concern with the failure of USAF officers to read, write, and think about issues affecting the Air Force. His conclusion was that we are, as a service, by far the most reluctant to discuss these issues in any forum. He then suggested a reason why this was so. We feel that he is exactly correct in his analysis and that his concern is very well placed. Colonel Drew's comment that "his patience was tried" likely has far more to do with a basic disagreement about Lind's point than a taxing attempt to find the thesis of the article.

The comment on Lind's "shoddy research and incomplete analysis" exemplifies the USAF problem with issues discussions. In a single sentence, Lind is accused of doing "shoddy research," conducting an "incomplete analy-

---

*William S. Lind, "Reading, Writing, and Policy Review," *Air University Review*, November-December 1984, pp. 66-70.

**Lieutenant Colonel Dennis M. Drew, "Beware of Simplistic Solutions," *Air University Review*, January-February 1985, pp. 102-04.

sis." and being a "self-anointed expert" who is, by inference only, incapable of commenting on military affairs. Does this mean that any research which does not lead to agreement with accepted conclusions is shoddy? Hardly. If this were so, we would still be fighting wars on horseback because it has been proved inconclusively that man (or woman) cannot fly. Is an "incomplete analysis" an analysis that does not agree with accepted policy? What is the officially approved method of "anointing" a military expert? Does it require one to be on active duty in a uniform? Does it require one to be actively working in the field? Or does it just require one to be competent and have an interest?

The resort to a personal attack is typical of those who would rather not engage in discussions of issues. It is also one of those things that we were told long ago in Squadron Officer School (SOS) that we were not supposed to do. Perhaps a comment here to Colonel Drew about practicing what he preaches would be in order. A charge that one's opponent obviously lacks expertise in sensitive areas of discussion is typically thrown up as a smoke screen to obscure discussion of the real issues. If a critic (or, conversely, an enthusiast) can be engaged in defending his or her expertise, then the discussion will never really center on the matters brought up in the first place. This is an effective debating and courtroom tactic, but it serves absolutely no purpose in discussing issues and solving problems.

Further commentary includes a comparison of censorship requirements between the services. Colonel Drew draws the conclusion that because the Army does not have the MX or cruise missiles, its members are allowed to participate in policy and issues discussions in print, while we as USAF officers are not. We would like to know why. We suggest that Colonel Drew also review the Lind article on this point. Lind pointed out that *every other service* has publications which take up controversial subjects and issues in a better manner than the Air Force. He pointed to the *Marine Corps Gazette*, Army's *Parameters*, and U.S. Naval Institute's *Proceedings*.

We think that Colonel Drew's suggestion that the U.S. Air Force is somehow different from the other uniformed services because it controls strategic and theater nuclear weapons could not be more wrong—perhaps dangerously wrong. If the requirement to hinder open discussions of policy hinges on ownership of nuclear weapons, why does the Navy, with Trident submarines and tactical nuclear weapons, allow it to take place? Why does the Army with the Pershing I/II and tactical nuclear weapons allow it? In nuclear capability, the U.S. Air Force differs only in degree from the other services. Granted, any discussion of issues involving nuclear weapons are, by definition, more sensitive. However, this sensitivity should not in any way keep those types of discussions from taking place internally, and certainly it should not preclude open discussion on the myriad of other missions performed by the Air Force. Such freedom does not seem to be a problem elsewhere.

Open internal discussions on a variety of issues of importance to those interested in conventional weapons, issues, and doctrine do not take place often. When they do, they appear only briefly. For instance, where is the discussion of the relative merits of the upgraded F-16 Fighting Falcon and the F-15 Strike Eagle taking place? Where is the discussion of the relative merits of training philosophies for the Aggressors and the impact that might have on a replacement for the F-5 taking place? What became of the discussions on close-air support started in the pages of this very publication in 1978 and 1979? Where is the discussion on the merits of procuring and using 2.75-inch rockets rather than the AGM-65? These are discussions we do not see or expect to see internally in print.

We believe that the problem which Lind is concerned with is deeper than that which appears in the service school publications. We

would like to expand Lind's list of publications with an additional subject area. A comparison of publications in the field of the art of tactical employment is instructive. The Army publications *Infantry, Armour, Artillery,* and *Air Defense* are filled with articles on the art of fighting and surviving. These articles discuss doctrine, training, issues, and the decision-making process. All have extremely active letters and opinions sections that regularly discuss all aspects of the relevant arts. There is no "party line" apparent because the discussion is open and honest. The Canadians' publication *Fighter Forum* serves a similar function for their fighter community. It has the same type of open discussion and active letters as the U.S. Army publications.

The corresponding USAF publication, *Fighter Weapons Review,* has none of this. Controversial articles do not appear or are rewritten to agree with established policy. The review process has little to do with the significance or merit of the ideas in the submitted articles but much to do with maintaining the appearance that everyone is in complete agreement with approved tactical solutions. Controversial letters and discussions simply do not appear in print. The problem is so bad that those in the field have all but stopped writing letters to the editor. The last request by the editor for comments from the field on how to improve the publication was all but ignored. The mix of published papers in *Fighter Weapons Review* reflects editorial bias strongly in favor of papers written internally by the USAF Fighter Weapons School personnel and those stationed at Nellis AFB, Nevada. The submission of papers from the field has dropped significantly—an alarming indication to some of us in the field. This is hardly the same publication that existed five years ago.

Other evidence of Air Force publication difficulties can be found in the issues of this very publication. What is the mix of authors in the *Air University Review?* Why are the great majority of USAF authors field grade or higher?

Where are the lieutenants? Why do they not contribute? The crucial point of Lind is this USAF officers are not contributing. Why not?

Colonel Drew touched on another facet of the problem in his commentary when he stated that he "had seen a large number of *important* [our emphasis] articles and studies denied publication because of security and policy review. Many, it would seem, were denied clearance on questionable policy grounds and perhaps could be accurately characterized as victims of Pentagon paranoia." By his own admission, the writing and publication of important articles and studies done by the upper echelon of USAF officers—those selected to attend intermediate service school in residence—is stifled by some sort of "Pentagon paranoia." We submit that the problem is not with the Pentagon but with the U.S. Air Force. Why? The other services seem to get along just fine without our review process. Discipline does not seem to suffer. Success in convincing Congress for more funding does not seem to suffer. Readiness and combat skill do not seem to suffer either.

We argue that the problem is not with the service members themselves but with the review process or Air Force gauntlet which officers are forced to traverse in order to write and publish. If an organization puts down layer after layer of reviewers, each of which can disapprove publication with little or no recourse offered the writer, that organization will eventually cease to get inputs from service members wanting to improve their organization. Our example with the USAF *Fighter Weapons Review* serves to illustrate that point, as does Lind's bewilderment with the lack of response to his less than cordial discussion in the *Review* last year.

Colonel Drew is correct when he states that the military has the right and the duty to restrict what its officers publish. We could not agree more. However, any organization that has this responsibility has the responsibility also to apply those restrictions in a legitimate manner. The easiest and safest thing to do as a

censor is to say "No" and let the burden of proof fall on the writer. A censor is paid to censor, and that is precisely what he or she will do.

It seems that there are those in the hierarchy that entertain a significant distrust of those serving under them. Colonel Drew states that "even Lind would agree that the Air Force cannot allow one of its officers to publish an article advocating willful disobedience to lawful orders." This is a red herring. Our question is: Does he really believe that is the type of articles that would be submitted to a professional journal under a more open review process? A professional officer corps will cultivate constructive debate in an open forum almost by definition. We have never seen any articles advocating any such thing in any of the other service journals in ten years of reading. The implied notion that, if the censorship was lifted, the professional officer corps would soon be advocating willful disobedience is ludicrous and should be recognized as such.

Our view is that USAF leaders need to define exactly what they expect the review process to accomplish. If we in the Air Force cannot stand the heat of a pointed, open discussion like the other three services, we are going to be more and more hard-pressed to defend ourselves on issues brought up by skeptical senators and congressmen. Not only does an active internal discussion of all issues make us all collectively smarter by forcing us to think through the positions we take on issues, but also it allows us to see a problem from all sides and attack it with a variety of solutions. A free and open debate is the literary equivalent of capitalism—the concept that everybody can have his or her say (produce a product) and then the market place decides which idea is best (decision-makers as consumers of ideas pick the solution they will apply). This type of discussion appears to be taking place in the other three services. Why are we in the U.S. Air Force so different that we cannot stand it?

We believe that we have a few "simplistic solutions" to this problem. However, first we must ask exactly what the U.S. Air Force desires out of its publications review process. If the desire is to prohibit publication of all papers or articles that conflict with accepted or approved policies, then we suggest that our basic regulations be changed to state exactly that. Do not let the author find it out by inference or fiat. If that is indeed our desire, we can also help the administration reduce the deficit this year and many years to come by offering budget request reductions. Why? A service with an officer corps that does not evaluate, does not comment about, and is not expected to improve the state of the art of warfare (or is not trusted to do so) will be less than useless fighting the next war and need not be (indeed, does not deserve to be) supported by the taxpayer.

If the intention is to control sensitive information only, then the following changes can be made easily and quickly:

• Remove the censorship at all levels.

• Establish two avenues of publication—a classified and an unclassified. Each can be under the control of an editor only, and oversight should not include a multilayered review process. The editor should be as free from higher headquarters guidance as possible. The review process should not in any way be tied to what is and what is not acceptable policy.

• Commanders at all levels should encourage, if not require, inputs and open discussion of all policies and issues. Disagreement should not be equated with disobedience or poor professionalism.

• Forums for these discussions should be accessible and operated in such a way as to encourage free discussion.

• Those responsible for selecting articles for publication should open any issue of *Air University Review* to the front inside cover, read the paragraph under "Attention," and pay close attention to the guidance contained. This should be all the guidance required.

Colonel Drew is correct in stating that the

process needs to be reworked. We feel that he is incorrect in tying the entire discussion to the censor. It would be far easier to eliminate the censor along with the multilayered review process entirely and implement our suggestions.

We have much to learn from our sister services in this area. They are by no means doing everything right, but then neither are we. The major difference is that we are not discussing in print the myriad solutions possible to the problems posed by the Soviets and the demands of warfare in the future. Critical analysis is vital to our survival. It is a very American thing. It should be encouraged. It should be required. It should not be hindered in any way. There is no subject too hot to be discussed.

England AFB, Louisiana

Captains Lytle and Gimarc are operational A-10 pilots.

ON READING, WRITING, AND POLICY REVIEW

COMMENTS BY
LIEUTENANT COLONEL LORENZO M. CROWELL, JR.

THE gestation period of this commentary has been excessive. What finally drives me to the typewriter is Lieutenant Colonel Dennis M. Drew's "Beware of Simplistic Solutions,"* written in response to William S. Lind's "Reading, Writing, and Policy Review."** It appears to me that the issues these men are debating, the quality of intellectual life in the Air Force, and the impact of the policy review process on that intellectual life, are of fundamental importance to U.S. national security.

Since 1980, one of the first assigned readings in the Air War College (AWC) resident course has been Lieutenant General Daniel O. Graham's 1977 article "The Decline of US Strategic Thought," in which he maintains that we military professionals do not have the impact that we should have in the strategic debate because we are overwhelmingly concerned with a budget process dominated by programs, cost-effectiveness, systems analysis, etc., instead of being concerned with developing military strategy.[1] This article is assigned to AWC students (the official "cream" of lieutenant colonels and new colonels) in an attempt to stimulate student interest in the professional study of military strategy.

This idea that we are not having the appropriate impact on military strategy was not new with General Graham. In 1968, General Curtis LeMay wrote that "the military profession has been invaded by pundits who set themselves up

---

*Lieutenant Colonel Dennis M. Drew, "Beware of Simplistic Solutions," *Air University Review*, January-February 1985, pp. 102-04.

**William S. Lind, "Reading, Writing, and Policy Review," *Air University Review*, November-December 1984, pp. 66-67.

as popular oracles on military strategy. These 'defense intellectuals' go unchallenged simply because the experienced professional active duty officers are officially prohibited from entering the public debate."[2] While General Le-May's term *officially prohibited* may be an overstatement of the policy review process, Lind's characterization of its effect as "crippling" is quite right in that our overly restrictive policy and security review process hampers our preparation for war.

In peacetime all we do, whether it's flying F-15s, maintaining C-141s, or sitting in Minuteman capsules, is ultimately no more than preparation for war. Part of that preparation is mental—dare I say intellectual?—which, above the routine learning of specific skills, is focused in PME. However, what is done formally in the classroom or by correspondence should not be the complete picture. In the background must be a vigorous, professional, intellectual life. This intellectual life should be stimulated by open debate of doctrine, tactics, military strategy, and even budgets in professional journals such as the *Air University Review*.

We are up against a problem that is not new. Frederick the Great said:

> A mule who has carried a pack for ten campaigns under Prince Eugene will be no better tactician for it, and it must be confessed, to the disgrace of humanity, that many men grow old in an otherwise respectable profession without making any greater progress than this mule.
>
> To follow the routine of the service, to become occupied with the care of its fodder and lodging, to march when the army marches, camp when it camps, fight when it fights—for the great majority of officers this is what is meant by having served, campaigned, grown gray in the harness. For this reason one sees so many soldiers occupied with trifling matters and rusted by gross ignorance. Instead of soaring audaciously among the clouds, such men know only how to crawl methodically in the mire. They are never perplexed and will never know the causes of their triumphs or defeats.[3]

While the "routine of the service" has certainly changed and while Frederick may have used

"shoddy research and incomplete analysis" just as Lind did, the basic problem is the same—a military service whose professional life is not as vigorous intellectually as it could or should be. Vigorous professional debate is essential in the long run to the operational effectiveness of any military force, whether it's the army of Frederick or the United States Air Force.

In "Beware of Simplistic Solutions," Drew asserts that "the military has the right, indeed the duty, to restrict what its officers publish." I disagree, beyond the restriction of the publication of classified material. Once we review the writings of our officers for compliance with Air Force policy, we make every officer an official spokesperson and have to live with the policy implications of the utterings of each of us instead of only those in responsible positions. The easiest solution to that problem is, of course, not to approve anything in the least bit controversial. This solution ensures that the Air Force will speak with one voice in the budgetary debate and maximizes our effectiveness in the short-term battle of the budget. Unfortunately, it undermines the long-term effectiveness of the Air Force by ensuring that fundamental issues will not be subject to the full, thorough examination that can come only from an open, unimpeded debate. The difference between these two debates, budget and professional, is an important point that is often overlooked.

The Air Force should accept the minor, tactical losses in the budget battle (if any) that might result from having established policy challenged by serving officers in open professional debates. If among the Air Force officer corps we have knee-jerk screwballs who would "publish an article advocating willful disobedience to lawful orders," we need to let them identify themselves so that those in control of the profession can deal with such nonprofessional attitudes. (Part of belonging to any profession is accepting its unique professional standards and discipline.) Drew's suggestion that "the Air Force has an especially difficult

problem with security and policy review, particularly when compared with the Army," does not help very much. If, as he argues, the "political and military implications of the issues" involved in purchase of the MX and deployment of cruise missiles in Europe "would be much more likely to affect delicate international negotiations and Soviet perceptions of our deterrent posture" than the implications of the issues involved in the purchase of a tank or an armored fighting vehicle, we should turn our professional attention to the MX and cruise missile deployment with more vigor. It is our professional responsibility to the American people to deal with the toughest and most sensitive issues, not to stifle debate about them.

If we want to include the knowledge and experience of Air Force military professionals with the work of "defense intellectuals" in the development of American military strategy and defense policy, we must encourage, not inhibit, professional debate. Until we acknowledge that the intellectual preparation for war is at least as important in peacetime as is practice flying, practice bombing, and practice exercises, our military preparedness will suffer. A vital part of this intellectual preparation for war, essential to keep us from being "occupied with trifling matters and rusted by gross igno-

rance," is a vigorous professional debate conducted openly in professional journals. We do not need "an enormous bureaucratic bottleneck at the Pentagon." We need professional responsibility exercised by individual authors and editors. If anyone starts writing "knee-jerk screwball" stuff, he or she can simply be denounced as not an official spokesperson and expect to suffer the consequences for unsound, unprofessional thought—having his or her ideas denounced or refuted in print and thereby looking like a fool intellectually.

Legitimate dissenting professional opinion needs to be heard, not least of all by us. We do not need more debate about the need for professional debate: we need debate that might very well enhance U.S. national security. Unless the U.S. Air Force stops sacrificing the long-term benefits of a vigorous professional debate for the short-term gains of speaking with a single voice in the budget debate, we must expect Bill Lind and the other "defense intellectuals" to dominate the discussion of American military strategy and defense policy, which is a vital part of our preparation for war.

Maxwell AFB, Alabama

Colonel Crowell is Chief, History of Warfare Studies, Air War College.

Notes

1. Lieutenant General Daniel O. Graham, USA (Ret), "The Decline of US Strategic Thought," *Air Force*, August 1977, pp. 24-29.

2. General Curtis E. LeMay with Major General Dale O. Smith, *America Is in Danger* (New York: Funk and Wagnalls, 1968).

3. Jay Luvaas, editor and translator, *Frederick the Great on the Art of War* (New York: Free Press, 1966), p. 47.

COMMENTS BY
CAPTAIN DAVID S. M. GLASEBROOK

IN the United States Air Force, problems that cannot be easily identified or which reflect

poorly on the officer corps are often overlooked. William Lind's feeling that Air Force

officers are unilaterally disarming themselves mentally is an extraordinarily perceptive thought. He has brought to light an extremely painful subject. Air Force officers are not concerned with the "big picture" (or medium picture, depending on perspective) of our nation's defense; most cannot detail the basics of our own political and military infrastructure, let alone, place constructive thought and discussion on that of our known enemies.

In a subsequent rebuttal to Lind's article, titled "Beware of Simplistic Solutions," Lieutenant Colonel Dennis Drew stated that he would hesitate to make sweeping assertions such as Lind's without hard evidence. However, a deficiency as ethereal as this would be extremely difficult to measure or survey by any means, even though it is clearly present. Attempting to produce hard evidence confirming or denying its pervasiveness is more difficult than attempting to produce evidence to satisfy an inspector general complaint for religious, racial, or other types of discrimination that severely impacted someone's career. We can only suspect, but there are many instances that would lead us to the proper conclusion.

Let's take off our rose-tinted glasses and examine the problem as best as we can:

• In many units, it is more acceptable to discuss the latest articles in *Penthouse* than it is to discuss an article from *Soldier of Fortune* or *Newsweek*.

• It is more socially acceptable to discuss taxes and how to reduce your personal debt to the IRS than it is to discuss *Inside Soviet Intelligence.*

• Censorship does not start at the review level. It starts at the lowest levels in the Air Force and continues to the highest. Peers will immediately shun someone who starts to highlight discrepancies in tactics or strategic

thought. Commanders quickly label independent thinkers as rebellious.

• The junior officer who speaks up and openly doubts the decisions and statements made for him by tacticians will be verbally corrected immediately.

The Air Force is disarming itself of clear thinkers who can assimilate more of the big picture than is proper for their grade. We in the Air Force stress proper management and downplay proper leadership. The leaders who do speak up are soon beaten down into a more proper mold, a mold more suitable to a junior executive than to an officer directly responsible for the implementation of national will power. Regardless of the current thought train, the Air Force is not an adventure; it is a job, the end result of which is a free America and a free world. Today's Air Force officers focus on the mundane features of that job. They concentrate on the widget and not what the widget is to be used for. Colonel Drew, I would challenge you to look in the field. If you objectively examine this matter, you may well find that most junior and many senior officers are not prepared to accomplish more than the mere paper pushing which their particular task requires.

There is a proper and an improper way to disagree; we must work within the system to effectively improve it. Colonel Drew, as you stated, there are no simple solutions to such a complex issue. However, unless the subject is broached and commanders at all levels take strong, positive action to encourage open thoughts and discussions among their personnel, there will be no solution at all, and we shall continue to disarm ourselves mentally.

Andersen AFB, Guam

Captain Glasebrook is B-52G Aircraft Commander, 60th Bombardment Squadron (H), Hq 43d Strategic Wing (SAC).

ON LOW-INTENSITY CONFLICT

CAPTAIN MICHAEL T. MCEWEN, USA

WHILE I am in agreement with much of what is said in Dr. Sam Sarkesian's excellent article on low-intensity conflict, I find it is surprising that Sarkesian makes virtually no mention of psychological operations (PSYOP) as the most appropriate focus for a new and enlightened U.S. low-intensity conflict policy.* When it comes to prescribing forces for low-intensity operations, he presents several significant suggestions for the use of Special Forces but provides only a token mention of psychological operations. It is certainly true that Special Forces units and personnel are equipped for some of the operations necessary in low-intensity warfare, but they are extremely limited in the psychological and social skills that are the designated responsibility of PSYOP. Special Forces units excel as trainers of indigenous combat forces, but it is not their mission to perform the sophisticated analysis and direct the extensive public programs that are necessary to accomplish the essential psychological and social missions that Sarkesian has so effectively outlined.

The proper employment of PSYOP in low-intensity conflicts is not a new concept. Existing U.S. military doctrine prescribes the manifold requirements for psychological operations as a foundation for the internal defense and development programs that will defeat an insurgency. Army Field Manual 100-20, *Low-Intensity Conflict*, describes this relationship in detail. The manual, based on lessons learned in Vietnam, is currently undergoing revision, but its emphasis on the primary importance of the political and psychological dimensions in low-intensity conflict will not be altered. More specific information on the role and employment of PSYOP can be found in Army Field Manual 33-1, *Psychological Operations*, which includes three separate chapters on psychological operations in foreign internal defense, unconventional warfare, and special operations.

Because Special Forces has had much higher visibility than the other elements of Special Operations Forces (SOF), it is probably understandable that they would receive a disproportionate emphasis in U.S. low-intensity conflict policy and operations. But if Sarkesian's analysis is accurate, as most recent writers seem to agree, then it is time to emphasize those other SOF activities that more directly address the critically important political, social, and psychological aspects of revolutionary conflict.

Sarkesian properly points out that the development and utilization of Special Forces have been limited by conventional organizational wisdom, which tends to view these forces in terms of either small-unit commando raids or covert operations carried out in concert with resistance forces operating in enemy rear areas during conventional conflicts. This institutional myopia is even more severe with respect to understanding the role and capabilities of PSYOP in low-intensity struggles. A major educational effort is obviously needed in service schools and on a less formal basis with senior military and civilian leaders at the policymaking levels.

Sarkesian is correct in stating that coherency is necessary to achieve U.S. policy objectives and that such coherency depends on coordination of policy, strategy, and operational doctrine. Ideally, this coordination will be based on an understanding that effective operations in low-intensity warfare must address the political, psychological, and social dimensions as well as the military ones. If low-intensity oper-

---

*Sam C. Sarkesian, "Low-Intensity Conflict: Concepts, Principles, and Policy Guidelines," *Air University Review*, January-February 1985, pp. 4-23.

ations begin with combat activity, then the situation has already deteriorated to a dangerous point. It would be far better to begin operations at the earlier stages of the conflict when the confrontations are basically political and psychological.

While it sounds trite, there is something to the argument that low-intensity conflict is the battle for the hearts and minds of the people. Clearly, this battle must be fought with the appropriate psychological weapons. There is a major role for **PSYOP** in low-intensity conflict long before the shooting starts and, of course, once guerrilla warfare is under way, **PSYOP** requirements continue at a very high level. Not all of the PSYOP needs will be met with military assets. Field Manual 100-20 emphasizes the requirement for highly coordinated civilian and military internal defense and development operations.

In the purely military PSYOP realm, there needs to be an intensive effort to build awareness that **PSYOP** must pervade joint operations in limited conflicts. PSYOP is definitely not just an Army game, even though the bulk of the military PSYOP assets are in Army units.

When psychological operations are actually conducted, there are major requirements for Air Force and Navy participation, as Operation Urgent Fury in Grenada recently demonstrated. The new Joint PSYOP Officer Course, which is being developed under Joint Chiefs of Staff mandate, will be an excellent vehicle for creating this needed joint PSYOP consciousness.

Whether a low-intensity conflict situation involves U.S. forces as participants or as trainers/advisors, every effort must be made to increase the emphasis on psychological operations. As Sarkesian and other observers have pointed out, low-intensity conflict is much more a political and psychological struggle than it is a military contest. As such, it requires psychological operations in all its forms, from amnesty campaigns to national unity programs to civic action projects. To be best prepared to meet this challenge, we must improve the visibility and priority of **PSYOP**.

Washington, D.C.

Captain McEwen is assigned to the U.S. Army's Fifth Psychological Group, an operational PSYOP unit.

ON DEFICIENCIES IN AIR FORCE DOCTRINAL EDUCATION

LIEUTENANT COLONEL PAUL A. REID

IN his Fire/Counterfire article, Major John Fal reminded us about our limited effectiveness as warriors when we are poorly educated in doctrine; and since the conduct of war involves more than the policies and procedures of any single job, we can't limit the career fields needing to seek out that knowledge.* All warriors

*Major John W. Fal, "Deficiencies in Air Force Doctrinal Education," *Air University Review*, January-February 1985, pp. 96-98.

need to know and understand doctrine—Air Force doctrine and that of the other services.

The senior U.S. Army school in tactics, Army Command and General Staff College, doesn't leave education in doctrine to chance. The Army's how-to-fight manual, FM 100-5, *Operations,* serves as the foundation for Army service school curricula. The Army believes that its leaders must be prepared to meet a variety of operational situations and knows that

these officers can conduct only operations they understand.

"Retaining the initiative" and "disrupting the opponent's fighting capability in depth" are more than buzz phrases to Army officers. They form the nucleus of the AirLand Battle, a doctrine developed to allow U.S. forces to go a step beyond averting defeat. The AirLand Battle doctrine focuses on winning, and every Air Force officer needs to understand its significance. We are expected to support operations requiring better rapport with the Army, better communications with all levels of Army organizations, and more real-time mission direction than ever before. As with other skills needed during military operations, there will be no time to learn about the AirLand Battle doctrine when we implement it in the crucible of combat. The April 1983 Memorandum of Understanding between the Army and the Air Force points out that the AirLand Battle doctrine demands more joint training, but joint training alone will not prepare the majority of us. We need to take the time to prepare ourselves. For example, it should be clear to us why the Joint Surveillance and Target Attack Radar System (JSTARS) is absolutely essential to the Air Force as a ground force support system. In addition, topics of follow-on forces attack, Army 21, integrated battlefield, deep battle, and battlefield air interdiction also speak to how the Air Force must prepare to participate in the battlefield of the future.

The AirLand Battle is Army doctrine, but it is a basis for much of the training and planning done by Air Force tactical forces. We are not an independent tactical force in the sense that there will be two battlefields, air and land, in the future. The Army corps (level of command above division) is charged with maintaining areas of interest and influence as much as 300 kilometers in front of our own troops (i.e., beyond the FLOT, forward line of own troops). That fact alone tells us the Air Force must be integrated into all corps commanders' plans. Echelons above corps (EAC) deal with enemy forces that are as much as three times farther away from the FLOT than those being scrutinized by the corps planners. Even more so, at EAC the Air Force is a key partner in the conduct of intelligence-gathering and operations. In fact, at the division level of operations, the AirLand Battle is still primarily an *Air*/Land Battle. Even at the brigade level, which is the command level below division and comparable in size to our wing, the battle is a balanced *Land/Air* Battle. The total battle includes the deep battle, as well as the close-in battle and the rear battle. But remember that total battle is fought under the concept of a single commander, and Air Force actions must complement that approach.

It is important to recognize where Air Force leaders stand in the decision-making process of the conduct of war, and it is equally important that every professional officer know why we have any particular doctrine. So it is important to ask why the AirLand Battle was proposed in the first place and why it was accepted as doctrine. Let me refer to my earlier comment about the outcome of the next war. We need a doctrine that can *win* against those forces we might expect to meet on the battlefield, and we need a doctrine to take advantage of the enemy's inherent vulnerabilities, the most important being the echelonment of forces.

The AirLand Battle proposes to win and to capitalize on enemy vulnerabilities. It does so by stressing the offensive and by developing plans that preemptively strike deep at enemy formations. To accomplish this mission, the commander not only must know where those deeply placed enemy units are but also must have the means to attack them. JSTARS allows the commander to "view" the ground much as AWACS is designed to "view" what takes place in enemy airspace. The commander who knows where enemy forces are and understands their likely intentions could then disrupt, delay, and even destroy those forces before they reach the forward edge of the battle area (FEBA). By so doing, the commander would multiply the rela-

tive combat power at the critical point of contact. The enemy's freedom of action would be limited or eliminated. No longer would U.S. forces simply react to onslaughts of echelons. They would prey upon the echelons well forward of the FEBA, deep in the enemy's own territory. The U.S. forces would then be able to seize the initiative, to take the battle to the enemy, and to *win*.

The AirLand Battle is doctrine for winning, a doctrine to suggest how we buy future weapon systems, a doctrine to define parameters of operational requirements that must be understood by operators, logisticians, and everyone else who has a role in how a next war might be fought. It is a doctrine worthy of our study.

Wright-Patterson AFB, Ohio

Colonel Reid is a faculty member of the Air Force Institute of Technology School of Systems and Logistics.

ON COMMENTARY AND THE AIR FORCE OFFICER CORPS

Jerome G. Peppers, Jr.

I HAVE noted the increased content of "Commentary" in recent issues of the *Air University Review*, and I think that perhaps there is yet hope for the *Review* to become a more challenging journal. I have worked rather closely with some of the past editors and tried to push for years for greater reader discussion and even encouragement of disagreement with the official Air Force party line. Apparently there wasn't generally enough correspondence to warrant the commentary as it seems to be developing now.

The March-April issue "Commentary" is of particular interest. I am a charter and life member of the Air Force Association and a long-time member of the U.S. Naval Institute. Both, as you well know, publish a journal. I find both of interest, but I read more of the USNI *Proceedings* because more of its content is thought-provoking rather than expansion of stated official policy. Unfortunately, in the past, I could not say the same for the *Air University Review* if we included it in the comparison. I believe that reasoned argument, conjecture, and disagreement with official stance are both desirable and needed. Yet, too often in the past, the U.S. Air Force seems to have felt 180

degrees differently. At least, the two major journals (*Air Force* and *Air University Review*) have rarely included the conjectural or the argumentative and have often discouraged discussion by "it's policy" control.

The recent comments about absence of history in most Air Force military publications and education/training programs are certainly concurred with. I pushed for more history in the programs of AFIT's School of Systems and Logistics with little success. Many people will readily agree with a statement that more history awareness is needed, but those same people will stiffly resist providing the time or resources for that additional history to be accommodated. To say that those who do not know history are condemned to repeat it does little to shake loose either the time or the resources to provide a better Air Force military history background for military and civilian students. When it is given some little time, the general tendency is to fill that time with the glamorous stories of air-to-air combat or to show films of the large bombing raids of World War II, Korea, or Vietnam. Little is done to present the history of military planning and preparation for war. We made many great mistakes in

World War II, for example, along with many great gains in producing and delivering the weaponry of our U.S. forces and the forces of our allies. Yet, today's planners and leaders know little of the problems and faults of those days, and, perhaps because of that lack of knowledge, we can sense some repetition occurring. Do we see isolationism creeping back into Air Force thinking today? Do we see parochialism showing its face in the Air Force today? Do we see ' we'll take care of that when it comes" becoming a major element of Air Force planning?

I hate to sound excessively harsh, but I fear that we are developing Air Force officers now who are excellent technicians but not military officers. Many of them seem today to identify more with their specialty than with the Air Force. In other words, they think of themselves as pilots, or information systems managers, or whatever, rather than as Air Force military officers. They concentrate on their professional disciplines and become myopic in their views of the world. We are creating a host of competent specialists but very few military experts, yet, should that dreaded balloon go up, it will be the military expert whom we shall most urgently need. I worry about a military organization that does little to imbue in its members respect and feeling for the trappings of military

professionalism. Where is the courtesy of the call on the commander? Where is the comradeship of the club when membership is not required and often not even encouraged? Where is the teaching of military science? Why do we push management and give only lip service to leadership? Why do we not insist that the Air Force Academy, ROTC, and OTS provide a big bite of Air Force history and background? Why should an Air Force officer not know the names of key developers and movers of aviation history and air strategy, tactics, and logistics? Why don't we develop Air Force *officers* and rely on competent NCOs for technical efforts? Why do we expect so many of our officers to be "do-ers" rather than leaders of people?

Because constructive criticism is essential to any effective organization, I hope that you continue to print reader responses in "Commentary" which reflect honest views and that you do more to obtain and publish articles of conjecture, articles of history, and articles that may disagree with existing Air Force policy. We would certainly hope that the Air Force is strong enough to stand questioning by its members.

Fairborn, Ohio

Jerome Peppers is Professor Emeritus at the Air Force Institute of Technology.

REFLECTIONS ON A TRIP WITH MY FATHER

MAJOR CHARLES CRAWFORD

ONE wintry day in 1984, I found that the monthly mailing from the History Book Club included an advertisement for a tour of the European battlefields of World War II.

Normally, I give advertisements a passing glance, but because I was already stationed in Germany, I began to think of all the things this tour might offer. It would allow me to see more

of Europe, particularly those historic grounds I had often read about. I would meet new people and perhaps exchange thoughts on history, strategy, and leadership. Most important, I might be able to give my parents some little return for all they had given me.

My father is in his seventies now, but he had been to Europe forty years ago as an officer with the Eighth Infantry Division. The route of the tour would take us to many of the same places where he had been. My mom and dad liked the idea, so we joined the tour on a warm summer day in London.

There were twenty-five people in the group, and it was more eclectic than I had expected. There were other World War II veterans: an NCO from Bradley's headquarters, a ball turret gunner, a troop transport specialist, a combat engineer, and an infantry company commander. None of them had stayed on active duty; they all had spent many years in other careers: lawyer, firefighter, educator, and historian. Still, each had been a participant in the United States' greatest military endeavor; and though they were no longer young, their recollections were distinct, often poignant, and touched with pride.

After the initial awkwardness, camaraderie among the veterans and the others on the tour began to develop. Despite the diversity of occupations and the range of ages (sixteen to seventy-one years old), we started to talk more openly about the sites of World War II that were the object of our tour and about broader topics that arose from the more limited discussions. We were fortunate to hear lectures by distinguished World War II participants and knowledgeable students of the war. Many points were debated, and many left unresolved.

Sometimes during these discussions—I'm not sure when—I was struck by the fact that these veterans—those with whom we spoke and those among our group—were venerated. The respect shown for them, even when their com-

ments were subjective or unclear, was genuin and gratifying, not just for the veterans them selves but for all of us. We wanted these mer who had fought, suffered, and endured for al of us to know that they were still appreciated a the end of their lives for something they hae done as young men. Shortly thereafter, I real ized the far different status of myself, the onl Vietnam veteran in the group.

Vietnam was not the focus of our trip, and can say without qualification that I did no resent the adulation these veterans were giver for their part in another, greater war. Neverthe less, it seemed strange that my status or the subject of Vietnam was never mentioned. Surely there was some discussion that offered a vehicle for comparison between the two wars or for a broader consideration of war in which Vietnam might have been mentioned. As far as I know, it never happened.

I was not, and am not, bitter about this. The omission didn't reduce my enjoyment of the tour. I learned a lot, I saw a lot, and I had a wonderful shared experience not only with my parents but with a new group of acquaintances. But the tour and the realization of my status—unique among that group but certainly shared by millions of other Vietnam veterans—left me feeling philosophical, and I've since pondered several questions.

Where do I stand as a Vietnam veteran? I am not a "classic" veteran. I wasn't drafted; I wasn't there in the days of America's heaviest ground involvement; I didn't return home in the midst of antiwar demonstrations; I didn't leave the service when my tour in Vietnam was over. I had chosen to get a commission through ROTC, not because I knew that I wanted a military career but, rather, because I knew that I wanted to serve. When I finished college in 1971, "Vietnamization" was the U.S. policy of the moment, and American involvement in Southeast Asia was declining. While in technical training school, I volunteered for Vietnam. Very few training graduates were being sent to Southeast Asia; the number of billets was

quickly dwindling. I felt lucky, yet apprehensive, when I was one of the few who were ordered to Vietnam. There were many more who volunteered—for whatever reasons—but were not sent.

In late March 1972, I arrived at Tan Son Nhut, the air base just west of Saigon, where I would spend the next year. The war was winding down; media coverage was decreasing; Americans seemed to be willingly putting the war behind them. The heyday of antiwar activity was past. The riots, the My Lai incident, the Pentagon Papers, Kent State—all had occurred while I was in college. I arrived in Vietnam knowing that it wasn't going to be a crusade. The confusion, the vituperation, and the duplicity were already known. The idealism had already been tarnished, if not entirely erased.

Why did I go? I didn't think that we were going to win. There wasn't any sense of being part of a noble effort, but I do remember some of my motives. I wanted to serve. I had been taught that serving in uniform was a good thing, and events of the late sixties and early seventies had not been enough to change that belief. I also felt that if one believes in service, then one should serve where the need is greatest. By 1972, it was clear that Vietnam was not a place where this nation's vital interests lay. However, I knew that I could not be comfortable with my own conscience if I didn't volunteer to go. There was also advice from my brother, who had already served a tour in Vietnam. His advice was manifestly practical, although it had both laudable and less than praiseworthy aspects. He told me to go to Vietnam because I would learn more about my profession there than in some place where there wasn't a war. He also said to go because in later competition for promotion, my folder would indicate that I had been to Vietnam, and that would always be an advantage over any competitor who had not.

Anyone who made the trip to Vietnam remembers it. I was scared. It was my first active-duty assignment after training, and I was going to a far away place where people wanted to kill me. I was also afraid that I wouldn't perform well, and a long journey did nothing to eradicate my fears. The long trip did refocus my immediate concerns; I arrived tired, disoriented, hot, and hungry.

My days of acclimation were few. I arrived in Vietnam at the start of North Vietnam's largest general offensive. It probably wasn't as hectic or as dangerous as it seemed at the time, but it gave me a sense of urgency. I wasn't in the front lines; I wasn't being shot at; I didn't have any troops to lead or be concerned about. As a headquarters staff officer, my contribution would be limited. Yet I believed that if I did my job well it could make a difference. The commander of Seventh Air Force would get some small part of his decision-making information from me. I felt that lives depended on the clarity and accuracy of what I said and wrote.

Most people who remember anything about 1972 don't think of the war in Vietnam. If they make the connection at all, they think of it as one of the waning years of the war. America's involvement on the ground was then small compared to 1968 or 1969, but U.S. air operations were extensive. They began as an effort to blunt the North Vietnamese offensive in the south, but they escalated into renewed bombing of the north, culminating in Linebacker II.

I learned a lot. I felt that I contributed. But when the peace accords took effect in late January 1973, I had little sense of accomplishment and no sense of victory. For my last month and a half in Vietnam, I caught up on sleep, grew a moustache, and helped close down the headquarters. When I left in March 1973, I knew that there weren't going to be any ticker tape parades. In fact, I didn't even go home. My next assignment was in Hawaii, so I got off the plane halfway across the Pacific. It was the United States, but it had few familiar sights and sounds. With its climate and population, it was reminiscent of the place I had just left. I was no longer scared, and now I was a Vietnam veteran.

Although I am a Vietnam veteran, I don't believe that many people would think of me as such. I didn't get drafted; I didn't put in my time and then get out; I didn't suffer many of the hardships that the front-line ground troops or even the aircrews did; I didn't struggle to find a civilian job or to readjust to society. In the recent catharsis and recognition of the contribution of those who served in Southeast Asia (the dedications of the Vietnam monuments; the burial of the Vietnam unknown), there does not seem to be a place for those with experience similar to mine.

Objectively, I'd have to say that this is probably the way things ought to be. Those who were scarred physically or emotionally deserve the help of their nation. An "outreach" program for people like me would be preposterous. Yet, while we don't need healing or pity, we do need something—perhaps described by the word *appreciation*. There is little prospect for that. I cannot imagine that, forty years after my time in Vietnam, I will return to see those places where I served. It is even less likely that I will be a part of a tour group whose members will venerate me for my contribution to America's most disappointing effort.

Realistically, I should have known all of this going in, but the realization didn't dawn right away. Perhaps it didn't because it has taken a while to distance myself—professionally, mentally, and emotionally—from Vietnam. Unlike veterans of World War II, my war didn't end. We Americans left, but the war went on. In my two years in Hawaii, I spent part of every working day reading, writing, or briefing about Vietnam and Cambodia. Perhaps my continued association with the day-to-day events, coupled with the freshness of my personal experience, inhibited the construction of a perspective, but I did begin to read and to be influenced by the public literature of Vietnam.

The first books I read had been published while I was in Vietnam. They dealt primarily with the events leading to the United States'

involvement and the early years of the war. They were good books, but there were tinged with lament and condemnation. I appreciated *Fire in the Lake* (1972), *The Best and the Brightest* (1972), and *The Politics of Heroin in Southeast Asia* (1972), but I often resented their tone and could not avoid feeling that I was personally being characterized as a fool for having been part of such a sorry venture, especially since so many of its uglier aspects were already known when I volunteered to go. Despite my resentment, such books had an influence on my perspective.

In the next few years, I read more books about Vietnam as they proliferated. I wasn't consumed with the idea that I had to read every book about Vietnam, but I kept waiting for one that would describe or reflect my experience. A number of books were represented as analyses of Vietnam's effect on America's armed forces and her soldiers. Some of their passages struck resonant chords, but they were angry books, often written by service members or retirees with transparent subjectivity. Their titles were often enough to convey their message: *Defeated* (1972); *The Death of the Army* (1972); *The Tarnished Shield* (1973): *America's Army in Crisis* (1973); *Soldiers in Revolt* (1975); *Crisis in Command* (1978). In the end, I could remember them only as bitter and vituperative.

In the late seventies came two books from combat officers. Even before reading them, I knew that *A Rumor of War* (1977) and *Fields of Fire* (1979) were not going to describe my experience. Their authors were front-line platoon commanders. Nevertheless, they were men who had been to Vietnam not as observers or journalists or senior commanders but as young men, scared and inexperienced as I had been. Although their narratives were realistic and depressing, there was something positive about the protagonists.

I began to find books that seemed to have an objective perspective although they were written by participants. They were not without subjectivity, but *Summons of the Trumpet*

(1978) and *On Strategy* (1981) impressed me as history and rational inquiry, respectively, with their viewpoints unclouded by fresh blood in the eye. America's Vietnam experience was assessed by experts from several disciplines in a symposium summarized in the book *Vietnam As History* (1984). Despite its title, *Without Honor* (1983) had the virtue of ten years' perspective and lacked the pervading sense of recrimination that I found in earlier works. To me, the public literature was beginning to deal rationally with America's experience in Southeast Asia.

With the change in tone in the literature, other media depictions seemed to change. Dr. Lawrence H. Suid has explored attitudes toward Vietnam in the movies (see "Hollywood and Vietnam," *Air University Review*, January-February 1983, pp. 121-27), but I noticed the changes in the more widely viewed characterizations on television. Besides the documentaries that are now exploring the whole of the Vietnam experience (e.g., PBS's "Vietnam: A Television History"), the entertainment shows are reflecting a different attitude toward Vietnam veterans. No longer are veterans simply psychotics waiting for the right dramatic moment to experience posttraumatic stress and then be shot or jailed by the hero of the series. Sometimes Vietnam veterans are the heroes, functioning individuals who do not make Vietnam the center of their existence. The characters (e.g., Magnum of "Magnum, P.I.," and Rick Simon of "Simon and Simon") are shown using their Vietnam experience as a strength. While this is good, I have trouble identifying with their experiences and their lifestyles.

Occasionally, interview shows feature Vietnam veterans. One show presented veterans, some of whom felt that they had been denied their deserved welcome home. Fifteen years later, they believed that the time had come to air their feelings. As the show progressed, I wondered whether I would be able to identify with these veterans. Unfortunately, as in other

cases with a similar format, the veterans (in response to some goading by the interviewer) began to sound strident, bitter, and pathetic. Whether such adjectives also describe me is for others to say, but I chose not to identify with such feelings.

I could identify with some of the feelings expressed in *Everything We Had* (1981), a recounting of experiences by Vietnam veterans. Although many were combat vets, some were more like me: staff or support officers. As one might expect, the feelings expressed weren't exactly congruent, but the appearance of the book continued the trend: the attitude toward Vietnam veterans was changing. Today, that attitude is not one of adulation, but it seems at least to be one of acceptance. While I note the evidence of a changed attitude in our books, films, television shows, and other cultural expressions, the acceptance is not complete—which brings me around again to the tour with my father.

THERE was not instant friendship among the World War II veterans, but there was easy talk and reminiscence. You could see the same thing on television when veterans of D-day were interviewed on the fortieth anniversary of the Normandy invasion. These men could speak freely and often sentimentally of their experiences. For some, it was difficult and emotion-evoking, but they were restrained by their own feelings and not by the sense that they would be rebuked or ignored or shunned.

I rarely talk of Vietnam to those who were not there, and it is only slightly less seldom that I speak of it to those who were there in the years before I was. This leaves a very small circle in which I can drop Vietnam unreservedly into a conversation. Even then, it is often anecdotal conversation. There are no contemplative sessions, no broad discussions of the "why" of it all or our place in it.

And why should there be? World War II vete-

rans do not wonder among themselves why they went or what they fought for. Forty years after the event, Studs Terkel's book says it all in the title, *The Good War* (1984). Perhaps the distinction that is most relevant is that my father won "his" war, and I did not win "mine."

As a veteran of an air force (or army or navy) that couldn't get the job done (for whatever reason), I cannot reflect happily on victory. Furthermore, lacking any laurels of combat, I seek recognition as an intelligent observer of the war, perhaps as a substitute for the recognition I would like to have as a participant.

Perhaps I am coming to the conclusion, twelve years later, that what my service in Vietnam did was make me feel the loss of the opportunity to do something noble or decent on a grand scale, to be part of a worthwhile national endeavor. War by its nature is not noble or decent, but its objectives can be worthwhile, even if the results can always be questioned in comparison to the costs.

This was reinforced as my father, the other veterans, and I walked through the American cemetery on the heights above Omaha Beach. We found several crosses marked "8th Infantry Division," my dad's old unit, and he was moved to tears. He could not be consoled, and he had to leave the rows of crosses. He and I walked the winding path from the heights to the beach. He had crossed this beach once before, when he landed as part of the division advance party a month after D-day. As he walked the beach now, he limped from the wound he received in the Huertgen Forest. We said almost nothing as we walked the length of Omaha Beach. It did not occur to me to ask if he thought of dead comrades interred on the hill above or the months he had spent in the hospital, or if the persistent pain in his leg for the last forty years had ever made him question whether he had done the right thing by joining the army and serving his country. I would like to think that I know my dad well enough to be sure of his answer to such questions, for he reared me to believe that duty is a virtue. There was no question that his generation's discharge of its duty had been the right thing, despite the cost.

It is almost inconceivable that a similar situation could exist for me and my son thirty years from now. I don't envision walking the tarmac at Tan Son Nhut or pausing by the ruins of Seventh Air Force Headquarters in the year 2012. But how would I answer the question: "Was it all worth it?" I shall be able to respond that I was one of my generation who saw his duty to be service rather than avoidance or protest. I do not regret having served, compared to the alternative. I learned a lot and gained friends with whom I share a bond that cannot be achieved in any other way. I don't think that I miss the confetti or parades, and I've gotten over the lack of appreciation. But there is a void, a sense of having been denied the chance to be part of a great, noble endeavor. I don't love my father less because he had such a chance, but I do envy him. Very much.

Hq U.S. European Command

NEW PERSPECTIVES ON WORLD WAR II

Dr. Alan F. Wilt

POPULAR fascination with the Second World War seems not to have diminished but to have grown in recent years. While many books and articles on the war simply rehash or embellish long-held biases, works of considerable merit also continue to appear. Two books in the latter category are Max Hasting's stimulating appraisal of the Normandy campaign† and Martin Blumenson's provocative biography of General Mark Clark.††

Since the works differ in content and focus, each will be examined separately. However, first it is important to note some of their similarities. Both authors are accomplished writers, and both have a sure grasp of their subject, Hastings being best known for his treatment of the British Bomber Command,[1] and Blumenson for his U.S. Army official histories and editing of the *Patton Papers*.[2] Both of them take into account the effect of Ultra intelligence and use fresh sources (Blumenson uses General Clark's personal papers and diary, while Hastings uses interviews with both German and Allied participants). And in both instances, they are familiar with the latest scholarship and generally take an evenhanded view toward the controversies they are discussing. Blumenson, for instance, does not sidestep Clark's penchant for publicity but explains it within the context of "the normally fierce military rivalry" and, during the Italian campaign, as indicative of Clark's desire to overcome Britain's privileged position in the theater. Hastings, for his part, is not alone in considering Operation Overlord as "the decisive western

battle of the Second World War," but he is not reluctant to point out shortcomings on both sides either, such as Germany's critical lack of intelligence and the Allies' inability to take Caen quickly. Overall, then, these are two well-crafted books with new insights that should interest the military professional, historian, and general reader alike.

Hastings and Blumenson also explore several common themes. One is the time-honored subject of leadership. Why was Clark an effective military leader? According to Blumenson, he possessed a proper mix of the right ingredients—highly intelligent, with a quick mind; hardworking, with the motivation to excel; loyal to superiors; demanding but fair toward subordinates; and masterful in human relations.

Hastings, of course, does not develop the principal Normandy commanders in as much depth as Blumenson does Clark, but he does have some definite viewpoints. On the positive side, he evaluates General Dwight D. Eisenhower in the following manner:

> . . . history has thus far remained confident that whatever his shortcomings as a general in the field, he [Eisenhower] revealed a greatness of spirit that escaped Montgomery. . . . It remains impossible to conceive of any other Allied soldier that matched his achievement.

The British journalist-historian further thinks highly of, among others, General Omar N. Bradley and, at the corps level, the American, General J. Lawton Collins, the Britisher, Lieutenant General J. T. Crocker, and the Canadian, Lieutenant General Guy Simonds. He has, moreover, special praise for two of the air

commanders, Royal Air Force Air Vice-Marshal Harry Broadhurst and Army Air Corp Major General Elwood "Pete" Quesada. "Quesada," he writes, "may claim to have done more than any other airman in the Allied ranks to originate and refine techniques of ground-air cooperation and to put them into practice." Among the Germans, Hastings furnishes no surprise with regard to Field Marshal Erwin Rommel, who is lauded, though not excessively, for his efforts before and after the invasion.

But Hastings is not always charitable. Numerous commanders, German and Allied, are described as ineffective, unimaginative, stolid, or incompetent. The controversial Field Marshal Bernard L. Montgomery is viewed as a person having too much self-esteem but also as an officer having "the iron will to prevail" and the desire to win at all costs. In the final analysis, Hastings sees the generalship on both sides as competent, the German junior leaders as superb, and the British as better at the regimental level and in staff work than the Americans.

Another theme that Blumenson and Hastings emphasize is the importance of joint and combined operations. The Northwest African, Sicilian, and Italian campaigns epitomize these crucial concepts in that they include such features as four major and numerous minor amphibious undertakings, the evolution of close air support, and the eventual involvement of seventeen nations. Clark was directly or indirectly involved in all of these Mediterranean operations, from secretly dealing with Admiral J. F. Darlan and French generals in October 1942 to heading his beloved 5th Army to commanding 15th Army Group in November 1944. These were demanding assignments requiring the utmost tact with the other services and especially with America's allies. The British were particularly difficult to deal with, since they considered Italy to be primarily their theater. But Clark got along with them and earned their respect, giving vent to his frustrations only in his diary.

Needless to say, the problems associated with joint and combined operations in the Mediterranean area were mirrored in Overlord, which was an operation of monumental proportions. The services had to get along with one another. Nevertheless, cooperative harmony among the diverse military components was not always achieved, as can be seen in the controversies between air and ground leaders, who differed in their doctrinal emphasis. In this instance, Hastings rightly points out how difficult it was to get the strategic air power advocates to shift from bombing Germany to striking transportation targets in support of Overlord. Getting agreement between American and British leaders (let alone with their other allies) also caused difficulties. But there was still a significant amount of Anglo-American cooperation at every level. Germany's problems were not of the same magnitude, though the cumbersome command system and the infighting among the army, navy, and Luftwaffe did have a negative impact on its conduct of the battle. What both of these books make quite evident is that, for military *and* political reasons, joint and combined efforts were of fundamental significance during both the planning and the execution phases.

Turning to each of the works individually, one can say fairly that in general Blumenson succeeds in presenting a balanced portrait of Clark, his role in the Italian campaign, and his place in recent American military history.

Clark's early life seems typical of a boy born into a military family in 1896—attendance at a boarding school, graduation from West Point (he finished 110th out of 139), and service in World War I, where he was wounded by a shell fragment before seeing actual combat. In the interwar years, he became happily married, worked in various staff and command positions, atended Army War College, and met other "up and coming" officers. He also got to

know General George C. Marshall quite well, and like many other future Army leaders, this relationship was a definite factor in Clark's rise to prominence. In December 1942, after serving as Eisenhower's deputy commander, he became head of 5th Army. During this field command assignment, his fame grew. When British Field Marshal Sir Harold Alexander was moved up to become Supreme Allied Commander in the Mediterranean, Clark, now a four-star general, replaced him as head of all land formations in Italy. After the final flush of victory, Clark commanded U.S. forces during the early years of the Austrian occupation and helped negotiate the 1953 armistice in Korea before retiring from active service. He then became president of The Citadel and devoted the remainder of his life to upgrading that famous academy (though formally retiring in 1965) and to speaking out against what he conceived to be the perils of communism. He died in April 1984.

In Blumenson's view, Clark's main contribution is to be found in the Italian campaign. The "American Eagle," as Churchill dubbed him because of his beak-like nose, was involved in most of the major battles—Salerno, Rapido River, Anzio, the Cassino operations, the drive for Rome, the Bologna failure, crossing the Po. Many, including Clark's role in them, remain controversial. Blumenson carefully examines Clark's performance and finds that it is usually solid and at times inspiring. To be sure, Clark's determination to get the 5th Army to Rome before the British caused problems; and he should have insisted more strongly that his corps commanders, especially Major General E. J. Dawley at Salerno and Major General John P. Lucas at Anzio, be more aggressive. But Blumenson explains, not always convincingly, how the difficulties and failures often were the result of particular conditions at the time or on occasion were beyond Clark's control.

Because of Blumenson's vast knowledge of the Italian fighting, his own opinions about it are also worth noting. Blumenson states:

The Italian campaign, from its beginning, had no specific aim. The Allies fighting in Italy would improvise. Without firm guidelines and expectations, they would react and respond to the German decisions, which would in large part determine the course of the combat. This was what was responsible for the postwar controversy.

Was Italy then worth it? The author's answer is yes. While it did tie down forces on both sides, this effect was less decisive on the Allies and did perhaps assist in the advances from east and west.

Blumenson has an additional goal: to place Clark alongside the most heralded American military leaders in Europe—Eisenhower, Bradley, and Patton. This is no small order, especially with all of the disappointments and setbacks experienced in Italy. Blumenson therefore does not succeed in making Clark a true "American hero," but he does effectively convey Clark's substantial role in the Allied war effort.

HASTING'S book follows in the wake of John Keegan's and Carlo d'Este's recent contributions on Overlord. It is not a synthesis but truly a reinterpretation of the fighting that took place. From Hasting's standpoint, many of our previous assumptions about the campaign are open to question; and Hastings himself is not hesitant in taking the controversial stands. He expresses doubt as to whether the Mulberry harbors and the PLUTO pipeline were worth the cost and effort; contends that the Norman citizens seldom greeted the Allies with open arms but often with indifference; and thinks that the Germans should have undertaken a carefully planned retreat. In terms of air power, Hastings praises the Allies for achieving air superiority and for their effective interdiction campaign, but he attacks "the sluggishness with which ground-air cooperation developed." And using numerous examples, he shows that not everyone or every unit was brave and courageous, but that many times

fear and cowardice were evident among veterans as well as inexperienced combatants.

Hastings's central theme, however, is that even in 1944 "when Allied troops met Germans on anything like equal terms, the Germans almost always prevailed." While Martin L. Van Creveld, Trevor N. Dupuy, and I, among others, have been saying this for some time, no one before has proved the hypothesis as convincingly as Hastings. Not only was the German soldier superior, but except for artillery and transport, his ground weaponry and tactics were better, too. In Hastings's considered opinion, the Allies won out not because of their better personnel, weapons, and tactics but mainly because of their overwhelming materiel superiority. He then uses the Normandy experience to draw the following lesson for today:

If a Soviet invasion force swept across Europe from the east, it would be unhelpful if contemporary British or American soldiers were trained and conditioned to believe that the level of endurance and sacrifice displayed by the Allies in Normandy would suffice to defeat the invaders.

Perhaps Hastings has gone too far in his evaluation of the difficulties surrounding Overlord, but he still provides an important corrective to an overly laudatory version of past events, even when they end in victory.

What overall recommendation can one give prospective readers of these books? While Blumenson's biography of General Clark is more restrained than Hastings's *Overlord*, both make for exciting yet thoughtful reading.

Iowa State University
Ames, Iowa

Notes

1. Max Hastings, *Bomber Command: The Myths and Reality of the Strategic Bombing Offensive 1939-45* (New York: Dial Press, 1979).

2. Martin Blumenson, *Patton Papers, 1885-1940, Vol. 1* (Boston, Massachusetts: Houghton Mifflin, 1972); Martin Blumenson, *Patton Papers, Nineteen Forty to Nineteen Forty-Five, Vol. 2* (Boston, Massachusetts: Houghton Mifflin, 1974).

POTPOURRI

The Foundations of U.S. Air Doctrine: The Problem of Friction in War by Barry D. Watts. Maxwell AFB, Alabama: Air University Press, 1984, 183 pages, $4.00.

Military history, including its subset air power history, has enjoyed a considerable renaissance in both the military and civilian academic communities over the past several years. On the civilian side, this resurgence of interest has been due partially to a growing recognition that war is an inescapable factor in human affairs, and, therefore, if one wishes to understand history one has to understand the phenomena of war. Meanwhile, among the military, interest has arisen largely because systems analysis and social and management sciences have proved so to-

tally inadequate in explaining the realities of combat. Lieutenant Colonel Barry Watts, USAF, has produced an extraordinary study that manages to draw the best from the approaches of civilian and military advocates of military history. He has written, in fact, a thoroughly based academic study that has important implications for those who frame air force doctrine, from conventional limited war to the strategic nuclear level.

Watts argues compellingly that from its earliest days through to Albert Wohlstetter and Bernard Brodie (and by implication to the present), air doctrine has been framed in a mechanistic and deterministic universe. In fact, as Watts underlines, there is precious little to separate the thinking of a Douhet

who wrote "What determines victory in aerial warfare is fire power [bombs on target]" from Herman Kahn's comment that "there has been a systematic overestimation of the importance of the so-called fog of war—the inevitable uncertainties, misinformation, disorganization, or even breakdown of organized units—that must be expected to influence central war operations." This sense that air war, or thermonuclear war, or conventional war for that matter, represents simple quantifiable exercises in which one who knows the inputs can easily and swiftly calculate the results has been unfortunately *the* dominant thread in the American approach to war since 1945. Certainly that trend has received the fulsome support of our civilian leadership, in particular, by Secretaries of Defense, such as Robert S. McNamara and Harold Brown.

Watts argues persuasively that what has been missing from these approaches is the Clausewitzian sense of the frictions involved in war:

> To the extent that air power thinkers from Douhet to Brodie ignored friction, their theories appear to be fundamentally flawed. Indeed, insofar as *Friktion* remains, even late in the twentieth century, the inexorable atmosphere of war, the air power precepts elaborated in *The Command of the Air, Winged Defense, The Air Plan that Defeated Hitler*, and *Strategy in the Missile Age* appear about as useful in guiding the conduct of real war as the abstract ideal of military violence as an end in itself, unrestrained by policy or any other consideration.

The heart of Watt's argument lies in his examination of the impact of a mechanistic, deterministic doctrine on the conduct of the American strategic bombing offensive against Germany in 1943-44. The conduct of that offensive saw the air commanders persevere in the face of catastrophic losses to the point where they almost destroyed their instrument. The second raid over Schweinfurt in October 1943 brought the American deep-penetration raids to a shattering halt, and only the providential arrival of long-range fighters in February 1944 allowed a resumption. "In sum . . . airmen . . . treated the conduct of war as a series of engineering problems amenable to precise, optimal solutions." The record of mechanistic/deterministic air campaigns in Korea and Southeast Asia hardly suggest that much was to change over the next twenty-five years.

In the last chapter, in some respects the least satisfactory but most challenging in *The Foundations of U.S. Air Doctrine*, Watts argues for a less deterministic image of war in preparing and training our air forces for future war. Watts believes that the domi-

nant doctrinal threads that still form the *Weltanschauung* of air force officers are almost beyond redemption. To correct the deficiencies, Watts recommends serious thought about history, careful consideration of the real implications of cohesion and combat psychology, placing real preparation and training for war at the heart of the Air Force mission, and thinking through the implications of the several studies now being done on German doctrine. This is a book that Air Force officers interested in their service and its future should read. As a former editor of the *Review* has noted, "war is fundamentally a human phenomenon, a matter of emotions, aspirations, exertion and suffering. Though concrete physical and statistical factors obviously play a role in determining conflict's outcome, war ultimately comes down to a contest of knowledge, intelligence, will power, and human endurance." This is a study that underlines all of these points.

Dr. Williamson Murray
Ohio State University, Columbus

The Defense of the West: Strategic and European Security Issues Reappraised edited by Robert Kennedy and John M. Weinstein. Boulder, Colorado: Westview Press, 1984, 451 pages, $14.95 paper, $32.00 cloth.

Robert Kennedy and John Weinstein have produced an outstanding volume on strategic and European security issues that should be read by all specialists in the field. *The Defense of the West* provides a balanced and sophisticated treatment of many key issues in these fields. By highlighting the problems and uncertainties facing Soviet planners contemplating either a strategic or theater nuclear confrontation or a conventional war, this volume is, in a certain way, quite reassuring to readers fearful of a possible war. Its theme is that Soviet leaders are relatively rational and face many hurdles likely to prevent them from contemplating a major war. Kennedy effectively demonstrates the numerous technical uncertainties, including gravitational variations and fratricide, which inhibit confidence in planning a nuclear war. Weinstein, arguing that deterrence is a state of mind far exceeding a sterile quantitative count of weapons and forces, stresses the numerous domestic vulnerabilities that would hamper Soviet war-fighting capability. Tod Starbuck projects a future growth in Chinese capabilities, while Daniel Papp develops a fine analysis of the possibilities of ballistic missile defense. Among the chapters dealing with European concerns, Otto

Chaney provides the most interesting analysis of the numerous difficulties hampering the Soviet Union in wartime and concludes that a Soviet blitzkrieg would not work. Similarly, John Weinstein and Henry Gole outline the numerous problems—in areas ranging from meteorology and politics to civilian population density and human fallibilities—that would hinder the employment of chemical warfare.

Overall, the book is a fine, even exceptional work. It should be a part of the reading of professional officers and other members of the defense academic community. In fact, I cannot recommend *The Defense of the West* too highly.

Dr. Jonathan R. Adelman
University of Denver

Nuclear Weapons Databook, Volume I: U.S. Nuclear Forces and Capabilities by Thomas B. Cochran. Cambridge, Massachusetts: Ballinger, 1984, 340 pages, $19.95.

The increasingly public debate on national security issues and nuclear weapons, deterrence, arms limitations, and disarmament—absent in the East— could seriously affect the abilities of democratic countries to pursue viable nuclear policies designed to provide security from nuclear or political blackmail and to protect vital national interests, goals, and objectives. Today's nuclear weapons and delivery systems and those of the future determine the structure of and set the stage for both the security and the insecurity involved with East-West relations. An informed electorate capable of making rational judgments will be critical to the future viability of both national security policy and effective arms control efforts.

The first volume of the *Nuclear Weapons Databook*, titled *U.S. Nuclear Forces and Capabilities*, provides the reader with basic information on the nuclear weapons and systems that the United States has and will have for the defense of the nation and NATO. The concept of a usable, current encyclopedia of information on nuclear weapons and systems is admirable, and *U.S. Nuclear Forces and Capabilities* is a start in the right direction. However, due to limitations that will hopefully be corrected by future volumes, *U.S. Nuclear Forces and Capabilities* leaves the reader with only half the information required to make an intelligent, rational judgment.

Aimed more toward the layman than the professional, the volume is a useful and needed handbook of technical information that has been developed from open sources. Well indexed with an excellent table of contents and lists of figures and tables, it is an easy reference work to use. The layman will applaud its simple, easy-to-understand explanation of how nuclear weapons work and are built, the information on the development of the nuclear weapons stockpile, and the discussion of the role of nuclear weapons in U.S. and allied military forces. The professional and layman both can use the fact sheets, which present technical data on tactical and strategic weapons and systems. The information offered will provide the layman with the knowledge necessary to better understand, or "challenge," the "arguments which are used to rationalize the continuation of the nuclear arms race" and should improve the public's understanding of the nuclear forces of the United States. The subtle bias expressed in the Foreword and Preface, as well as the obvious attempt to target a specific audience, however, detract somewhat from the volume's objectivity and could lead to a shallow, one-sided approach by those who are not willing to delve more deeply into the issues.

Although not as complete on many systems as the *Jane's* volumes and lacking the balanced approach of the International Institute for Strategic Studies' *The Military Balance* series, *U.S. Nuclear Forces and Capabilities* remains a valuable quick-reference work for professionals and private citizens desiring a fairly detailed picture of the present and future nuclear capability of the United States. The current lack of a similar treatment of Soviet nuclear capabilities is a definite drawback to a balanced approach, acknowledged by the authors, and to any attempt to understand fully the global nuclear situation. The authors recognize that the imbalance "may continue due to the much more limited availability of data on the Soviet nuclear weapon system" and state that their work "is not intended to be another document on the assessment of U.S.-Soviet military balance." Consequently, as a reference work, the *U.S. Nuclear Forces and Capabilities* is, and the *Nuclear Weapons Databook* as a whole will be, limited in its ability to "serve as a step toward a more sophisticated understanding of the dynamics of the two systems." The public's understanding of *why* nuclear capabilities may be required or *why* arms control may be important will have to await future volumes or other authors.

Colonel Christopher H. Brown, USAF
Atlantic Council of the United States
Washington, D.C.

The Nuclear Hostages by Bernard J. O'Keefe. Boston: Houghton Mifflin, 1983, 243 pages, $14.95.

Bernard O'Keefe's work will certainly contribute to the current debate over nuclear energy and weap-

ons. O'Keefe offers a brief historical summary of the development of nuclear energy and weapons, chronicles his own involvement in nuclear weapons development, and speculates on solutions to the problems that nuclear energy has created. He also elaborates on his definition of "nuclear hostage," claiming that an entire civilization is being held prisoner without its knowledge or consent.

The author draws from his expertise and background. O'Keefe was a young scientist at MIT when World War II began but soon received a naval commission and joined the staff of Robert Oppenheimer at Los Alamos, New Mexico. There he helped develop arming devices used in the atomic weapons dropped on Japan. After the war, he joined a high-technology firm that measured the effects of fallout and later participated in the major tests at Eniwetok, Bikini, and Frenchman Flats, Nevada.

O'Keefe is decidedly uncomfortable about the political implications of what he witnessed. He considers that U.S. development of the bomb was necessary and proper, given the circumstances of the war. Nevertheless, his predictions for the future are pessimistic. He traces the arms race since the Truman administration and reasons that all attempts to solve the nuclear arms problem have led to paradoxes, contradictions, and incongruous political solutions. He especially chides the Kennedy administration's nuclear policy, saying that it reverted to a medieval hostage concept of killing all the prisoners if attacked. O'Keefe believes that modern science has unfortunately created the conditions in which communities are held hostage in their homes without their knowledge.

The author does offer some possible remedies. He suggests an examination of world politics in a new light: act unilaterally when possible, go along with the Soviets where we can, and make attempts at reaching long-range agreements. Additional options available for the United States include dispensing with the idea of population dispersal for civil defense, unilaterally stopping deployment of tactical nuclear weapons to Europe, and opening clear lines of communication to prevent accidental warfare. O'Keefe also recommends positive steps. For example, secondary school curricula for Americans should include courses that examine the nuclear question and that promote cultural awareness of the Soviet Union.

O'Keefe believes that future weapons' development has little value and leads only to insecurity and possibly to confrontation. He argues that the United States must find new avenues for cooperation with the Soviet Union. He believes that the United States must reconcile its political system with the Soviet

Union, but first the United States must sell its economic system. According to O'Keefe, our economic system is the world's best and if the Soviets would adapt it, many of their problems could be solved. Once clear economic progress was achieved in the Soviet Union, O'Keefe asserts, then political and moral concessions would soon follow.

O'Keefe's personal accounts of the development of atomic weapons is superb. His descriptions and stories, which are vivid and real, are the true strength of *The Nuclear Hostages*. Unfortunately, O'Keefe makes a number of broad proposals concerning cooperation without answering the most basic question: How do we go about it? The arguments remain shallow, and the reader is left to his own imagination to implement O'Keefe's economic proposals. Despite this glaring weakness, the book is well written, addresses a crucial contemporary issue, and should stimulate critical thinking.

Captain Harold G. McKinney, USAF
U.S. Air Force Academy, Colorado

The Armchair Aviator edited by John Thorn. New York: Charles Scribner's Sons, 1983, 307 pages, $19.95.

With more than sixty selections within, this anthology is great fun. Excerpts run the gamut from Richard Bach to Edgar Allan Poe to Sigmund Freud to E. K. Gann. Although many items will be familiar to aviation buffs, it is a pleasure to rediscover them and to savor their timelessness. Such can be said of Wolfgang Langewiesche's discourse on the art of flight or Charles Lindbergh's account of his epic transatlantic journey of 1927. The magic of those early years comes alive again from pieces by Antoine de Saint-Exupery and Amelia Earhart.

Military aviation is also well served, with selections by World War I ace William Bishop, in which he discusses the inventive gambits of his fellow Canadian, Billy Barker. There is a selection from Manfred von Richthofen's memoirs along with additional pieces about World War II. Astronautics is covered in excerpts by Arthur Clarke, a pioneering futurist and science-fiction writer, as well as by astronaut Michael Collins and the crew of the first space shuttle flight. Thus, the coverage is thorough and relatively balanced.

However, the failure to arrange these pieces chronologically is mildly annoying. The artwork, done in the cartoon style of "Ripley's Believe It or Not" seems inappropriate. Otherwise, *The Armchair Aviator* makes enjoyable recreational reading.

Dr. Roger E. Bilstein
University of Houston-Clear Lake

R the contributors

Donald M. Snow (B.A., M.A., University of Colorado; Ph.D., Indiana University) is Senior Research Fellow, U.S. Naval War College, and Professor of Political Science and Director of International Studies at the University of Alabama, Tuscaloosa. He is the author of *The Nuclear Future: Toward a Strategy of Uncertainty* (1983), *Nuclear Strategy in a Dynamic World* (1981), and *National Security: Issues in U.S. Defense Policy* (forthcoming). Dr. Snow has been Professor of National Security Affairs at Air Command and Staff College and is a frequent contributor to the *Review*.

Colonel Ray E. Stratton (B.S., Texas A&M University; M.S., Troy State University) is Commandant of the USAF Special Operations School (MAC) at Hurlburt Field, Florida. He flew more than 500 combat missions in nine types of aircraft in Southeast Asia as a forward air controller, air liaison officer, and operations advisor to the Vietnamese Air Force. He also served in the Air Staff as Chief of Security Assistance Policy and Management for foreign military sales and training programs for thirty-one foreign air forces. Colonel Stratton is a Distinguished Graduate of both Air Command Staff College and Air War College.

Joint Task Force Europe as UW contingency and special planner and with the Second A Division (MAC), at Hurlburt Field, Florida, Chief of Plans and Programs. Colonel Jannarone is a graduate of Air Command and Staff College and a Distinguished Graduate of Armed Forces Staff College.

Stanley P. Berard is a junior at the University of Southwestern Louisiana (USL) majoring in political science. He is studying under USL Academic Scholarship—one of the school's most prestigious undergraduate awards.

Major Scott B. Sonnenberg (USAFA, M.B.A., University of Utah) is Operations Officer of the Thirteenth Tactical Fighter Squadron, Misawa Air Base, Japan. He has had assignments at Ubon RTAFB, Thailand, and at Royal Air Force, Lakenheath, United Kingdom. Major Sonnenberg was awarded Distinguished Honorable Mention in the 1984 Ira C. Eaker Essay Competition for his article in this issue.

Lieutenant Colonel August G. Jannarone (B.A., Ohio Wesleyan University; M.A., San Diego State University) is Senior Air Force Research Fellow at Rand Corporation. His extensive experience in worldwide planning for unconventional warfare (UW), deception, and psychological operations and civic action includes service with the Special Operations


Captain Charles H. Nicholls (USAFA; M.S. University of Southern California) is Instructor Electronic Warfare Officer, 328th Bombardment Squadron, at Castle AFB, California. He has served as a squadron electronic warfare officer and as an instructor and evaluator in his field with the 441st Bombardment Squadron at Mather AFB, California. Captain Nicholls is a graduate of Squadron Officer School. His article in this issue received Honorable Mention in the 1984 Ira C. Eaker Essay Competition.
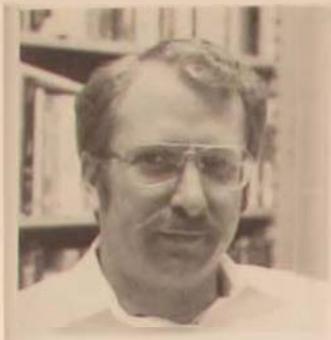
Gerald W. Berkley (B.A., Oklahoma City University; M.A., University of Hawaii; Ph.D., University of Hong Kong) is Associate Professor of Asian History, Auburn University at Montgomery, Alabama. He has taught or lectured at the University of Maryland, Arkansas State University, Chinese University of Hong Kong, University of Hawaii, American Institute for Foreign Study, and Oklahoma City University. Dr. Berkley's articles and book reviews have appeared in numerous professional journals, including the *Review*.

Donald B. Dodd (B.A., University of North Alabama; M.A., Auburn University; Ph.D., University of Georgia) is Professor of History, Auburn University at Montgomery, Alabama, where he teaches courses on U.S. military and diplomatic history. Dr. Dodd is also an Air Force Reserve lieutenant colonel assigned to the USAF Historical Research Center, Maxwell AFB, Alabama, and an adjunct faculty member at Air War College, Associate programs.

Major Kenneth A. Rogers (B.S., University of Oklahoma; M.A., California State University

at Sacramento; Ph.D., American University) is a faculty member, Department of Political Science, U.S. Air Force Academy. He has served as a Soviet area specialist at the Pentagon and an international politico-military affairs officer at Bolling AFB, D.C. Major Rogers was assigned to the USAF Research Associates Program, University of Edinburgh, Scotland, when he wrote the article appearing in this issue. He is a graduate of Squadron Officer School.

Colonel Pat O. Clifton (B.A., Oklahoma State University; M.A., Creighton University) is Commander, 3480th Technical Training Group, Goodfellow AFB, Texas. He has represented the Electronic Security Command as a Research Fellow at the Center for Aerospace Doctrine, Research, and Education, Maxwell AFB, Alabama; and he has served as Commander, 6993d Electronic Security Squadron, Kelly AFB, Texas; Wing Deputy Commander for Operations, Europe; and Chief of the National Security Affairs Department at Air Command and Staff College. His articles have appeared in the *Journal of Electronic Defense* and the *Review*. Colonel Clifton is a graduate of both Squadron Officer School and Air War College, as well as a Distinguished Graduate of Air Command and Staff College.

John G. Romo (B.A., Trinity University; M.A., Ph.D., Oklahoma State University) is a mathematician, Directorate of Systems Technology, Hq Electronic Security Command, San Antonio, Texas, and serves as a technical consultant for command applications of artificial intelligence. Dr. Romo was an assistant

professor at the University of Texas-San Antonio before serving as a mathematician in support of the AWACS, Tinker AFB, Oklahoma. His professional experiences and interests include harmonic analysis, Kalman filtering, simulation/modeling, technology infusion, and artificial intelligence.
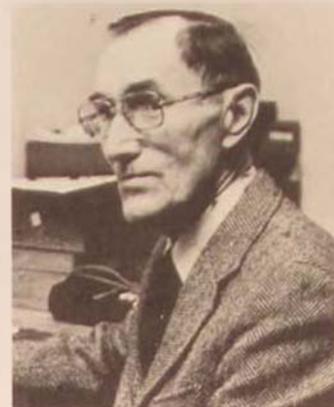
M. Maurer (B.S., Miami University; M.A., Ph.D., Ohio State University) was Senior Historian at the Albert F. Simpson Historical Research Center when he retired in 1983. During his thirty-three years as a historian for the U.S. Air Force, he also served with the USAF Historical Division, Aerospace Studies Institute, and with Air Force Logistics Command. Formerly, he was a faculty member at Wittenberg College. Dr. Maurer edited *Air Force Combat Units of World War II* (1961), has written numerous monographs on Air Force history, and has contributed articles to a variety of journals, including *Air University Review*, *Military Affairs*, and U.S. Naval Institute *Proceedings*.

Second Lieutenant Michael J. Reed (B.S., University of Arkansas) is a Systems Engineer at the Arnold Engineering Development Center, Arnold AFS, Tennessee. Lieutenant Reed has studied at several universities through the Airman Education and Commissioning Program and is a graduate of Officer Training School. He is a previous contributor to the *Review*.

Captain Charles E. Ross (USAFA) is an Air National Guard F-106 pilot and officer assigned to the 101st Fighter Interceptor Squadron, Otis Air National Guard Base, Massachusetts. While on active duty, he had assignments at the 14th Flying Training Wing, Columbus AFB. Massachusetts, and at the 5th Fighter Interceptor Squadron, Minot AFB, North Dakota. He also flew the T-33. Captain Ross is a Distinguished Graduate of Squadron Officer School.

Major Charles Crawford (B.S., Georgia Tech; M.S., University of Southern California) is Chief, Intelligence Briefing Branch, Directorate of Intelligence, Hq USEUCOM. His previous assignments include Hq Seventh Air Force; Hq Military Assistance Command, Vietnam; Hq Pacific Command; and the Defense Intelligence Agency. Major Crawford is a graduate of Squadron Officer School and Armed Forces Staff College.

Alan F. Wilt (B.S., DePauw University; M.A. Ph.D., University of Michigan) is Professor of History at Iowa State University. In 1982-83 he was visiting professor of military history at the Air War College, Maxwell AFB, Alabama. His books include *The Atlantic Wall: Hitler's Defenses in the West, 1941-44* (1975) and *The French Riviera Campaign of August 1944* (1981). Dr. Wilt is a previous contributor to the *Review*.

The *Air University Review* Awards Committee has selected "Is a Soviet 'Bolt from the Blue' Impossible?" by Dr. Stephen J. Cimbala and "Educating Military Officers" by Dr. William P. Snyder as the outstanding articles in the May-June 1985 issue of the *Review*.

Professional Staff

Advisers

AIR
UNIVERSITY
review
MAXWELL AFB. AL 36112

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300
RETURN POSTAGE GUARANTEED

R
The Professional Journal of the United States Air Force

AIR
UNIVERSITY
review

SEPTEMBER-OCTOBER 1965