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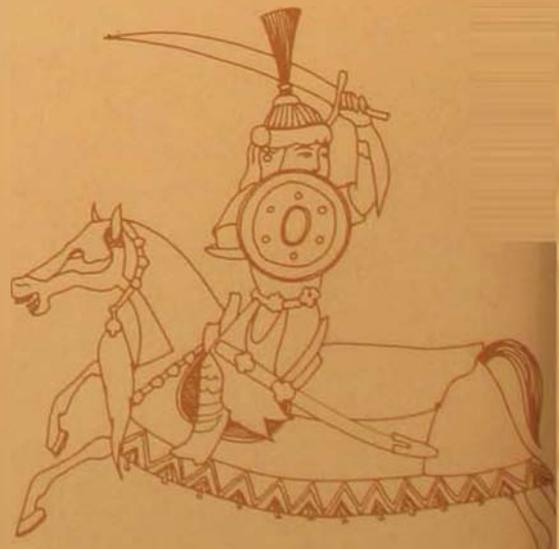# review

The Professional Journal of the United States Air Force

the big battalions

mass, accuracy, and the uses (and misuses) of historical aphorisms

Professional concern with weapons employment has traditionally centered on qualitative issues: What can the system do? What are the operational constraints? How can it best be employed?

Recently, however, concern with the accelerating Soviet arms buildup, manifested in debate over the SALT treaties and the MX program—witness our first two articles—has focused increasingly on questions of sheer size and gross numbers. The term *throw-weight,* buried in the obscurity of engineering jargon a few years ago, is now a well-established buzz word, familiar to anyone even remotely interested in national defense.

This quantitative emphasis brings to mind an aphorism usually attributed to Napoleon and often repeated in just this context: "God is on the side of the big battalions"; uttered by a master of warfare and sanctified by repetition, that says it all. Or does it?

In fact, the saying goes back at least to Marshal de Turenne, whose military career ended a century before Napoleon's began. A presumed divine preference for big battalions makes more sense for Turenne's day, when battalions were the basic tactical tool of commanders and varied enormously in composition and quality, than for the large and relatively homogeneous armies of Napoleon's era.

Voltaire, who came along in the interim, repeated the saying on occasion, but with an important caveat: "*It is said* that God is on the side of the big battalions." He also said—*without* qualification—"God is not on the side of the big battalions, but of the best shots." When applied in the context of increasing throw-weights and shrinking CEPs (circular error probable), Voltaire's version makes at least as much sense as the misattributed original.

What did Napoleon *really* say when asked about divine preference for the larger battalions? He replied, "Nothing of the kind; Providence is always on the side of the last reserve." That makes even more sense.

articles

departments

THE CASE FOR THE MX

DR. LAWRENCE J. KORB

DEVELOPMENT of the MX mobile missile began approximately a decade ago when the Strategic Air Command documented the need for an advanced intercontinental ballistic missile (ICBM). The primary impetus for developing this new system was to provide a hedge against Soviet development of a countersilo potential. Secondary but important considerations included increasing the hard-target kill potential and overall firepower and accuracy of our own land-based missile force to balance predicted Soviet gains in those areas. The original timetable called for beginning production of the missile in FY 1978 and initial deployment in FY 1984. Had this timetable been followed, the MX

Operating Base
Designated Assembly Area
MX Loop
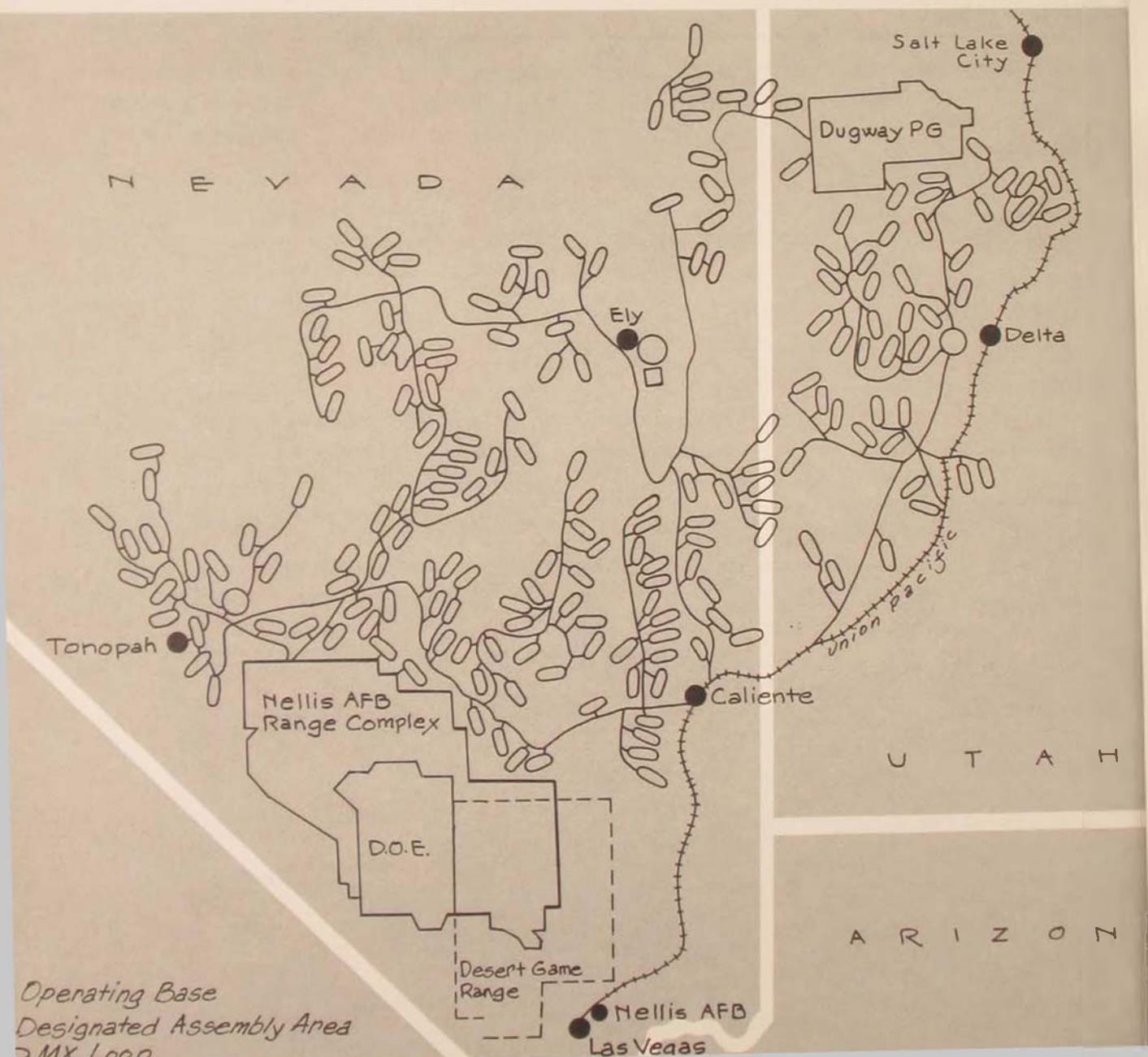
would have been deployed 15 years after Minuteman II and 10 years after Minuteman III.

At the time the Soviets were not expected to develop a countersilo potential until the late 1970s or early 1980s. However, strides by the Soviets in that area more rapid than anticipated led former President Gerald R. Ford to move up both the production and deployment schedules by a year. Had the Ford program been implemented, more than 100 MX missiles would have been in place by the mid-seventies and approximately 300 by the end of the decade at a total cost of $35 billion. This schedule would have solved the short-term vulnerability problems of our ICBM force and arrested the rapid deterioration of the strategic balance that has occurred over the past decade.

Shortly after coming into office, President Carter decided to reserve judgment on whether to procure such a weapon system pending the Soviet reaction to his proposal to ban mobile missiles. In addition, he reduced the funding level for the development of the MX by 85 percent, thus effectively slowing the program down by at least three years. However, two and one-half years later, in June 1979, the President announced that he would now support building the system. Three months later, on 7 September 1979, Mr. Carter revealed that he had approved a plan for building 200 MX missiles on public land in Nevada and Utah in a horizontal racetrack basing mode, that is, in horizontal shelters surrounding separate circular runways, at a cost of $33 billion in FY 1980 dollars. The following spring, on 6 May 1980, Secretary of Defense Harold Brown ruled out the racetrack basing mode in favor of a linear

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Editor's Note

alternative with a plow out launch mode; that is, the missile will be deployed in a series of straight roads in a grid pattern and will be moved out of its protective shelter prior to being raised into a launch position and fired. This alternative will reduce the miles of road that have to be built by 20 percent and reduce the cost by $2 billion. Assuming no further delays caused by funding reductions, unforeseen technological problems, or environmental difficulties, the first MX will become operational sometime in FY 1986. Within the next two years, approximately 100 of these missiles will come on-line, and the entire 200-missile force should be operational by the end of the decade.

In order to evaluate the President's decision on the MX, there are at least five interrelated questions that must be addressed:

- Do we need a new mobile ICBM?

- Is the MX the most cost-effective option for a mobile ICBM?

- Is the linear grid concept the most feasible basing mode for the mobile ICBM?

- Can we afford MX?

- Is MX viable without SALT II limits on Soviet missile development?

To each of these questions, the answer appears to be in the affirmative.

Do we need a mobile ICBM?

If we do not make our ICBM force mobile, it will not be able to withstand a preemptive first strike by the ICBM force of the Soviet Union. Presently, 15 percent of our fixed silo Minuteman force may be able to survive a Soviet attack that targets each silo with two warheads. (See Table I.) Within the next few years, the number of surviving silos could drop to about 5 percent. Not even the current Air Force program of hardening our Minuteman silos to withstand pressures up to 2000 psi can alter this situation. Moreover, the

Soviets can inflict this vast damage upon our ICBM force by firing only one-third of their own supply of ICBM warheads. Therefore, unless one is willing to adopt the destabilizing launch on warning or launch under attack strategy, the ICBM force must be made mobile if it is to survive a preemptive Soviet strike. Mobility will make it impossible for the Soviets to destroy the entire ICBM force even if they use all their warheads with hard-target kill capabilities.

If we allow our ICBM force to remain this vulnerable, we in effect give up the most accurate, reliable, ready, and powerful portion of our strategic triad. Such a course of action would have three undesirable effects. First, by eliminating diversity in our strategic deterrent, it would weaken the bomber and submarine portions of the triad. Second, it would undermine the doctrinal concepts underpinning our strategic forces, that is, the countervailing strategy and essential equivalence. Lack of a survivable ICBM force would no doubt be perceived by our adversaries and allies as an indication that the strategic forces of the United States were not in fact essentially equivalent to those of the Soviet Union. Similarly, lack of a secure, effective ICBM force would make it almost impossible for this nation to respond adequately to different levels of nuclear attacks and control escalation, that is, implement the countervailing strategy. Without essential equivalence and the forces to implement the countervailing

strategy, the whole idea of deterrence would be in jeopardy. Third, we set the dangerous precedent of allowing the enemy to dictate our force posture and strategy. We now know that as far back as 1962, the Soviets embarked on a policy of building up their forces to be able to launch a preemptive attack against U.S. intercontinental ballistic missiles.[1] Abandoning the ICBM in effect rewards the Soviets for this policy.

Is the MX cost-effective?

Many of those who agree with the idea of maintaining the ICBM portion of the triad argue that there are alternatives which are more cost-effective than the MX, specifically the modified Minuteman III or Trident II or the Submersible Underwater Missile (SUM) system. The evidence does not appear to support such contentions.

Taking the existing 550 Minuteman III missiles from their fixed silos and making them mobile would be only 10 percent cheaper than MX if one wished to ensure that 1000 warheads survived a Soviet preemptive strike.[2] This is considered the minimum number of warheads necessary to ensure that we have the capability to destroy most industrial targets in the Soviet Union or attack a large portion of Soviet military targets. But if we wish to have the capability in our ICBM force not only to attack most industrial targets but also to destroy some mili-

Table I   Surviving U.S. silos (Minuteman and Titan) 1980-90

Fiscal Year	1980	1982	1984	1986	1988	1990	1980-90 Differences	
							Amount	Percent
Scenario*								
Optimistic	360	350	210	160	50	25	335	93
Pessimistic	150	120	50	40	0	0	150	100
Realistic	200	180	135	75	25	10	190	95

*Depends on uncertainties concerning yields, accuracy, and reliability of Soviet strategic forces

tary targets (for example, 1500 surviving warheads), Minuteman III is three times more costly than MX. Finally, if we desire to increase the number of survivable warheads to 2000, it simply cannot be done with Minuteman at any price.

The modified Minuteman III approach has three other disadvantages. First, its warheads are not as powerful or accurate as those of MX. Second, the 10 percent cost saving for Minuteman III is predicated on basing these missiles in the north central portion of the United States near the areas where the fixed silos are presently located. However, land in this area is predominantly privately owned agricultural land, and the section is more heavily populated than Nevada and Utah. In addition, the severe weather in this area would hinder construction and operations. If any or all of these reasons prevented Minuteman III from being placed in that area, the 10 percent cost saving would disappear. Third, using existing missiles would deny this nation the opportunity to incorporate several technological improvements into a new missile, for example, improved retargeting capabilities.

The cost of placing the Trident II, or the common missile, in a mobile land-based mode is almost 10 percent less expensive than MX if one wishes to ensure 1000 surviving warheads. The savings accrue from joint development of a single new missile for both the ICBM and submarine-launched ballistic missile (SLBM) force. However, if one desires to increase the number of surviving warheads to 1500, the costs of Trident II and MX are approximately the same; and if the desired number is deemed to be 2000, MX is slightly cheaper than Trident II. Moreover, if anything, the cost projections for a common missile are less reliable than for a single-purpose one. Unforeseen complications and coordination problems arising from the development of a missile designed for comparability with two entirely different basing

modes are far more likely than for a missile designed specifically for one basing system. (The cost growth on the last major joint program, the TFX or F-111, was 525 percent!) Furthermore, use of a common missile for both the ICBM and SLBM force would increase the risk that unanticipated reliability or aging problems could jeopardize two legs of the triad simultaneously. Finally, the common missile would have less than half the throw-weight of the MX.

Proponents of the Submersible or Shallow Underwater Missile system argue that this system could be deployed more quickly and more cheaply than MX and would be just as effective.[3] According to advocates of SUM, 550 Minuteman III missiles could be placed on 138 small diesel submarines that would be deployed in U.S. coastal waters at a cost of $12 billion, 63 percent less expensive than MX. Initial deployment could be achieved two years before MX while the entire force would be operational by 1986, four years ahead of MX.

At first glance this option appears quite attractive. Not only does SUM appear to save time and money but it avoids the environmental problems that will no doubt plague the MX program. However, close analysis indicates that SUM is not a more cost-effective option than MX.

While the initial costs for constructing SUM are somewhat less than those of MX, total system costs are about the same for the two systems.[4] The SUM would require the procurement of new antisubmarine warfare (ASW) forces for protection and the construction of several new submarine bases for homeporting. (The 139 new submarines will more than double the size of the current U.S. submarine force.) In addition, the annual operating and support costs of SUM are much larger than those for MX. Over a 15-year period, the total costs of SUM would be about four times higher than those for MX. Similarly, SUM could not be as powerful,

accurate, or as responsive as MX. As noted, the MX missile is three times more powerful and technologically more advanced than Minuteman III. Thus, it can carry more or larger warheads and can be retargeted more easily. Since SUM is an SLBM, it probably will not have the same accuracy as an ICBM on land, nor can its alert rate be as high. For example, MX will have an alert rate of 90 percent while the alert rate for SUM will probably be closer to the 50 percent rate of our Poseidon submarines. Furthermore, SUM is not technologically as feasible as MX. Expecting a 450-ton submarine to hold 3 Minuteman III missiles weighing 100 tons is a somewhat risky endeavor.

Finally, and perhaps more important, SUM could be rendered totally useless relatively easily. Simply by exploding a single nuclear warhead in the ocean, the Soviets could generate a 50- to 100-foot tidal wave. This same kind of wave would race under the sea, building such tremendous destructive force that it would turn over the small submarines and destroy them.[5]

Is the linear concept the best alternative?

Many of those who accept the idea that we need to preserve the land-based portion of the triad and that MX is the most cost-effective way to do that express grave concern about the linear concept. Construction of the 200 sites, each with 23 blast-proof shelters and a road network, will require approximately 600,000 tons of cement, 32 to 48 million tons of sand, 210 million gallons of liquid asphalt, 125 million gallons of petroleum fuel, and 17.9 billion gallons of water.[6] Moreover, although MX will remove only 25 square miles of government land from public use once the project is completed, the MX system itself will be built on about 5000 square miles of land and will require some 8000 miles of roadway. Finally, the MX in the linear mode will cost approximately $32 billion in FY 1980 dollars. Based on the projected rate of inflation during the eighties, the actual cost will most probably be at least $50 billion.

Critics from all points of the political spectrum have belittled the scheme with such words as crazy, insane, goofy, and Rube Goldberg.[7] There is no doubt that the MX could be built more cheaply and with less environmental disruption. For example, placing the MX in the vertical Multiple Protective Structure (MPS) mode would be 25 percent cheaper and use much less land and consume much smaller amounts of our perishable and scarce resources. However, MX in that mode would present severe verification problems for the Soviets and could undermine whatever faint hopes that might still remain for meaningful arms limitations between us and the Russians. Two-thirds of the cost of MX goes for basing, primarily to ensure verifiability. (See Table II.) Similarly, the air mobile mode, while costing about the same as the racetrack and somewhat more than the linear mode, would have far less impact on the environment. However, placing MX on airplanes would degrade its accuracy, reliability, and explosive power significantly and would increase the risk of a disastrous nuclear accident.

Thus, building an MX in the linear mode is the most cost-effective and safest way to enhance the survivability and increase the destructive power of our ICBM force as well as minimize the risks to potential arms control agreements and lessen the chances of a nuclear accident. Accomplishing all these seemingly contradictory but important objectives will not be cost free; achieving important goals never is. The environmental costs, if handled orderly and thoughtfully, do not have to be catastrophic. Moreover, these environmental costs must be balanced against the potential gains for our national security.

Can we afford the MX?

On the surface the MX appears to be the most expensive and technologically risky project ever undertaken by the Department of Defense (DOD). MX will probably cost at least $50 billion before it is completed and will involve a complicated collection of machinery to make the rocket simultaneously concealable, movable, survivable, and detectable. However, when adjusted for inflation, the MX will cost no more than the Polaris program, which was started in 1955 and completed a decade later at a cost of $13.5 billion for 41 fleet ballistic missiles and 656 launchers. However, measured in FY 1980 dollars, that program would have cost $38.5 billion, 16 percent more than the price of MX in FY 1980 dollars. Moreover, when we began to pour large sums of money into the Polaris program, the system did not possess a workable fire control system or even an accurate navigational system. The program was so risky that it was opposed by the Chief of Naval Operations, Admiral Robert Carney, on technological grounds and by the Rand Corporation on cost-effective grounds.[8] Yet, today, Polaris is widely cited as the most suc-cessful weapon program in the history of DOD. There is no reason why MX cannot be just as successful.

Even at a cost of $50 billion, MX will not pose a severe burden on the defense budget or the economy. At the present time, strategic expenditures account for less than 8 percent of the overall DOD budget. Twenty years ago they constituted 27 percent of the budget; a decade ago, 10 percent. Between 1961 and 1970, measured in FY 1981 dollars, DOD spent an average of $23 billion per year on strategic programs. Over the last decade, the Pentagon has spent about half that amount, about $11.8 billion. Even with MX, expenditures on our strategic forces will consume less than 10 percent of the defense budget between now and FY 1985.

Doubtless a large program like MX will have some impact on our economy. However, the impact will not be severe. If MX were considered as a total add-on to the defense budget over the next decade, that is, it does not take the place of any other program, it will add less than one-tenth of 1 percent to our projected inflation rate over this period and will increase defense-related

Table II MX funding profile (in millions of current dollars)

Fiscal Year	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1976-85 Total
Funding Category											
Development											
Missile	49	69	100	130	440	1015	1375	1120	1010	725	6033
Basing			30	60	230	535	825	700	540	550	3470
Totals	49	69	130	190	670	1550	2200	1820	1550	1275	9503
Investment											
Missile								500	1470	1410	3380
Basing								3110	6080	6640	15830
Totals								3610	7550	8050	19210
Total MX program	49	69	130	190	670	1550	2200	5430	9100	9325	28713
Total basing											19300
Total missile											9417

Source: *Program Acquisition Costs by Weapon System FY 1981* and Congressional Budget Office, *The MX Missile and Multiple Protective Structure Basing* June 1979, p 79

employment by only 6 percent.

The real question should be, can we afford not to build MX? For two reasons the answer appears to be no. First, MX will help restore the strategic balance with the Soviets. When fully deployed in 1990, it will increase the number of warheads in our arsenal by 20 percent, our throw-weight by 30 percent, our equivalent megatonnage (EMT) by 40 percent, and our hard-target kill potential by 300 percent. At the present time, an adverse strategic balance exists; that is, the U.S. is far behind the Soviets in every static measure of the balance except warheads, where we enjoy a 35 percent advantage. The Soviets have an advantage of 18 percent in the number of delivery vehicles, 38 percent in throw-weight, 40 percent in EMT, and 60 percent in hard-target kill potential. Over the next five years, we will fall farther behind the Soviets in throw-weight, EMT, and hard-target kill potential and allow them to draw even in the number of warheads. By the end of the decade, even with MX the situation will not improve appreciably. Without MX the static balance would be catastrophic.

MX will also add significantly to the more dynamic indicators of the balance, for example, the percentage of forces available to achieve our strategic objectives in both a preattack and postattack mode. Currently, the Soviets have an edge whether we are considering a preattack or postattack situation. As indicated in Table III, after a Soviet counterforce first strike or after a U.S. counterforce retaliation, the dynamic indicators will become less favorable between now and 1985. However, primarily because of MX, the United States could be slightly ahead in the early 1990s in both postattack situations.

Second, MX needs to be developed because of recent decisions that have been made concerning the other two legs of the triad. In the past three years, the Carter administration has canceled the B-1 bomber and slowed down the construction rate of the Trident submarine by one-third. Consequently, in the early part of the nineties, we may well be faced with a situation in which age or technological obsolescence forces us to retire the B-52 bombers and Poseidon submarines before adequate replacements are available. If we do not move ahead with the MX now, our ICBM force will be in a similar position.

Is MX viable without SALT II limits on Soviet missile development?

There is no doubt that the Soviets have the potential to overwhelm the MX if they go

Table III U.S. and Soviet strategic force comparison in terms of relative force size

Situation	FY 1976		FY 1981		FY 1985		FY 1990	
	U.S.	U.S.S.R.	U.S.	U.S.S.R	U.S.	U.S.S.R.	U.S.	U.S.S.R.
Preattack	160	60	175	195	225	250	275	290
After Soviet counterforce first strike	140	35	100	135	125	200	200	140
After U.S. counterforce retaliation	85	40	75	100	85	120	90	75

Comparisons measured in percentages of forces needed to achieve objectives.

beyond SALT II limits for MIRVing and fractionating their ICBM force. Theoretically, with a vast and unprecedented effort, they can increase the number of warheads on their ICBM force to 23,000 by the end of the decade.

If the Soviets should expand their ICBM force to 23,000 as indicated in Table IV, we could counter that development by increasing the number of silos by 388 percent and the number of missiles by 160 percent. This would mean spending an additional $40 billion or 80 percent on the program. However, such an effort on the part of the Soviets is quite unlikely, primarily because of the expense. Expanding to 23,000 warheads would cost them $93 billion. If the Russians choose to go beyond the SALT II limits, it is much more likely that they will have somewhere between 8000 and 10,000 warheads on their ICBMs. Expanding their force to this level could be countered by doubling the number of silos and missiles for an additional expenditure of $10 billion or 20 percent. However, if the Soviets should undertake such a vast

expansion, it would signal the end of any hopes for meaningful arms control. Thus, the United States could go back to the initial Multiple Protective Structure mode, which was discarded because of potential verification problems. A complete MPS system with 520 missiles and 21,000 silos could be built for less than the 200-missile, 4300-silo horizontal system. Or the U.S. could abrogate the ABM Treaty and build an ABM system to defend MX. (By 1990, ABM technology may be advanced enough to incorporate lasers and particle beams.) For a cost of $83 billion, the U.S. could convert a 23,000-warhead Soviet response with a complete ABM system defending a force of 400 missiles in 9200 silos.[9]

However, for two reasons it is most unlikely that the Soviets would initiate a warhead vs. shelter race. First, they know that such a massive investment in high technology products could be offset by investment of a much smaller fraction of our gross national product (GNP) in concrete and earth moving. Second, they would be committing their

Table IV MX cost alternatives

Type	Silos / Shelters	Missiles	Cost*	Soviet** Response	Soviet*** Cost
Vertical	4,300	200	27	6,000	12
	5,500	310	33	8,200	38
	13,800	420	38	14,000	82
	21,000	520	49	23,000	93
Horizontal****	4,300	200	50	6,000	12
or Linear	5,500	310	59	8,200	38
	13,800	420	69	14,000	82
	21,000	520	90	23,000	93

*Investment plus development in billions of current dollars to ensure survival of sufficient warheads to attack a large portion of Soviet military targets.

**Total number of warheads on ICBMs by 1990. Assumes Soviets attack each silo with two reentry vehicles.

***Cost of adding other warheads to the level of 1980.

****Figures are based on the racetrack deployment mode; cost figures for the linear deployment option would be marginally lower.

Sources: Derived from Congressional Budget Office, *The MX Missile and Multiple Protective Structure Basing*, June 1979, pp. 5, 20, 25, 28, 47, 52, 79. Congressional Budget Office, *SALT II and the Costs of Modernizing U.S. Strategic Forces*, September 1979, p. 26.

new missiles and warheads to basing in fixed silos, where they would be highly vulnerable.

WE can and must move forward with the MX as rapidly as possible. We have already delayed too long. Further procrastination can only make the situation worse.

U.S. Naval War College

Notes

The tables accompanying this article are derived in whole or in part from information adapted by the author from the *FY 1981 Department of Defense Annual Report*, pp. 87, 123-30.

1. Cost figures on MX and its alternatives are derived from two Congressional Budget Office Studies: *The MX Missile and Multiple Protective Structure Basing*, June 1979, and *SALT II and the Costs of Modernizing U.S. Strategic Forces*, September 1979.

2. Richard Burt, "Brown Says Soviets Long Sought Way to Knock Out U.S. Missiles," *New York Times*, May 31, 1979, p. 4.

3. See, for example, Senator Mark O. Hatfield (R-Oregon), "SUM Strategy," *Armed Forces Journal*, January 1980, p. 35, and "SUM It Adds Up," *Armed Forces Journal*, February 1980, p. 66.

4. Cost figures are based on Senator E. J. Garn (R-Utah), "SUM It Doesn't Add Up," *Armed Forces Journal*, January 1980, p. 36. Hatfield challenges Garn's article by contending that the Utah senator has underestimated MX costs.

5. Testimony of Under Secretary of Defense for Research and Engineering William Perry to the House Appropriations Committee on 25 March 1980. Cited in George Wilson, "Pentagon Gives a Picture of Tidal Assault on SUM," *Washington Post*, March 26, 1980, p. 3.

6. Hatfield, "SUM Strategy," p. 36.

7. For example, see James J. Kilpatrick, "Nuclear Sanity and Goofy," *Washington Star*, November 20, 1979, p. 11.

8. See Harvey Sapolsky, *The Polaris System Development Bureaucratic and Programmatic Success in Government* (Cambridge, Massachusetts: Harvard University Press, 1972).

9. John Fialka, "Air Force Has New Idea for Hiding Missiles," *Washington Star*, February 6, 1980, p. 1.

When the Air Force was scanning the country for possible MX sites, it must have seemed that God had designed the Great Basin especially for them. The long, flat desert valleys meet all the "geotechnical requirements" set out in the initial environmental impact statement: large, contiguous areas of unpopulated land with less than a 5 percent grade and neither bedrock nor water table closer than fifty feet to the surface. . . . But the best part about the Great Basin is that almost all the land required is federally controlled. Unlike the other great enterprises in the history of the Old West, the building of the MX would not have to commence with an ungentlemanly wrangle over land—or so the Air Force thought.
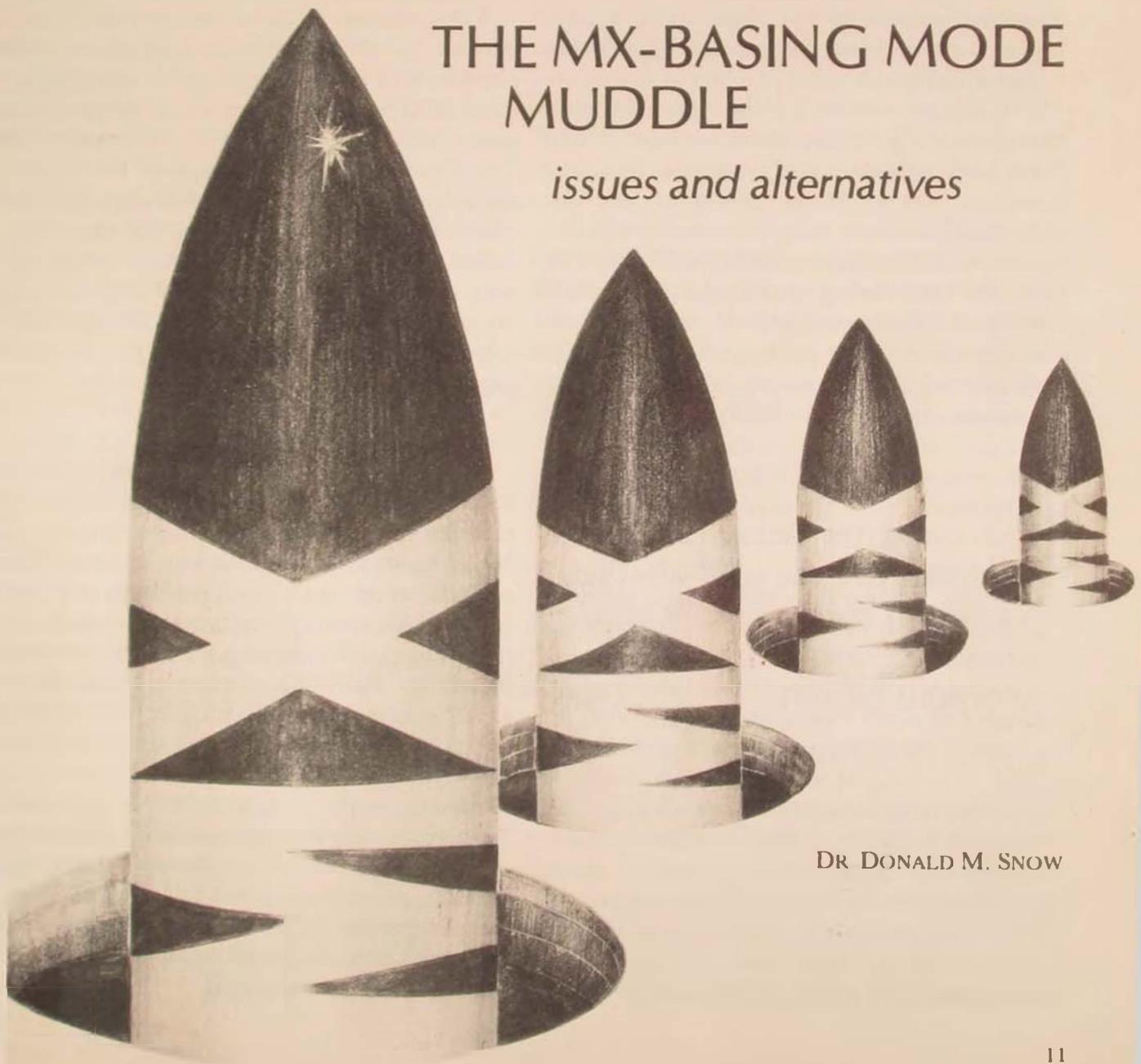
Robert Hershman
"The Great Basin: First Casualty of the MX?"
The Atlantic, April 1980

"... our own counterforce will be useful if we plan to start a total nuclear war, but it will do nothing to deter the Soviets from starting one."

THE MX-BASING MODE MUDDLE

issues and alternatives

DR DONALD M. SNOW

IN SEPTEMBER 1979 the Carter administration decided to go forward with the deploying of the powerful "missile experimental" (MX) in a constrained mobile mode (the horizontal shelter version of the Multiple Protective Structure or MPS system).[1] This decision has aroused a heated controversy in the defense community. Supporters have extolled the decision in ringing terms matched in volume and intensity by the detractors. The debate has produced as much confusion as clarity and has muddied rational discussion of whether deploying this advanced capability will add in a meaningful, cost-effective way to the American strategic deterrent.

The major reason for the controversy is that combining the two concepts tends to address two separate and individually controversial issues. Those problems are the asymmetry between American and Soviet intercontinental ballistic missile (ICBM) forces and the increasing vulnerability of the American silo-based missile force. Each component of the package is a specific response to one of the problems: MX to force asymmetry and MPS to ICBM vulnerability.

❝ . . . our deterrent should be adequate to cope with a wide variety of contingencies in as credible a fashion as nuclear weapons permit. ❞

Combining the two problems and responses negatively affects analyzing each problem and, hence, the aggregate in three ways. First, the depth of each concern is controversial; whether, for instance, the United States needs the counterforce capability of even a small MX force or how serious ICBM vulnerability is. Second, particularly in the case of the Multiple Protective Structure, there are other means to overcome the problem. Third, MX and MPS are compatible with one another and provide solutions to the two problems, but there is nothing necessary about marrying the two systems. MX can be developed and deployed in a number of modes, and MPS is only one way to protect MX. Similarly, MPS can be exercised to reestablish the invulnerability of the ICBM force quite independently of the need for a new strategic missile.

The political decision to wed these two systems has affected discussions about each perversely. There has emerged a tendency to treat MX/MPS as an either/or proposition: either both are accepted or both are rejected. The result is that proponents of one aspect are forced to advocate both, and opponents of one feel they must attack both. The victim, in either case, is full and impartial consideration of the effectiveness of each component as an effective response to the specific problem to which it is intended to respond and a muting of analysis of alternatives.

THE MX is a highly sophisticated weapon system. MX weighs 192,000 pounds (more than twice as much as Minuteman III), has a throw-weight of 8000 pounds, and, when equipped with the new Mark 12A warhead, will be able to launch up to 14 (the most commonly cited likely configuration is 10) 350 kiloton warheads with a circular error probable (CEP) of 300-500 feet, thus endowing each warhead with a single-shot kill probability (SSKP) against a hardened target ". . . of up to 90 percent."[2] These characteristics make MX controversial. There is disagreement about whether the U.S. needs the capabilities of MX. Arguments favoring MX are in three interrelated categories, and four arguments can be made against the weapon system.

The three positive arguments in condensed form are that the MX provides the U.S. with new capabilities and hence broadens strategic options; its increased size and accuracy help redress current and projected Soviet advantages in throw-weight and counterforce capability; and it removes any Soviet perception of nuclear superiority and, hence, psychologically reinforces deterrence.

MX creates new capabilities and broadens strategic options. This argument, at least implicitly, is a reaction to the earlier American decision to concentrate on smaller and more accurate missile systems than their Soviet counterparts. Although warhead upgradings have occurred since the last Minuteman (MN) missiles were deployed, increasing accuracy and fractionation, the U.S. has produced no new ICBMs since MN. In contrast, the Soviets have produced third and fourth generation launchers and upgraded fractionation and accuracy characteristics.

The appearance of an aging U.S. force compared to an aggressively modernized Soviet counterpart makes some observers uneasy. More seriously, as the characteristics of larger Soviet ICBMs approximate those of smaller American missiles, their greater throw-weight allows them comparatively greater targeting coverage through more fractionation and enhanced hard-target kill capability, or both. In this view, the flexibility of U.S. responses to Soviet actions is greatly curtailed, and a comparatively large missile like MX is needed to establish similar flexibility.

MX deployment redresses Soviet throw-weight and counterforce advantages. This argument is related to the first but, in addition, stresses the need for MX to demonstrate American willingness to compete in strategic armaments and to nullify any advantages the Soviets might perceive from launching a controlled counterforce attack on the United States.

Colin S. Gray, perhaps the leading nongovernmental MX advocate, forthrightly states the flexibility argument: "The case for an MX follow-on to the Minuteman series rests overwhelmingly upon the greater flexibility of targeting accorded by a throwweight that would be at least four times as great as for the current Minuteman III."[3] Secretary of Defense Harold Brown concurs: "Continued development of the MX missile will give us the option for a major hedge against projected ICBM vulnerability in the late 1980s."[4] Brown's statement combines the MX missile and the basing mode questions and is to an extent misleading since MX is inherently no more survivable than any other missile. In light of that, the central thrust of Brown's assertion is that MX increases American strategic options and is thus desirable.

MX is also advocated to counteract emerging Soviet counterforce-capable forces (e.g., SS-19). Former Secretary of State Henry Kissinger, for instance, asserts that "it is urgently necessary either that the Soviets be deprived of their counterforce capability in strategic forces, or that a U.S. counterforce capability in strategic forces be rapidly built."[5] Since SALT II does not prevent the Soviets from attaining the capability (although fractionation limits place boundaries on the extent of Soviet counterforce capability), the remaining option is a U.S. counterforce capacity. Gray believes that a U.S. deployment decision could constrain Soviet programs, because "MX is the system that should persuade very tough-minded Soviet officials that the hard-target counterforce race cannot be won."[6]

A U.S. counterforce capability is intended to enhance deterrence by ensuring that the Soviets could not calculate gain from any conceivable nuclear attack on the American homeland, such as a disarming attack on the Minuteman fields with MIRVed SS-18s and SS-19s while withholding considerable

reserves to threaten U.S. cities. Without a counterforce capability, the United States could respond only by leveling Soviet cities, thereby inviting a devastating response from reserved Soviet ICBMs, or by accepting a fait accompli.

A U.S. counterforce capability changes this scenario because "If U.S. forces that survived a Soviet first strike were capable of destroying most of the Soviet ICBMs held in reserve, then no possible gain could result from a Soviet attack, and deterrence might be enhanced."[7] (It should be noted that this argument assumes MX survives the initial attack.) The formulation is in fundamental harmony with the announced American "countervailing strategy," which says the United States must ". . . have the capability to respond in such a way that the enemy could have no expectation of achieving any rational objective, no illusion of making any gain without offsetting losses. . . . our deterrent should be adequate to cope with a wide variety of contingencies in as credible a fashion as nuclear weapons permit."[8]

By reducing asymmetries in force capabilities, MX will enhance deterrence. The perceived asymmetry in counterforce capabilities, combined with the vulnerability of U.S. ICBMs, has led some to question the credibility of the American deterrent. Because deterrence is primarily psychological in nature, this situation is troublesome, since we are dissuaded from doing things by what we believe the negative consequences will be. Advocates argue that MX will remove the Soviets' ability to perceive any exploitable weakness and, hence, strengthen deterrence. The perceptual question focuses on the Soviet ability to calculate advantage from an attack on American ICBMs because: (1) the portion of the Soviet arsenal that would be expended in an attack on U.S. force is reduced, allowing the U.S.S.R. to hold a much larger postattack reserve; and (2) the U.S. population losses that would result from a Soviet attack on

U.S. forces had declined, leaving the United States with much more than could be lost in a Soviet third-strike.[9]

MX will reduce Soviet perceived postattack advantage and thoughts of "escalation dominance" by being able to destroy Soviet reserves. This knowledge reinforces deterrence, because "the Soviets are most unlikely to enter into, or choose to expand, a war that they believe they cannot win."[10] Having the capability to respond in kind is also more believable than the all-or-nothing assured destruction threat. "The dearth of homeland defense makes U.S. assured destruction capabilities a dubious deterrent today against

❝ **MX itself is no more secure than present forces unless one uses its counterforce capabilities to disarm those forces threatening it.** ❞

any Soviet sin short of full-scale nuclear strikes on U.S. cities. . . . Historical precedents suggest that survival of the state surpasses all other priorities. Threats that risk suicide for anything less strain credibility."[11]

arguments against MX

The desirability of deploying MX in *any* basing mode is not universally accepted. Four negative assessments are made: MX's counterforce capability is destabilizing and undesirable; deploying MX could force the Soviets to deploy a less verifiable mobile system; MX is not worth the investment; and land-based systems will be obsolete by the time MX is deployed.

A counterforce-capable MX is irrelevant to the

Soviet counterforce threat and could destabilize the strategic balance. There is considerable disagreement about whether ICBM vulnerability justifies moving to a counterforce capability, or whether possessing that capability is desirable under any circumstances. Three arguments are made questioning the advisability of acquiring a counterforce capability.

The first objection is that a counterforce capability is an inappropriate response to someone else's. One observer argues that such a reaction ". . . is an exercise in irrelevance since it does nothing to reduce the impact of his counterforce on our countervalue" and that *"our own counterforce will be useful if we plan to start a total nuclear war, but it will do nothing to deter the Soviets from starting one."*[12] Another analyst agrees, concluding that ". . . there is no good reason for the United States to cope with this paper-and-pencil vulnerability by deploying a missile capable in theory of destroying Soviet missile silos."[13] A third writer asks "whether the MX will enhance mutual deterrence or is more appropriate to other nuclear strategies."[14]

The second argument is that mutual counterforce possession would be crisis destabilizing. Since by definition a counterforce-capable weapon aimed at another system makes the target vulnerable, a world of mutual counterforce capability would force both sides either to launch preemptively or to adopt a launch-on-warning strategy. The result could be that ". . . each nation's fear of a first strike will be dramatically increased."[15]

Third, despite a declared American limited, retaliatory counterforce policy, an MX force in sufficient numbers could pose a first-strike threat against Soviet fixed land-based systems. An MX force ". . . could be creating a very significant hard-target counterforce threat to Soviet silos."[16] Although adopting a survivable basing mode may sig-

nal a second-strike intent, possession of counterforce weapons also allows the U.S. to consider adopting a preemptive strategy and has to make the Soviets wonder whether American intent in a crisis is not preemptive, regardless of declaratory posture. Soviet heavy reliance on fixed-site ICBMs could make this a particularly serious prospect for them.

Should these possibilities happen, the result could be a self-fulfilling prophecy of the very phenomenon MX/MPS is designed to discourage: "While it might be difficult to find rational motives for a Soviet first strike under present circumstances, the deployment of a weapon as threatening as the *silo-based* MX might supply one."[17] The emphasis, however, suggests one of two mitigating factors. First, unprotected silo-basing would clearly maximize U.S. preemptive incentives since missiles would have to be fired first to be fired at all. Protecting counterforce systems lowers that need. Second, the number of MXs deployed would affect Soviet concerns. If one assumes that aiming two warheads at each silo creates a sufficient damage expectancy[18] to make preemption attractive, 200 MXs (the figure used in current official planning) with 10 warheads per missile (2000 total warheads) fall short of the 2400 warheads needed to blanket even the 1200 ICBM upward limit in SALT II by 1981. Those 2000 warheads would, however, be adequate to cover all MIRVed Soviet ICBMs.

MX deployment could force the Soviets to deploy their own, less verifiable mobile system. Fielding MX could force the Soviets to reconsider their own force vulnerability. A preemptive strategy represents one option to consider, and another outcome could be to ". . . motivate Soviet leaders to seek alternatives to silo basing."[19] The problem is all the more pressing for them because the Strategic Rocket Forces ". . . are the backbone of Soviet strategic forces."[20]

Several alternatives similar to the choices facing the United States would be available. One would be silo protection through some form of ballistic missile defense. A second option would be decreased reliance on land-based systems, but the Soviets have been reluctant to move in this direction historically. The third possibility is mobility, which could be arms control unsettling, for at least two reasons. First, the Soviets might choose a less verifiable mobile basing mode than MPS (e.g., an unconstrained land-mobile system). Second, "even if the Soviet Union constructed a mobile basing system according to U.S. blueprints, there would still be some doubts as to whether it was clandestinely stockpiling extra missiles in or near the racetrack complexes."[21] There is the possibility that a U.S. decision to solve the ICBM vulnerability issue could lead to damaging effects on U.S. arms control interests.[22]

MX is not worth the cost. The worth of MX at any cost is contested (independent of any basing mode, the cost of a 310-MX fleet is estimated at $9.9 billion, about equally divided between developmental and procurement costs).[23] This assessment arises from questioning how much threat is posed by ICBM vulnerability and whether MX is an appropriate response. The other question is whether MX buys security that cannot be purchased otherwise at lower cost.

The need for a weapon system response to Soviet counterforce capability is questioned by one analyst:

It would be more pathological than prudent to undertake major changes in the deployed strategic forces of the United States in order to solve the problem of vulnerability. . . . Such a program would run the risk of purchasing gains in the very elusive matter of political perception at a cost to safety and real military capability due to the burdens imposed on command and control arrangements.[24]

The need for a hardware response to vulnerability does not automatically imply the relevancy of a counterforce-capable MX. At one level, MX procurement per se is entirely irrelevant to the question: MX itself is no more secure than present forces unless one uses its counterforce capabilities to disarm those forces threatening it. MX in and of itself responds to asymmetries in counterforce capabilities, but its basing mode determines survivability.

Even if an improved counterforce capability is desirable, one does not necessarily need MX. Upgrading Minuteman III with the Mark 12A warhead and NS-20 guidance system will "more than double the accuracy and yield of Minuteman III."[25] Though such improvements will not overcome the Soviet throw-weight advantage, some believe that an MN III upgrade deployed in a survivable manner would adequately solve the vulnerability problem at a substantially lower cost than MX.

Any new land-based system is questionable because land-based systems are obsolete and dangerous. The ICBM leg of triad is defended because of its unique system characteristics (e.g., positive command and control, high payload, and accuracy) and its interactive effects with other systems. Some observers, however, maintain that the disadvantages outweigh these advantages. One argument is that vulnerable systems are inherently tempting targets and offensive technology may overcome any attempts to restore survivability before such actions can be taken. MX/MPS will not be fully deployed until 1989 under present schedules, and by that time the Soviets may well have offensive countermeasures rendering such efforts ineffective.

A subtler objection to land-based systems speaks to their conceptual obsolescence. The Soviet Union has long professed a preference for counterforce targeting, and the United States has always incorporated elements of counterforce in its operational planning. An

emphasis on targeting retaliatory forces translates, when land-based forces are involved, into an invitation to launch a homeland attack should deterrence fail. This problem (discussed later) is particularly critical regarding the MPS system.

The vulnerability question leads many observers to conclude that land-based strategic systems have simply outlived their usefulness and that reliance on the other triad legs provides an adequate defense. As one observer puts it, "With two survivable forces—bombers and submarines—able to maintain target coverage and penetration capability, the justification for proceeding with new ICBMs, such as the mobile MX, is sharply reduced."[26]

THE MPS system is only one proposed means for reestablishing invulnerability for MX or some other ICBM. Although the Carter administration's decision to wed MX and MPS left the impression the two systems are inextricably intertwined, such is not the case. On the one hand, MPS could be used to house MX, a Minuteman III upgraded with Mark 12A and NS-20, or a Trident I C4 or II D5 designed for dual use as an ICBM or a sea-launched ballistic missile (SLBM), to name frequently mentioned options. On the other hand, MX could be housed in a number of constrained or unconstrained mobile modes, of which MPS is but one.

The proposed MPS system is a hybrid that attempts a compromise between President Carter's interest in MX and arms control verification.[27] The basic unit in MPS is currently the so-called "drag strip" (linear), a straight road connecting twenty-three hardened shelters. The one missile assigned to each road would be moved among shelters periodically and covertly by a huge Transporter, Erector, Launcher (TEL) cap-

able of "sprinting" up to thirty miles an hour. The transporter would regularly change the actual position of the missile.

The system enhances survivability indirectly. MPS would not prevent the Soviets from being able to destroy MX missiles. Rather, the intention is to deter an attack by forcing the U.S.S.R. to expend such a large portion of their forces as to leave them virtually disarmed after attacking. Present plans call for 200 MXs deployed in the MPS fields, meaning there would be 4600 silos to be targeted to ensure destroying all MXs. In order to apply the two-warheads-per-silo rule of thumb, the Soviets would have to dedicate 9200 warheads to MX/MPS to ensure destroying the force. Such an attack would largely deplete Soviet forces and leave other U.S. forces intact for retaliation or coercive bargaining.

Arms control verifiability would occur in two ways. First, there would be so-called "choke points," a single access to each MPS

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> MX in and of itself responds to asymmetries in counterforce capabilities, but its basing mode determines survivability. ❞

complex, which, after the missile had entered the system, could be barricaded. Second, there would be periodic inspections of randomly selected MPS complexes by opening the lids on all shelters in the configuration for satellite verification that each contained a single missile (the Soviets would choose the complex to be inspected).

MPS is controversial. Proponents argue that the system provides more security than is now available and is the best system compati-

ble with arms control constraints. Detractors deride the system as a Rube Goldberg scheme that is technically unworkable, unduly complex and expensive, and ultimately ineffective.

arguments for MPS

Two justifications are offered for MPS: it is the most verifiable system that is technically feasible and meets mission requirements, and it creates more problems for the Soviets than they currently confront.

MPS is the best compromise of technical feasibility and arms control verifiability. There is an inverse relationship between the amount of invulnerability a mobile basing system provides and the ability to monitor arms control compliance. Those charged with finding a solution to Minuteman's vulnerability face the dual requirements of maintaining the triad structure and the objections of "pure" arms control advocates whose interests are more clearly identified with avoiding a breakdown of arms control agreements. The contention that the two sets of interests are irreconcilable has merit, in that no solution can satisfy both groups simultaneously. Many arms control advocates favor dismantling land-based systems, and many advocates of the ICBM force are openly contemptuous of arms control limitations. The result is a no-win situation where some criticism will occur regardless of what is proposed.

Within those constraints, proponents argue that MPS is the best compromise. Just as more protective basing modes are less verifiable than MPS, alternatives that offer a similar tradeoff between interests are less technically feasible. A prominent example is the so-called "horizontal trench" option, in which the MX would travel on a track in a covered trench from which it could be fired by pushing the dirt aside and moving the missile into a vertical position. This option had great favor until it was discovered that

detonating a weapon near or on the trench would disrupt the whole system for considerable distances in either direction. No equivalent problem has been discovered for MPS.

MPS would present the Soviet Union with problems that it does not now face. If MPS is the only system that can feasibly be implemented, it has the virtue of presenting the U.S.S.R. with difficult new targeting problems to be overcome before it could consider launching a preemptive strike. Having to target 4600 (or more, if additional MPS complexes were added) missile shelters is an imposing task, and the system is flexible enough to allow changes further complicating targeting requirements.

The problem MPS creates is that the Soviets would have to attack all 4600 shelters to ensure destroying all the MX missiles contained in the system. The effect is that, "in attacking MX he uses up . . . a far greater portion of his strategic offensive forces than the portion of U.S. capabilities he is able to destroy. As a result, he is worse off relative to U.S. residual strength *after* attacking MX than he was *before.*"[28] The system is also flexible and responsive to changing Soviet capability. According to Air Force Chief of Staff General Lew Allen, Jr., "Our response options include: constructing additional protective shelters; deploying additional missiles; increasing the number of re-entry vehicles carried by the missile; deploying a specially designed, hard-point ballistic missile defense system; or some combination of these measures."[29]

arguments against MPS

Opposition to Multiple Protective Structure arises on five grounds (not including environmental concerns): It invites a saturation attack on the continental United States (CONUS); it is only effective if SALT II is ratified; it is only a temporary solution to the

problem; in the absence of SALT II, MPS requires accompanying ballistic missile defense; and it is not a cost-effective means to overcome ICBM vulnerability.

In the event of a crisis, MPS would invite a massive saturation attack on CONUS. In this construction, MPS targeting requirements become a vice. MPS may deter a Soviet preemptive strike, but should deterrence fail, the attack would be so massive as to guarantee the literal obliteration of that part of the United States in which MPS is located (an argument similar in structure to critiques of mutual assured destruction). If MPS has the effect of painting a bull's eye on the American desert Southwest, where its construction is proposed, the broader question of

> ❝ MPS is controversial. . . . Detractors deride the system as a Rube Goldberg scheme that is technically unworkable. . . . ❞

land-basing any strategic forces arises. Homeland deployment guarantees that even in a strictly counterforce exchange, large-scale devastation will occur to the superpowers' homelands, thereby increasing the attack's emotional impact and enhancing escalatory likelihood. The alternatives are to base land forces in a way they cannot be effectively targeted (i.e., full mobility), to protect stationary forces (i.e., BMD), or to move forces off CONUS altogether. MPS does none of these things; and given the incentives to saturate MPS, "It may well be that . . . the MPS concept could come to represent more of a threat to U.S. national security than some other less effective solution to the Minuteman vulnerability problem."[30]

MPS will enhance security only if SALT II is ratified. MPS depends on SALT II limits on warhead fractionation to counteract effectively emerging Soviet counterforce capabilities. The configured system has been designed on the basis both of Soviet compliance to MIRV launcher limits contained in the treaty (820) and the number of warheads permitted on any MIRVed ICBM (10 on the largest Soviet missiles).[31] The 200-missile, 4600-shelter configuration is intended to be able to absorb a Soviet attack and leave 100 MXs available for retaliation. A number of assumptions (e.g., systems reliability) enter into this survival scenario, and at least one observer notes that the assumptions are fragile: "If any of the principal assumptions are relaxed, the whole basing system loses its viability."[32] Given uncertainties surrounding SALT, those assumptions deriving from agreement limits are among the most questionable. As one observer notes: "The provision in SALT II limiting the number of MIRVs per ICBM to 10 warheads prevents the Soviet Union from making full use of its large ICBMs in a counter-silo role. Without a SALT limitation on fractionation . . . deployments could spur a race between Soviet RVs and . . . (MPS) launch-sites that could consume ever more land area and dollars."[33] The Soviets could more than double the number of reentry vehicles (RVs) on their most advanced rockets. (Many experts agree there are not enough targets within the area limits of a MIRV footprint to justify fractionation above 20 warheads.) A warhead breakout would mean that less of the Soviet missile force would have to be targeted on MPS, leaving a more substantial reserve and canceling the principal disincentive MPS is supposed to create. The response of building more missiles, warheads, and shelters would be extremely costly.

MPS is a temporary solution. MPS will not become fully operational until 1989 or 1990;

and its effectiveness must be measured against a future threat: "since an MPS basing system would not become operational until 1986 and would not be completed until 1990 or 1991, it would have to be designed to counter the Soviet missile threat of the 1990s."[34] The prospects are not altogether promising for two reasons.

First, the assumptions underlying MPS fly in the face of the way strategic systems have evolved: "If there is any single trend that seems to dominate in weaponry, it is for missiles of all kinds to become more accurate and more deadly."[35] In the next decade, single-shot kill probability could well increase to the point that only a single RV need be targeted at an MPS silo to produce an acceptably high-damage expectancy. The effect would be much the same as a fractionation breakout; a smaller part of Soviet capabilities would have to be aimed at MPS, leaving a larger than assumed Soviet reserve. Second, breakthrough in ballistic missile defense, either through gradual antiballistic missile improvements or exotic systems, may well occur during the decade. The effect would be to make true missile protection possible and to make MPS irrelevant, because an effective BMD system would presumably protect ICBMs in any basing mode.

MPS requires BMD to provide any real advantage. The potential inadequacy of MPS is being recognized even by strong system supporters. Dr. Colin Gray, for instance, admits the possible need for active defensive systems as a hedge against possible MPS inadequacy: "Suitably deployed, *and with the possible backup of preferential terminal ballistic missile defense* (BMD), the Soviets could not profitably target MX."[36] In context, the BMD proposal is made as a system hedge to protect missiles from attack during movement between silos. Admitting any need for BMD protection, however, points to both the physical and conceptual weakness of MPS. The flaw, of course, is that if ballistic missile defense is

needed to protect MPS, then there is no need for MPS itself. A BMD system that could materially improve the protection afforded by MPS could also make more survivable any basing mode, including the existing Minuteman fields. That being the case, why not simply erect missile defenses around existing silos and protect their contents, whether they are MN IIIs or MXs?

> **The major fault of MPS, as reflected in its conceptual weaknesses, lies in its intellectual timidity.**

MPS is not cost-efficient. The MPS system is also a very expensive proposition. The official estimate for building the MX/MPS system is $33 billion in constant FY 1980 dollars, which can safely be doubled in real dollars before the system is completed. The bulk of that expense is in the MPS basing system. The Congressional Budget Office estimated the development and building costs for the vertical shelter system based on 310 missiles and 5500 silos, including maintaining it through 1990 (in FY 1980 dollars). The price tag was $34.7 billion, including $9.9 billion for MX, $5.4 billion for maintenance, and $19.4 billion on MPS. Almost half ($17.0 billion) was for MPS "investment" (i.e., construction) costs, and said an additional $14 billion would be necessary to double the number of MPS silos.[37] Most of the cost for reestablishing ICBM invulnerability is thus associated with the basing mode. The objections raised to that mode lead one to wonder if there are not cheaper alternatives that are equal or more effective methods to achieve the same purpose.

THE Carter administration's continuing advocacy of MX/MPS[38] makes

some judgment about the system's attractiveness mandatory because the ultimate decision will have long-term budgetary and security implications. Reaching an assessment requires judging not only the inherent advantages and disadvantages of each system and their combination but also looking at alternative means to achieve the same ends.

The cases for and against each component converge at the point of assessment because achieving the dual objectives of restoring land-based systems' invulnerability and overcoming throw-weight and counterforce asymmetries are not in practice necessarily reinforcing. MPS basing is one of three plausible means of achieving force survivability, but its ability to accomplish that goal is questionable. MPS has the advantage of compatibility with fielding MX and hence addressing force asymmetries, but it does so at tremendous costs and with dubious effectiveness. The alternative basing modes offer improvements in survivability likelihood but have costs in terms of arms control considerations and the ability to deal with the asymmetry problem. Each alternative needs to be explored before a final determination can be made.

The basing method responding most completely to survivability would be an unconstrained, fully mobile system because "a mobile system with no fixed launching points would be more secure than even a heavily defended one."[39] Security arises from the fact that there would be no ability to target the system, since it could be fired anywhere, making prior identification of location impossible (essentially the virtue of SLBMs).

Two unconstrained mobile systems have attracted some attention. The first is the Shallow Underwater Mobile (SUM) system, a variant of the submarine-launched ballistic missile concept. Physicist Sidney Drell describes SUM as "a survivable basing mode that relies on small conventionally powered submarines operating within several hundred miles of the East and West coasts of the continental U.S. Around fifty such submarines would be deployed in these coastal waters and would thus be effectively hidden in an area of more than several hundred thousand square nautical miles."[40] The system would be verifiable in the same way as are limits on SLBMs (monitoring submarine production) and would allow MX deployment (the idea being to attach two MX missiles horizontally to the sides of the submarine). There is a potential threat to SUM survivability. The system, according to Edgar Ulsamer, ". . . would be highly vulnerable to tidal waves, known as the Van Dorn effect, that could be induced by a Soviet barrage bombing of the Continental Shelf area. This tidal wave in shallow water would crush any sub in its path."[41] This vulnerability, contested by SUM advocates, reduces the survivability enhancement of SUM to that of MPS: if the Soviets are willing to invest the number of warheads necessary to induce the Van Dorn effect, SUM could possibly be overpowered in the same way as MPS.

The second fully mobile option is road mobility. In a road-mobile system, missiles would be transported on trucks using those parts of the U.S. interstate highway system away from major population areas (e.g., Great Plains, Southwest) as the basic transportation grid. Accompanied by armed convoys to avoid sabotage or hijacking, a reasonably small missile could be designed to be mounted on a truck resembling an oil tanker. The missile would have to be reasonably compact and light (e.g., of the general configuration of a Minuteman I or II) to allow travel at normal interstate speeds, avoid an overly obtrusive appearance, and permit compliance with interstate weight limits so as to avoid road surface damage.

At least in concept, the road-mobile option has some attraction. Such a system would be virtually untargetable and hence invulnerable. Even if Soviet satellites could pinpoint

the locations of all the missiles at a point in time to direct launchings against them (which is most improbable), the launchers would be miles away by the time that even a depressed launch SLBM attack could arrive. The effect would be to obviate the technological trend that has resulted in counterforce capability, which is the basis of ICBM vulnerability in two ways.

First, Soviet accuracy and throw-weight, which are crucial in targeting silos, would be irrelevant against anything except residual hardened targets (e.g., command and control centers) or soft counterforce targets (e.g., submarine bases) for which hard-target kill capability is not necessary. Second, road-mobile missiles would probably be too small and have too limited a payload to be counterforce-capable themselves. The result in both cases would be to redirect doctrine back toward countervalue targets and in the process force strategy back toward ideas developed in the 1960s, an outcome many would favor.

There are also disadvantages to the strategy because it reestablishes invulnerability at the cost of redressing throw-weight asymmetry and arms control verifiability. Road mobility and MX are incompatible. The MX missile and accompanying transport vehicle are simply too large and heavy to use public highways (the TEL, with an MX mounted on it, weighs almost one million pounds). Although road mobility and throw-weight rectification may not be capable of simultaneous resolution, the question might be moot in a road-mobile world. Since throw-weight and accuracy gain meaning in a counterforce context, possessing a counterforce advantage in a situation where counterforce targeting is impossible represents a dubious distinction.

A road-mobile system would be arms control traumatic. Unlike constrained mobile options designed specifically to facilitate verification, the vast operating range of a fully mobile system would defy monitoring and would be distressing for at least two reasons. First, it would mean a probable end to negotiated limits on land-based ballistic systems and possibly all strategic systems (although sea- and air-launched systems would remain verifiable). Second, an American decision could provoke a Soviet counterpart, including a quick deployment of SS-16. The worst case result would be a new strategic arms race. The retort is that since counterforce targeting would become largely irrelevant and finite limits exist on meaningful countervalue targets, there would be relatively little incentive to engage in a massive mobile force development.

The other alternative to MPS basing is ballistic missile defense of fixed-site, land-based ICBMs. This solution would not respond as thoroughly to the survivability question as unconstrained mobility because there would always be operational uncertainty about the extrapolation of theoretical effectiveness against a massive attack. Such uncertainty is not necessarily bad, however, because a BMD system would be facing a theoretical counterforce capability the operational effectiveness of which is also undemonstrated. Since a counterforce attack requires enormous certainty of success to be attractive, any additional source of uncertainty is potentially stabilizing. At the same time, a BMD solution that emphasizes "hard-point" silo defense is compatible with MX deployment, less damaging to arms control processes, and probably allows a faster response to ICBM vulnerability than MPS.

The most direct manner of implementing BMD protection of land-based forces would be to reactivate the Grand Forks antiballistic missile system. Either through modification of existing Minuteman silos or the construction of new silos, MX could be integrated into existing facilities at whatever deployment levels are deemed necessary to redress force asymmetries. Some limited form of the "shell

game" MPS option could even be incorporated by drilling dummy missile holes and providing transportation between silos. The Grand Forks, North Dakota, location has added advantages for MX in that it allows shorter flight times over the Arctic than basing in the Southwest and involves flight over magnetic fields that have been more thoroughly studied than Southwest-originating flights, thereby enhancing likely performance.

The BMD option would be much less traumatic to arms control than full mobility. Verification of MX deployment would clearly be possible through established procedures, and reactivating an ABM system constructed to comply with the restraints of the ABM Treaty and the 1974 protocol could hardly be viewed as abrogation of the letter or spirit of that agreement. There are, however, two arms control-related potential problems to the solution.

The first objection arises from the security provided by the Grand Forks facility given constraints imposed by the ABM Treaty. The limit of one hundred ABM launchers and interceptors was not negotiated in an environment where several thousand warheads could be directed at retaliatory forces. Manipulations of damage expectancy calculations and minimum acceptable levels of surviving forces could well (probably would) reveal the need for more launchers and interceptors than are currently allowed. Such a determination would require amendment of the 1972 treaty as modified by the 1974 protocol but would retain the basic treaty itself should the Soviets accede to new limits. If the Soviets should not agree, the only option might be withdrawal, which is provided for in the event "supreme interests" dictate such action.

The second objection is more philosophical. Many arms control advocates contend that the major symbolic significance of the ABM Treaty is in arresting an area of weapons deployment, thus stemming the technological arms race and offering a model for the future. Since the precedent set by the ABM Treaty is the only major instance of arms control braking technology, the precedent of a breakout would be resisted.

The final advantage of an ABM protection is that it would allow a comparatively "quick fix" to the vulnerability problem if the option to reactivate Grand Forks were exercised. How long it would take to bring the facility to operational capacity is a matter the Department of Defense would have to answer, but there is little doubt that an MX force protected by ABM could be operational sooner and at less expense (given fixed costs already invested in the ABM installation) than MPS. Moreover, an operational ABM would allow more rapid incorporation of state-of-the-art improvements in BMD should the U.S. want to exercise such options.

> " Advocates argue that MX will remove the Soviets' ability to perceive any exploitable weakness.... "

The foregoing examinations of alternatives to the MX/MPS combination lack the detail of analysis of the administration-proposed system because detailed discussions of the alternatives have not appeared, at least in the public realm. Both are, in a sense, more radical propositions in that they move further away from accepted notions of weapons deployment and arms control consideration than does MX/MPS. If the dual problems of ICBM vulnerability and force asymmetry are as important as advertised, conceptual boldness may be the only justifiable approach.

The major fault of MPS, as reflected in its conceptual weaknesses, lies in its intellectual timidity. It tries to address all three of Presi-

dent Carter's major requirements of survivability, force asymmetry (by allowing MX deployment), and arms control verifiability equally and ends up as a compromise that serves none well.

The unattractiveness of the MX/MPS combination is particularly apparent in the accompanying chart, which compares the three alternatives of each criterion and awards scores on an inverted ordinal scale (i.e., the system that accomplishes the objective best gets a score of 3, second best 2, worst 1). On the criterion of reestablished land-based systems invulnerability, an unconstrained mobile system receives top ranking; an ABM-protected system gets second highest marks because it at least offers some defense; and MPS is rated lowest because it offers no real defense and could fall victim to changes before it is deployed. On the other two criteria, an ABM-protected system and MPS are rated coequal: each would allow MX deployment and would be verifiable, whereas a fully mobile force is incompatible with either objective.

Criterion	MX / MPS	Mobility	MX / ABM
survivability	1	3	2
force asymmetry	2.5	1	2.5
verifiability	2.5	1	2.5

If one assumes each requirement to be equally important (thus justifying equal factor weighting) and equal intervals between rankings (thus justifying additivity), MX/MPS does not emerge as the most attractive alternative regardless of which combination of factors is considered. If all the factors are considered, an MX/ABM deployment emerges as most attractive, followed by MX/MPS and full mobility. If force survivability and asymmetry removal are the major considerations, MX/ABM is most attractive, followed by mobility and MX/MPS, and the same rankings hold true for a combination of survivability and verifiability. Only if the criteria of asymmetry removal and verifiability are considered alone does MX/MPS become the equivalent of MX/ABM.

The comparisons are, of course, open to criticism regarding the precision of the measurements and judgments arising from them. The MPS system, for instance, may have received a harsher judgment regarding survivability because its characteristics have been examined more closely than the alternatives. By contrast, analysis of the hardware needs to produce a BMD system that would be equally or more effective could produce a more sober judgment than suggested in the rankings in two ways. On the one hand, an effective ABM system against the kind of massive attack postulated to knock out MPS might require such a large increase in interceptors, launchers, or both that the Soviets would not accept amendment to the ABM Treaty, with negative arms control costs some would argue are too high. On the other hand, an adequate ABM might prove so expensive as to prove as unwieldy and expensive as MPS with little protective advantage.

Another criticism could come from the relevance of all criteria as equally relevant to judging all options. Advocates of road mobility, for instance, would maintain that a movement toward fully mobile systems makes throw-weight asymmetry irrelevant since it is largely unusable and that targeting limitations contain implicit stockpiling constraints that render conventional verifiability requirements largely beside the point.

THESE and other objections may indeed arise and have salience, and certainly the comparative assessment is important in reaching judgments about solving the survivability and force asymmetry issues. The purpose here has not been to foreclose those analyses but

rather to suggest that the case for the MX/MPS solution is not as compelling as the administration and its supporters have argued. The extent and implications of solu-

tion to these monumental problems are of sufficient gravity that a rush to judgment is unwarranted.

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Notes

1. The comparative advantages and disadvantages of the three MPS systems so far designed are discussed well by Edgar Ulsamer in "A Solid Case for MX," *Air Force*, April 1980, pp. 28-35.

2. The basic figures vary slightly but are generally in agreement. See, for instance, Colin S. Gray, "The Strategic Forces Triad: End of the Road?" *Foreign Affairs*, July 1978, p. 785, and Colin S. Gray, "The MX ICBM: Why We Need It," *Air Force*, August 1979, p. 66; Thomas J. Downey, "How to Avoid Monad and Disaster," *Foreign Policy*, Fall 1976, pp. 172-201; John L. McLucas, "The Case for a Modern Strategic Bomber," *AEI Defense Review*, vol. 2, no. 1, 1978, p. 22; Bernard Brodie, "The Development of Nuclear Strategy," *International Security*, Spring 1978, p. 71, and "The Technological Trap beyond SALT: New Technology and Deterrence," *The New York Review of Books*, July 20, 1978, pp. 27-28.

3. Colin S. Gray, "The Future of Land-Based Missile Forces," *Adelphi Papers No. 140* (London: International Institute of Strategic Studies, Winter 1977), p. 12.

4. Harold Brown, *Department of Defense Annual Report, Fiscal Year 1979* (Washington: Government Printing Office, February 2, 1978), p. 65.

5. Henry A. Kissinger, "The Future of NATO," *Washington Quarterly*, Autumn 1979, p. 8.

6. Gray, "The Strategic Forces Triad," p. 788.

7. Congress of the United States, *Counterforce Issues for the U.S. Strategic Forces* (Washington: Congressional Budget Office, January 1978), p. xiii.

8. Harold Brown, *Department of Defense Annual Report, Fiscal Year 1980* (Washington: Government Printing Office, January 25, 1979), pp. 77, 79.

9. T. K. Jones and W. Scott Thompson, "Central War and Civil Defense," *Orbis*, Fall 1978, pp. 702-3.

10. Gray, "The MX ICBM," pp. 67, 71.

11. John M. Collins, "Principles of Deterrence," *Air University Review*, November-December 1979, p. 23.

12. Downey, pp. 182, 188. Emphasis in original.

13. William H. Kincade, "Will MX Backfire?" *Foreign Policy*, Winter 1979-1980, p. 49.

14. Paul F. Walker, "New Weapons and the Changing Nature of Warfare," *Arms Control Today*, April 1979, p. 8.

15. Frank Church, "SALT II, Linkage, and National Security," *Arms Control Today*, August/September 1978, p. 1.

16. Sidney Drell, "SUM," *Arms Control Today*, September 1979, p. 8.

17. Congress of the United States, *Counterforce Issues for U.S. Strategic Forces*, p. 36. Emphasis added.

18. Damage expectancy (DE) is the product of the probability of arrival (PA) of a weapon system and the probability of target destruction (PD); DE = PA × PD. PA, in turn, is the product of a weapon system (or launch vehicle) reliability (WSR), weapon (or warhead) reliability (WR), prelaunch survivability (PLS), and probability of penetration (PP); PA = WSR × WR × PLS × PP. PD is a function of

blast effect that is a function of yield and accuracy against the level of hardening of the target.

19. Gray, "The Future of Land-Based Missile Forces," p. 28.

20. Robert S. Metzger, "Cruise Missiles: Different Missions, Different Arms Control Impacts," *Arms Control Today*, January 1978, p. 2.

21. Kincade, p. 53.

22. These issues are discussed in Donald M. Snow, "ICBM Vulnerability, Mobility and Arms Control," forthcoming in *Air University Review*.

23. Congress of the United States, *The MX Missile and Multiple Protective Structure Basing: Long-Term Budgetary Implications* (Washington: Congressional Budget Office, June 1979), p. 25. Hereafter referred to as *The MX Missile and Multiple Protective Structure Basing*.

24. John D. Steinbruner and Thomas M. Garwin, "Strategic Vulnerability: The Balance between Prudence and Paranoia," *International Security*, Summer 1976, p. 170.

25. Lawrence J. Korb, "The FY 1979-1983 Defense Program Issues and Trends," *AEI Defense Review*, vol. 2, no. 2, 1978, p. 26.

26. Metzger, p. 1.

27. In announcing the MX/MPS system, the President said he had told planners that five criteria had to be met, including survivability and verifiability. See "Statement of the President on MX Basing," September 7, 1979, p. 2.

28. Ulsamer, p. 29. Emphasis in original.

29. Ibid., p. 31.

30. Stephen M. Meyer, "Verification and the ICBM Shell-Game," *International Security*, Fall 1979, p. 63.

31. The limitations are spelled out in the Agreed Statements to Article III (9) of SALT II. See *SALT II Agreement, Vienna, June 18, 1979.* Selected Documents No. 12A, 1979, p. 35.

32. Desmond Ball, "The MX Basing Decision," *Survival*, March/April 1980, p. 61.

33. Sidney Drell, p. 5.

34. *The MX Missile and Multiple Protective Structure Basing*, p. 18.

35. Bernard and Fawn Brodie, *From Crossbow to H-Bomb: The Evolution of the Weapons and Tactics of Warfare*, revised and enlarged edition (Bloomington: Indiana University Press, 1973), p. 308.

36. Gray, "The MX ICBM," p. 67. Emphasis added.

37. *The MX Missile and Multiple Protective Structure Basing*, pp. 25, 28.

38. Harold Brown, *Department of Defense Annual Report, Fiscal Year 1981* (Washington: Government Printing Office, 1980), pp. 127-30.

39. John Newhouse, *Cold Dawn: The Story of SALT* (New York: Holt, Rinehart and Winston, 1973), p. 26.

40. Drell, p. 1. See also Mark O. Hatfield, "SUM Strategy," *Armed Forces Journal*, January 1980, p. 35, and Mark O. Hatfield, "SUM: It Adds Up," *Armed Forces Journal*, February 1980, pp. 66 and 76, and E. J. Garn, "SUM: It Doesn't Add Up," *Armed Forces Journal*, January 1980, pp. 36-37.

41. Ulsamer, p. 35.

U.S. STRATEGIC FORCE REQUIREMENTS IN A NUCLEAR-PROLIFERATED WORLD

Dr Lewis A. Dunn

ONE aspect of the future global strategic environment that is often overlooked in discussions of U.S. strategic force needs for the late 1980s and beyond is the prospect of nuclear weapon proliferation. But notwithstanding current policy efforts, a growing number of countries may decide to acquire nuclear weapons in the next decades. More important, living in such a world of five to ten additional nuclear weapon states probably would affect directly the requirements for U.S. offensive and, in some situations, perhaps even defensive strategic forces, while the indirect repercussions of Soviet reactions within that changed security environment also could be far-reaching.

prospects for proliferation

References to a deteriorating international environment of the 1990s with upwards of fifteen additional nuclear weapon states may seem farfetched. After all, in the first thirty-five years of the nuclear age only six countries—the United States, the Soviet Union, the United Kingdom, France, China, and India—detonated nuclear explosive devices: one other—Israel—is widely thought to possess nuclear weapons. But within the next decades a range of factors that can only be touched on here could erode the particular equilibrium of restricted technical opportunities, limited incentives for acquiring nuclear weapons, and compelling disincentives against doing so which resulted in only the slow and limited spread of nuclear weapons.[1]

First, because of the global process of industrial and technological development as well as the continuing spread of civilian nuclear power programs, more and more countries are coming to possess the technical capability to make at least rudimentary nuclear weapons. As early as the mid-1980s, for example, several dozen countries will have sufficient plutonium within the spent fuel of their civilian nuclear programs to make three to six nuclear weapons—assuming their probable capability to build and operate a reprocessing plant to separate the plutonium from the spent fuel.[2] Many of these countries also would be capable of building a plutonium production reactor and the associated facilities if it were thought desirable to take a nonfuel, cycle-based route to nuclear weapons. Further, such activities as the reported Israeli diversion of several hundred kilograms of highly enriched uranium from an Apollo, Pennsylvania, fuel fabrication plant may be only the first visible sign of more extensive nuclear black-and-gray market dealings in the future.[3] Of especial importance in that regard would be the increasing availability in this decade of gray market nuclear mercenaries selling technical expertise up to and including nuclear weapon design information. Put simply, technical constraints to going nuclear appear at most to be a wasting asset.

Second, varied incentives for acquiring nuclear weapons are most likely to increase in future decades. For example, the resumed erosion of American alliances in Asia would enhance security-related incentives in key prospective proliferators there. Or in other regions where the United States is not heavily involved, one or another traditional rival—whether Argentina or Brazil in Latin America or India or Pakistan in South Asia—well might slide into a nuclear weapon program, either in pursuit of greater regional influence and status or out of concern and uncertainty about what its rival was planning to do. More important, there sometimes will be a proliferation multiplier-effect: if not defused, a decision by one country to go nuclear is quite likely to trigger chains of similar decisions by other now technically capable neighboring countries, while inadequate responses by the United States and other countries to the first outcroppings of

more widespread proliferation in the 1980s would increase the chances for even more countries going nuclear in the 1990s.

Third, to the extent that they are an important element in the policy calculus of prospective proliferators in the first place, disincentives to acquiring nuclear weapons are also very likely to decline in the next decades. Even fear of an adverse foreign reaction and the imposition of sanctions seems unlikely to counterbalance pressing security rationales for acquiring nuclear weapons. Furthermore, particularly once some additional proliferation has occurred, other foreign and security considerations will increasingly make countries reluctant to carry out the threat of sanctions. In addition, if more countries go nuclear, any domestic opposition to following suit in yet other countries may be undermined and wane. And to elaborate the initial caveat, it is far from clear that future decisions to acquire nuclear weapons—anymore than in most past decisions—will carefully balance possible costs and gains. Instead, probably only a limited rationality would prevail, stressing the more immediate payoffs of acquisition and not attending to longer-run complications.

limited strategic force retailoring and the lesser nuclear powers

Thus the possibility must be taken seriously that in the next decades of the nuclear age there could be an increasing breakdown of equilibrium among technical constraints, limited proliferation incentives, and compelling proliferation disincentives that resulted in the limited scope and pace of proliferation in the first decades. In order to assess the impact of such a breakdown on the requirements for future U.S. offensive and defensive strategic forces, it is important, however, to distinguish between two categories of new nuclear weapon states: lesser nuclear powers, a group encompassing countries such as In-

dia, Iraq, South Africa, Libya, Pakistan; and other developing or even advanced developing countries, and the proto-superpowers such as Japan and West Germany, countries most likely to go nuclear only in the event of the most extreme breakdown of the first decades' equilibrium.

Of those lesser nuclear powers, with rare exceptions their nuclear arsenals may be directed primarily at their local rivals and to number in the dozens of fission warheads deliverable by nuclear-capable aircraft or, in a few cases, short-range surface-to-surface missiles. Moreover, to the extent that one or more of these lesser powers did seek to threaten either the U.S. or Soviet central homelands, a significant asymmetry would exist. Because of the peculiarities of geography and their limited technical capabilities, at least well into the 1990s, any such lesser new proliferator seeking to threaten the United States probably would have to rely for delivery on smuggling a weapon into the country by air or sea—what can be called "clandestine insertion." By contrast, during the 1980s the Soviet Union might find itself threatened by new proliferators capable of reaching targets within the Soviet territory using high performance aircraft as delivery vehicles. In ways to be noted, this asymmetry could color the respective U.S. and Soviet responses to these lesser nuclear powers.

Several potential missions against such lesser nuclear powers can be identified. As with existing hostile nuclear powers, it, of course, would be necessary to deter an attack on the United States by the threat of retaliation. In addition, U.S. strategic forces might have to be capable of carrying out a surrogate nuclear retaliatory blow for a nonnuclear ally or friend attacked by a new proliferator.[4] For example, in a nuclearized Middle East, Saudi Arabia's importance to the United States might warrant providing it with a security guarantee, including the promise of responding tit for tat to any nuclear blow

against it. Or in some scenarios U.S. strategic offensive forces might be used to suppress the nuclear force of a new proliferator, destroying his stockpiles, delivery vehicles, command and control, and associated nuclear assets. Such a preemptive disarming attack, for example, might be the needed prelude to military intervention with naval and ground forces to support a beleaguered nonnuclear friend or ally facing invasion by a lesser nuclear power. Saudi Arabia again comes to mind as such a potential friend in need. Finally, carrying out punitive nonnuclear strikes against radical lesser nuclear powers engaging in highly disruptive actions— whether allowing a terrorist group to "steal" a nuclear weapon or helping a fellow radical country to build a bomb—might be another mission.

At first glance it may appear to some that carrying out any of these missions against lesser nuclear powers would require virtually no modifications of existing or planned future U.S. strategic forces. But that conclusion could be erroneous. Examination of the problems with the alternative means of performing these missions with available capabilities suggests that some limited retailoring of offensive strategic forces could be required in a nuclear-proliferated world.

One possibility would be reliance on obsolete intercontinental ballistic missiles (ICBMs) such as Titan II, Minuteman II, or, eventually, Minuteman III to carry out these missions. But these systems may be unable to reach targets within distant new proliferators. The Minuteman II has an approximate range of 6000 + statute miles and the Titan II a range of 7000 + miles,[5] while the targets within many of these countries often are more than 8000 miles or, in some cases, 9000 or 10,000 miles from the U.S. heartland. The Minuteman III also would have difficulty meeting the range requirement although in its case it would be possible to off-load payload to increase range, an op-

tion ruled out by the single large warhead on the Titan II and the Minuteman II.[6]

Aside from their possible inability to meet these range requirements, obsolete ICBMs might be precluded by another factor—their lack of discrimination. Not only would accuracy decrease at the distances in question but the high-yield warheads on the Titan II and Minuteman II as well as, relatively speaking, on the Minuteman III may inflict far more damage than required or desirable. Particularly for carrying out a limited, tit-for-tat, surrogate retaliatory blow in response to use of a crude nuclear device of, say, a 20-kiloton yield, a capability for more discriminate and selective strikes is required. In fact, for such a blow it even might be desirable to be able to select one of several yields in the sub-100-kiloton range.[7] The availability of such a more discriminate response, in which collateral damage would be minimized, could be a critical requirement for the disarming mission. Here, above all, the readiness of political decision-makers to respond to or carry out prior commitments would probably be affected by the availability of a more discriminate response than that provided by the off-the-shelf, obsolete ICBMs such as Titan II, Minuteman II, and Minuteman III. These systems with their nuclear warheads would be unable to carry out a punitive nonnuclear response if that were desired against a country abetting nuclear terrorists.

Dedicating a fraction of the SSBN (nuclear-powered fleet ballistic missile submarine) force to these antinew proliferator missions would resolve the problem confronting existing land-based ICBMs in meeting the range-to-target requirement. But with growing dedication within the Single Integrated Operations Plan (SIOP) of some of that force to missions involving a European theater conflict, earmarking even a further small fraction to this future mission could draw down needed capabilities. Besides, exist-

ing and planned submarine-launched ballistic missiles (SLBMs) appear likely to do excessive damage. Without modification, both the Polaris A-3 MIRV'ed warhead package and the Poseidon C-3 and Trident MIRV'ed packages could be too indiscriminate in their use for most of the limited purposes being discussed here.

There also would be various defects in planning on future reliance on air-breathing delivery systems, some mixture of manned bombers with cruise missiles or short range attack missiles (SRAMs). Manned bombers refueled in the air would be capable of meeting the requirement of extended range. And by the late 1980s the availability of longer-range advanced tankers than the current KC-135s would permit staging the tankers as well as the planes from the continental United States. This could be especially important because of the possible reluctance of allied countries to permit the United States to use their bases to mount such nuclear strikes against new proliferators. Much more problematic for some missions, however, would be the extended time to target of these aerodynamic systems since it could provide sufficient warning to permit even a lesser nuclear power to relocate its nuclear force and counter a U.S. disarming strike. Of course, time urgency would be somewhat less of a consideration in carrying out either the surrogate retaliation or the punitive strike missions. A further potential problem with reliance on manned aircraft would be the threat posed by local air defenses because U.S. political calculations might place a premium on avoiding aircraft losses. This threat could be minimized by use of standoff missiles or cruise missiles; but the available warhead yields of SRAMs and air-launched cruise missiles (ALCMs)—upwards of 200 kilotons[8]—could be thought too high for many purposes.

Taken together, this brief run-through of available off-the-shelf systems points to the conclusion that performing these missions described against lesser nuclear powers in a nuclear-proliferated world would require limited retailoring of a portion of U.S. strategic offensive forces. The purpose of that retailoring would be to enhance the degree of discrimination, flexibility, and range of forces earmarked to these missions. This might entail, for example, dedicating a limited number of MX ICBMs with suitable payload modifications to this mission or partial reliance on suitably configured air-launched cruise missiles where time urgency was not a factor and prior efforts had been made to acquire the necessary terrain data. But how, specifically, to meet those additional requirements for greater discrimination, flexibility, range, and selectivity of response exceeds the scope of this article, which turns now to another aspect of strategic forces design in a more proliferated world.

strategic defensive forces and unconventional nuclear threats

The prospect that virtually all those lesser nuclear powers that might seek to threaten the U.S. homeland in the 1980s will have to rely on unconventional modes of delivery has important implications for U.S. strategic defensive forces. For this aspect of the anti-proliferator mission, increased emphasis on restoring deteriorating U.S. air defense capabilities and on augmented capabilities for border surveillance are critical. In addition, means of linking together in an ad hoc fashion civilian and military air traffic control, surveillance, and monitoring capabilities—perhaps after intelligence warning of an attempt to smuggle a nuclear weapon into the United States by ersatz commercial or corporate aircraft—also might pay off. But what of other damage-limiting systems such as light area missile defense?

By the late 1990s some lesser nuclear

powers will probably acquire longer-range ballistic missile technology, especially if space booster technology becomes a legitimate item of international commerce. Both Brazil and India, for instance, are already engaged in research in this area, and other advanced developing countries could follow suit. But none of these more advanced new proliferators appear likely to target the United States in the next decades. Thus, taking account of probable cases, as opposed to hypothetical possibilities, one finds it difficult to conclude that light ballistic missile area defenses would be required to limit damage at least from these new proliferators within that time period.

The Soviet response to these lesser nuclear powers will probably be to emphasize enhanced Soviet air defenses. As with the United States, renewed Soviet interest in light area ballistic missile defense would be held down by the absence of lesser nuclear powers armed with ballistic missiles and threatening the Soviet Union. Thus, at least this aspect of the Soviet response would have few indirect repercussions on the U.S. defensive strategic posture. But Soviet responses to emerging Japanese or West German nuclear weapon programs would probably differ somewhat.

strategic force implications of West German or Japanese nuclearization

Though admittedly far less likely than the emergence of additional lesser nuclear powers in the next decades, there are foreseeable conditions which probably would result in Japanese or West German decisions to acquire nuclear weapons before the end of the 1990s.[9] Moreover, the resultant programs in all probability would be serious ones, most likely placing these countries' nuclear forces at a level of sophistication between those of the existing medium nuclear powers and

those of the superpowers. Such decisions and these serious programs would have significant indirect consequences for U.S. offensive and defensive strategic force requirements stemming from the probable direct Soviet reactions to what would be perceived in the Kremlin as a marked worsening of the Soviet Union's security environment. And if the emergence of either of these countries as a nuclear weapon state was accompanied by a reversal of alliances and increased hostility to the United States, there would be important direct effects for the U.S. strategic posture as well.

Confronted by the emergence of Japanese and West German nuclear forces, Soviet offensive and defensive forces would be subject to pressures for augmented growth. Both unilateral responses and Soviet calls for renegotiation of any existing strategic arms restraints would be the most likely outcome.

On the one hand, a partial Soviet response to meet this perceived requirement for additional land-based missiles is likely to be the acquisition of additional intermediate-range ballistic missiles (IRBMs) to target West Germany and Japan. But calls to renegotiate upward limits on strategic force levels to permit acquisition of additional ICBMs to use on more distant targets in Japan also may occur. Also expected are efforts to renegotiate the restrictions on numbers of SLBM launchers to permit the Soviets to match any Japanese and West German deployment of SSBNs. Particularly underlying such Soviet stress on matching that buildup would be the attempt to preserve its claim to overall equality with the West both militarily and politically. A comparable claim, it is worth recalling, was reflected in the Soviet Union's unilateral statement on the NATO allies' SSBNs that accompanied the SALT I interim agreement. There the Soviets claimed a right to increase correspondingly their missile submarines if the NATO allies increased their submarines beyond the number opera-

tional or under construction when the agreement was concluded.[10]

On the other hand, Japanese and West German acquisition of nuclear weapons would probably produce great pressures on the Soviet leadership to renegotiate—or, barring that, even abrogate—the 1972 Treaty on Limitations of Antiballistic Missile Systems. Probably coming on top of prior acquisition of nuclear weapons by new proliferators such as South Korea, Israel, Turkey, and perhaps Yugoslavia, their going nuclear would greatly reinforce the by then heightened Soviet fears of encirclement. The resultant psychology would reinforce the emphasis of Soviet strategic thinking on engaging in a nuclear conflict, and that in turn would probably reverse—at least in this situation—the anomalous Soviet shift of the 1970s from strategic defense.

Both of the preceding Soviet responses would indirectly affect the requirements for U.S. strategic forces. If only to maintain a relative international bargaining position, the United States would find it difficult not to match in part augmented Soviet ICBM and SSBN force levels. Concomitantly, negotiated mutual deployment of augmented strategic defenses would probably be preferable to Soviet abrogation of the Antiballistic Missile Treaty and U.S. acquiescence in a unilateral Soviet capability. Aside from any possible benefits of a light area ballistic missile defense against unexpected lesser-level threats or accidental attacks, negotiation would facilitate efforts to restrict that Soviet defensive capability, to set checks on ease of sudden upgrading, and otherwise to minimize the consequences for the central strategic balance.

However, one caveat to the proposition implicit within the preceding discussion that the main impact of Japanese and West German nuclearization on U.S. strategic forces would be these indirect consequences of direct Soviet reactions bears mention though not much elaboration. Should Japanese and West German acquisition of nuclear weapons, as some persons fear,[11] be accompanied—if not preceded by—a radical anti-American political shift, the United States itself might eventually be sufficiently threatened to respond with augmented offensive or defensive capabilities. Nevertheless, while granting that even more far-reaching alliance reversals have occurred, it equally appears highly unlikely that the degree of resultant hostility would be so great as to warrant U.S. targeting of these former allies or seeking to acquire a light area defense against their targeting the United States. Rather, U.S. efforts to integrate these countries' new nuclear forces into a broader if looser alliance framework would be more likely. But that most probably would reinforce Soviet fears of a consortium of nuclear opponents and its incentives to match what would be seen as accretions to overall Western nuclear capability represented by these proto-superpowers.

ONE often overlooked aspect of the environment within which decisions about U.S. strategic force requirements for the late 1980s and beyond will have to be made is the spread of nuclear weapons to additional countries. With that in mind and by way of conclusion, two sets of propositions about the impact of more widespread proliferation on U.S. strategic force requirements bear reiterating: First, responding to the threat posed by lesser nuclear powers would require some limited retailoring of U.S. offensive strategic forces to provide them with sufficient range, discriminating capability, and flexibility for carrying out antinew proliferator missions. And though when compared to other force posture determinants the changes invoked are marginal, they still may be critical to protecting U.S. interests in a world of widespread proliferation. Second, though admittedly less probable, the nuclearization of proto-superpowers such as Japan and West

Germany would fundamentally undermine strategic arms restraint by creating new requirements first within the Soviet Union and then within the United States for augmented offensive and defensive strategic capabilities. For the United States as for the Soviets, both political and military calculations would provide the animating logic of response. It is not too early to begin recognizing these potential impacts for U.S. strategic force requirements of more widespread nuclear weapon proliferation.

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Notes

1. See Lewis A. Dunn, *Beyond Nonproliferation: U.S. Policy in a Proliferating World* (The Twentieth Century Fund, 1981).

2. Albert Wohlstetter et al., *Moving Toward Life in a Nuclear Armed Crowd?* Pan Heuristics, April 22, 1976, p. 14, pp. 249-61. Report prepared for the U.S. Arms Control and Disarmament Agency.

3. *Nucleonics Week*, 13 October 1977, p.7.

4. Possible security guarantees or guarantees of surrogate retaliation to nonnuclear weapon states threatened by new proliferators are discussed, inter alia, in Richard L. Garwin, "Reducing Dependence on Nuclear Weapons: A Second Nuclear Regime," in *Nuclear Weapons and World Politics*, David G. Gompert et al. (New York: McGraw-Hill, 1977), pp. 130-32; Herman Kahn, "Nuclear Proliferation and Rules of Retaliation," *Yale Law Journal*, November 1977, pp. 82-87; Lewis A. Dunn, *Changing Dimensions of Proliferation Policy, 1975-1995* (Hudson Institute, HI-2497/2-RR, February 15, 1977), pp. 89-96, 104-6.

5. Colin S. Gray, *The Future of Land-Based Missile Forces*, Adelphi Paper No. 140 (London: International Institute of Strategic Studies, 1977), p. 32.

6. Ibid.

7. See, for example, the discussion by Garwin, in Gompert et al., p. 132.

8. Gray, p. 36.

9. See Dunn, *Beyond Nonproliferation*, chapter three.

10. See *Arms Control and Disarmament Agreements*, U.S. Arms Controls and Disarmament Agency, Washington, D.C., pp. 148-49.

11. William H. Overholt, "Nuclear Proliferation in Eastern Asia" in *Asia's Nuclear Future*, William H. Overholt, editor (Boulder, Colorado: Westview Press, 1977), pp. 149-57.

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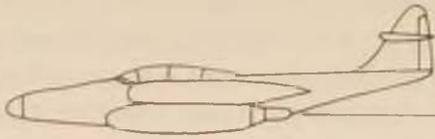
THE SCORPION

a pictorial report

Jay Miller

T
HE F-89 "Scorpion" was perhaps the most appropriately named fighter aircraft of the 1950s. With its decidedly radical, upward-swept cruciform tail and its large, missile-and-fuel-bearing wingtip pods, the F-89 bore a striking resemblance to its frightening arachnid namesake.

The development of Northrop Aircraft Corporation's Model N-24, as the F-89 was at first called, was initiated by the company in early 1945. Conceived as an all-weather ground attack fighter, it was to be powered by two of General Electric's new TG-180 axial-flow gas turbine engines. Developed from British jet engine patents, the TG-180 (or J35) was, in fact, one of the first production jet engines manufactured in the United States.

The first indication of the F-89's unusual design configuration came about when an engineering decision was made calling for the horizontal stabilizer and elevators to be placed high on the vertical fin. This arrangement was made in order for those surfaces to be clear of the turbulent and hot exhaust flow from the jet engines. Because of problems with stall blanketing, the high tail configuration would later prove to be more troublesome than anticipated.

The original Air Force design competition calling for an all-weather fighter brought submissions from Bell, Consolidated, Curtiss, Douglas, Goodyear, and Northrop. All six submissions were quickly found to be deficient in performance and, in effect, unsuitable for the called-for mission.

Rather than request new submissions from the various companies bidding on the program, a decision was made to proceed with the design that was con-

The F-89 "Scorpion" is not ordinarily viewed as a major triumph of the aeronautical engineer's art, either by students of aircraft design or those who flew it. Solid and workmanlike at best, the F-89 performed its assigned mission successfully enough; but this failed to earn for it the warm spot in the hearts of pilots reserved for such contemporaries as the F-86 and F-84.

But emphasis on the dramatic, flashy, and spectacularly successful carries with it the risk of distortion. For a balanced picture, study of the merely ordinary is obligatory. Ultimately, the F-89's relative lack of success was more the result of the uncertainties and daunting technological problems faced by those who conceived, designed, and developed it than of any lack of imagination or competence. Indeed, a certain glamor pertains in the way the problems were overcome. From this, we can learn.

The Editor

The XF-89s are gone now, but these prototypes of the all-weather jet fighter first flown on 16 August 1948 evoke memories of the fifties, when F-89s formed an important part of U.S. air defenses. With a design gross weight of more than 30,000 pounds, the Northrop-built fighter proved that tracking and intercepting enemy aircraft at night and in bad weather were feasible.

sidered least unsuitable. By chance, on 3 March 1946, Northrop was declared the winner and awarded a $4-million (later increased to $5.6 million) contract covering costs of two developed examples of their original design submission.

The new fighter, at the time still known as the P-89,* was to be a two-seat, twin-jet, all-weather, day-or-night fighter. In consideration of the latter requirement, it was imperative that the airplane have the capability of carrying an exceptionally large and effective airborne radar.

By September 1946, the preliminary P-89 mock-up was available for Air Force inspection. Unfortunately, it got an unfavorable report. Northrop quickly returned to the drawing board and incorporated the many changes recommended by the Air Force. Among these were modifications for closer crew proximity, redesign of

*In 1948, all "P" designations were changed to "F."

the canopy, and a change from magnesium to aluminum in certain wing structural areas.

Though further mock-up inspections eventually led to a tentative stamp of approval from Air Force examiners, faults were still discernible in a number of areas. These would later become more apparent after the P-89 entered the Air Force operational inventory. Not the least of the several, however, was questionable structural integrity in the empennage and vertical fin areas.

A number of design changes led to a nine-month delay in the completion of the prototype aircraft. On 16 August 1948, however, following roll-out ceremonies and several weeks of ground checks and taxi tests, the first XF-89 (A.F. serial # 46-678), with test pilot Fred Bretcher at the controls, took to the air. As it turned out, the additional, unscheduled redesign efforts paid off, for preliminary flight evaluations by Northrop and Air Force test pilots found few problems with the airplane's general flight characteristics.

During the months following that first flight, the F-89 prototype was flown-off against competing designs from Curtiss (XF-87) and Lockheed (XF-90). (The latter, as point of interest, had been an unsolicited project primarily funded in-house by Lockheed.) It was eventually determined that the Northrop submission was the best of the lot, this conclusion based on its overall performance, its accommodations for on-board avionics, and its producibility.

Conceived near the dawn of the jet age, the F-89 mated still-novel jet propulsion with radar technology and intercept techniques developed during World War II. Continuing developmental effort increased the thrust rating of the F-89's Allison J35 engines from 4900 pounds each in the F-89 A (left) to 5600 pounds in the F-89C (below). The armament of the early versions of the F-89 differed little from that sported by piston-engined nightfighters of World War II; a battery of six nose-mounted 20-mm cannon.

In May 1949, the Air Force signed a cost-plus-fixed-fee contract with Northrop for a total of some $51 million. This sum would cover the production of 48 F-89As, one additional prototype, and a number of spare parts and static test articles.

The F-89 had been born when rudimentary developments in aerial electronic warfare were first achieved early in World War II. It was during this period that the first air intercept radars were used under experimental conditions. Production versions entered the operational inventory within a matter of months, and though big, heavy, and only partially effective, they *did* work. Most important, they proved that tracking and intercepting enemy aircraft at night and in bad weather were not only possible but quite feasible.

Because of the size of vintage radar units, World War II saw only large aircraft, such as the Northrop P-61 Black Widow and the British de Havilland Mosquito, used in the radar-directed air-intercept role. Electronics miniaturization was not long in coming, however, and by the end of the war tremendous strides had taken place toward smaller and more efficient units. Related postwar developments were a bit slow in getting under way due to the introduction of jet-propelled aircraft and their associated teething troubles, but by 1948 a number of preliminary projects had come to life with an orientation toward radar-directed intercept. The F-89 was a prime example.

The prototype F-89, following its first flight, had continued its flight test program at a steady but rather cautious pace. Following a minor landing accident that caused some slight belly and wing damage, it was rebuilt and used by the Air Force as a proof-of-concept airframe. Unfortunately, on 22 February 1950, it was totally destroyed in an accident.

The postaccident investigation revealed a number of major structural design failings in the basic F-89 airframe. Northrop reacted with a program to correct these faults, but terminal solutions were many years in the making.

The May 1949 contract eventually resulted in the completion of 37 F-89As. These aircraft were plagued with a number of major problems, not the least of which was a marked tendency to disintegrate when undergoing certain high-g maneuvers! The first production F-89As entered the operational inventory in limited numbers in 1952. These aircraft were used primarily as F-89 trainers and were quickly superseded on the Northrop production line by the slightly improved F-89B. This newer model had numerous minor internal changes and additional mission-related equipment that included a Lear F-5 autopilot, a Zero reader gyroscope, and a limited capability instrument landing system.

The first unit to receive the F-89B was the 84th Fighter Interceptor Squadron, at the time flying out of Hamilton AFB, California. Most of the thirty-seven F-89Bs eventually completed went to the 84th. It is interesting to note that total flyaway costs for the F-89B, $1 million per airplane, were considered quite high for the period!

While the Air Defense Command was absorbing the limited production F-89As and Bs, a further improved model, the F-89C, entered production. Shortly afterward, the operational Air Force inventory began receiving them. This was the first up-to-standard variant of the F-89 to reach quantity production, and 163 were eventually completed. Because of the number built, unit costs were significantly

With the F-89D, the 20-mm cannon armament was deemed inadequate and replaced by a battery of no less than 104 2.75-inch folding-fin unguided rockets fired from wingtip pods. Though a salvo launch of all 104 rockets made an impressive pyrotechnic display particularly at night, their range and accuracy left much to be desired. Installation of afterburners increased the thrust of each J35 engine to as much as 8000 pounds, giving the Scorpion a dash speed of over 600 knots.
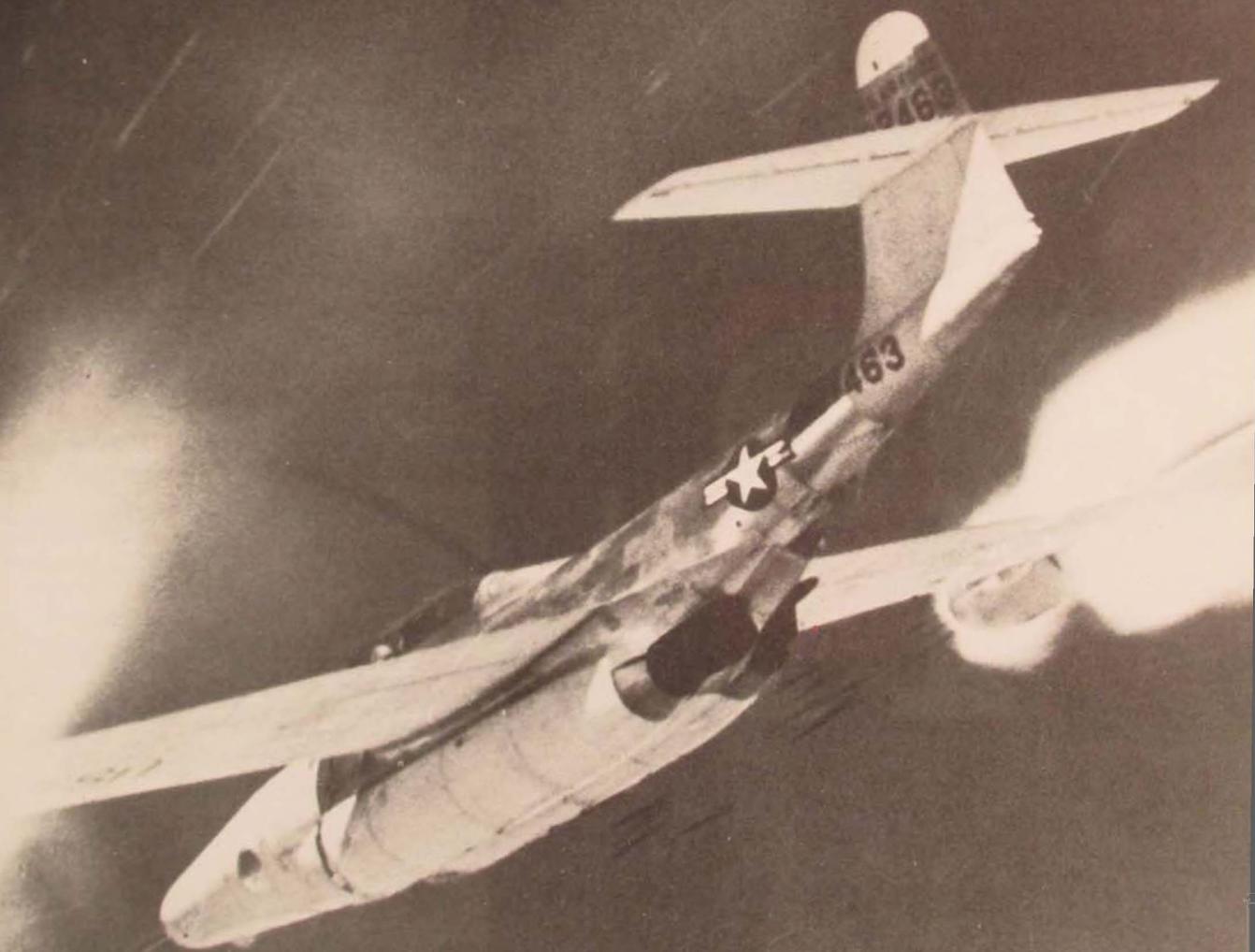
Poor stability and structural fatigue led to modification of earlier F-89s to F-89D standards. The F-89D—shown in formation over Mount McKinley, in a flightline lineup (below), and displaying one wingtip pod's load of 52 2.75-inch folding-fin rockets (facing page)—was virtually identical in appearance to earlier models except for the rocket pods. For a time the 682 F-89Ds formed the backbone of our strategic air defenses.

lower than those for the F-89B, amounting to slightly less than $800,000 per airplane.

It was while the F-89C was entering the operational inventory that two major Scorpion design faults came to light. One, related to the airplane's engines, was brought on by deicing system failures and a propensity for "ramp sweeping" — a phenomenon peculiar to the F-89's low-slung engines (they literally sucked trash from the runway).

The other problem was far more serious. On 25 February 1952, an F-89 disintegrated during flight maneuvers and all its crew were lost. This was followed, over a period of several months, by a disturbing number of similar fatal accidents, a total of six by 15 September. On 22 September, all F-89s, with the exception of a select number to be used for test purposes, were grounded.

Examination of F-89 wreckage, coupled with an intensive test program,
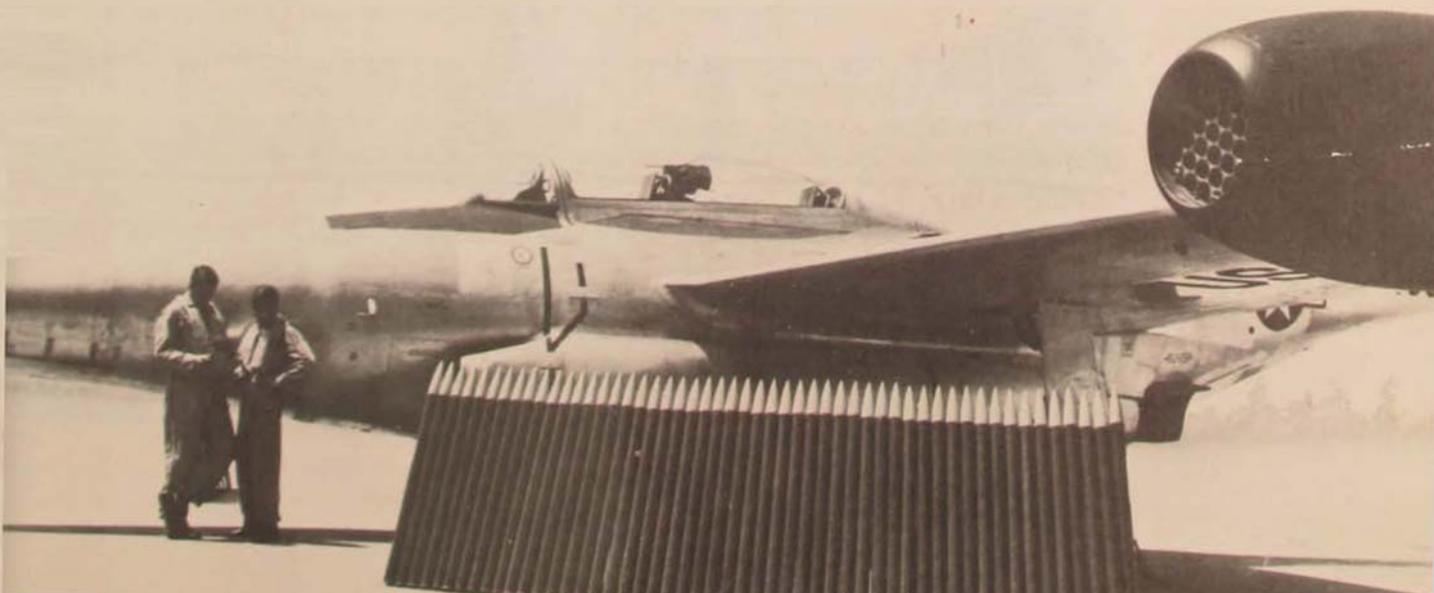
revealed the cause of the failures. Poor pitch stability coupled with a structural fatigue problem were determined to be the culprits. During the course of high-g maneuvering, common during intercept missions, the poor stability characteristic and the structural fatigue problem could, in combination, lead to catastrophic airframe failure.

The Air Force and Northrop began to collaborate on a program to modify and

In its definitive F-89H version, the Scorpion looked far less elegant than such actual and potential competitors as the XF-92, forerunner of the far more successful F-102, and XF-88, precursor of the still more successful F-101. The F-89's unofficial nicknames, "Anteater" and "Vacuum Cleaner," effectively suggested by these two views, say it all. By the H and J models, the 2.75-inch rocket had been reduced to secondary status, and six Hughes GAR-1 missiles were the primary armament.
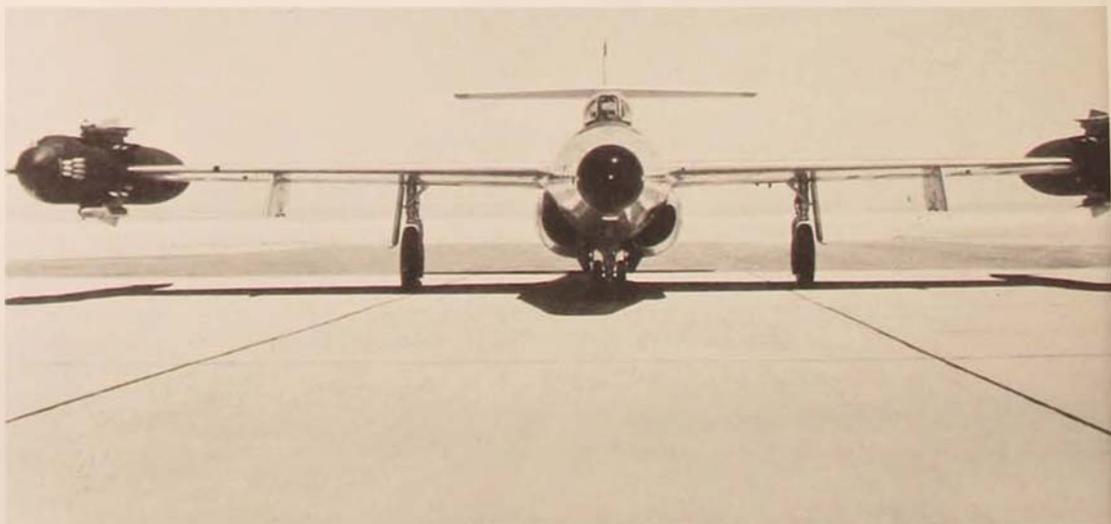
improve all F-89s in the inventory. Additionally, all aircraft on the Northrop production line were to be similarly modified and improved. The cost of this program was no less than $17 million. Unfortunately, by the time work had been completed in January 1954, there was still a 20 percent limitation on the F-89's performance envelope. This limitation would remain with the affected aircraft throughout their operational lives.

The structural problems manifest in the basic F-89 design had come to light just as the Air Force began accepting the first of the improved "D" series. Though a number of "Cs" had been lost under similar circumstances, the problem had never been fingered as being endemic. The "D" series accidents changed all that. Five F-89Ds had been accepted by the time the structural problem came to light. An additional 120 "Ds" had also been produced, though not yet accepted.

On discovering the wing spar fatigue problem, Northrop initiated a major modification and "beef-up" program. All completed F-89s were affected, including a total of 170 F-89Ds and 194 F-89As, Bs, and Cs.

Nor was the F-89 particularly healthy in the armament department either. Though advertised at the time as being the world's "most heavily armed interceptor," it was, in truth, one of the least effective aircraft ever to operate in the interceptor role. Problems with the F-89's sting, in fact, were sufficient to lead to a number of performance restrictions, the majority of which were never removed.

Armament for the standard F-89D consisted primarily of fifty-two 2.75" folding-fin air-to-air rockets in each wingtip pod or provision for three Hughes GAR-1, GAR-2, GAR-3, or GAR-4 Falcon air-to-air missiles in each of these same pods. Early F-89A models had provision for six 20-mm T-31 (M-24) guns in the nose with 200 rounds per gun. It was also possible to mount external free-falling stores under the wings of most F-89 models.

The effectiveness of the Hughes Falcon series in the air-to-air combat role was very questionable throughout the late 1950s and early 1960s, when it first entered operational service. Dependability was marginal, at best, and the sensitivity of its optional guidance systems to countermeasures was extreme. In retrospect, it is not unfair to say that the missile would have proved itself almost completely ineffective in a real-war scenario.

Similarly, the F-89's AN/APG-33 intercept radar (and associated systems) was also riddled with problems. It took an inordinate amount of time to warm up; it was quite susceptible to countermeasures; and downtime and maintainability showed poor performance.

From its conception in 1945 to the final model's production run, the F-89 went through a number of major and minor engine changes. The original project, mentioned at the beginning of this story, powered by the General Electric TG-180, had not lasted long. By the time of the prototype airplane's first flight, the power plants had been changed to Allison J35s. This power plant was to remain the standard F-89 engine throughout its operational career. Various models were used, the majority rated in the 7200-pound thrust category with afterburner.

It should be noted that one F-89, the YF-89E, was test flown with Allison J71s in place of the normal J35s. This program was relatively successful but offered few significant performance improvements over the standard airplane.

During its career the F-89 carried a vast array of guns and rocketry, including the nuclear-tipped MB-1 Genie.

ALTOGETHER, 682 F-89Ds were completed by Northrop before production was terminated. During the course of the F-89D's development and production run, a proposal was made by Northrop outlining a program wherein a number of F-89Ds would be modified to carry the then state-of-the-art Hughes Falcon air-to-air missile. This missile was considered the most effective weapon of its kind in the world at the time, and until the advent of the F-89, an effective delivery vehicle had not been found for it. The Falcon/Scorpion integration program was initiated in January 1954, approved the next month, and terminated in March. It would soon be reinstated under the F-89H program.

The penultimate F-89, the F-89J, was not really a new model at all; rather it was a modification of an older model that had suffered through a number of serious problems and had emerged as a useful, albeit dated interceptor. The F-89J was

simply an updated and improved modification of 350 older F-89Ds. The "J," however, offered a number of advances over the earlier configuration, not the least of which was the ability to carry a total of two Douglas MB-1 Genie unguided, nuclear-tipped, air-to-air missiles.

The Genie was an awesome bit of weaponry. It was one of the first examples of miniaturized nuclear capability and as such was possibly the first weapon of its type to enter operational service. Powered by a solid-fuel rocket engine that could propel it horizontally for as much as six miles at speeds approaching 2000 mph, the Genie was considered a quantum jump forward for the Air Force when it entered service for the first time in January 1957.

The last of the production F-89 models was the F-89H. The "H" was the result of an armament system first test flown aboard an F-89D in the mid-1950s. The new development consisted of wingtip pods that could house, internally, up to three Hughes Falcon air-to-air missiles each, along with 21 folding-fin air-to-air rockets. Additional weaponry could be mounted under the wings. Altogether a total of 156 F-89Hs were completed before the Northrop Scorpion production program rolled to a halt.

The standard F-89D carried a pilot and radar operator seated in tandem, had a wingspan of 59'8", a length of 53'10", a height of 17'7", and a gross takeoff weight of 42,250 pounds. Maximum speed was 636 mph, service ceiling was just under 50,000 feet, and ferry range was about 1350 miles. Propulsion was provided by two Allison J35 turbojet engines rated at 7200 pounds thrust each with afterburner.

In spite of its many problems, the F-89, during its later years with the Air Defense Command and the Air National Guard, proved to be a moderately good performer. As much as anything else, it served to prove the viability of electronic warfare in a fighter-versus-fighter environment.

Austin, Texas

Never in the field of human conflict was so much owed by so many to so few.

Winston Churchill
20 August 1940

History and the Profession of Arms

It is generally recognized that a close relationship exists between the study of history and the profession of arms. The reasons for this closeness, however, are not so generally appreciated and bear examination. Historical precedent—the institutional memory of what worked and what did not work—exerts a powerful influence on all professions. The profession of arms, however, differs from the others in several important respects: the reason for the military professional's existence, war, occurs in its more extreme manifestations relatively infrequently and at irregular and unpredictable intervals; it involves extreme and unpredictable conditions and extremes of human behavior; it involves the application of technology, itself often untried, under circumstances that can never be fully predicted. War, in short, involves a high degree of uncertainty. In its less total manifestations, the very definition of war is uncertain; the terms "economic war," "psychological war," and "cold war" drive the point home. The doctor's and lawyer's precedent are probably close in time to the application of its lessons; the circumstances under which the precedent was established and under which

it will be applied are apt to be similar. Not so for the military commander, planner, or leader; only the distant horizons of history give him the necessary scope to develop the parallels, the precedents he needs, imperfect as they are.

War in all its manifestations involves human behavior, and history can tell us a great deal about the way humans behave in war. In the following three essays, students of history do just that—in three different cultures at three different times. At the risk of discouraging the search for similarities, we quote Michael Howard, ". . . the differences brought about between one war and another by social or technological changes are immense, and an unintelligent study of military history which does not take adequate account of these changes may quite easily be more dangerous than no study at all." ("The Use and Abuse of Military History," Journal of the Royal United Services Institute, *February 1962, p. 7.)*

With that said, we leave our authors' analyses to your evaluation.

Editor

THE BATTLE OF MARATHON

or What's a 2500-year-old battle got to do with me?

MAJOR GENERAL I. B. HOLLEY, JR., USAFR

WE QUOTE the philosopher Santayana to the effect that those who ignore history are doomed to repeat it with all its mistakes, its agonies, its false turns. Another often quoted aphorism has it that the only thing we learn from history is that we don't learn from history! In short, we should learn from history but, alas, we seldom do. And why not?

For one thing, we seldom *read* history—because we are so busy mastering tech manuals, so busy dredging up data to compile staff papers, so busy meeting suspense dates that we just don't very often get around to reading that historical account which, if we but knew it, might make our understanding of today's job much easier. Moreover, when on occasion we do manage to read a little history,

a retrospective account of something that has taken place in the past, we all too often look for the wrong things. Unless one has been educated to read history, there is a perfectly normal human tendency to look for answers, solutions for our current problems drawn from supposedly parallel cases in the past. This is folly. History doesn't provide "answers," that is to say, solutions to the problems of today. At best, history can offer us no more than insights, and then only if we approach it in the proper frame of mind.

So we must learn how to approach history, how to get into that all important frame of mind. The technique is not really very esoteric; in fact, it is quite simple. One must learn to read actively rather than merely passively; one must learn to formulate questions before one begins reading and to perfect these questions while one is reading. One formulates questions that actively engage the subject matter at hand. In short, to read history effectively is to engage in a kind of dialogue with the written page. Soaking up information like an intellectual sponge is not enough; one may learn a lot of facts that way, but so what? Insight comes when the reader begins to make those facts work at answering the questions he propounds as he goes along.

NOW let's try to use this technique when reading about the Battle of Marathon. What possible use can there be to an Air Force officer in reading about a battle that took place in 490 B.C.? What can it say of interest to Air Force officers discussing strategy, tactics, and the art of maneuver in this last quarter of the twentieth century? A great deal, providing we look for insights and not answers; you can scarcely expect a battle fought with hacking blades and hurled spears to give us many specific answers of pertinence today. As Moltke has reminded us, the past has little to say to the present generation where matters of materiel are considered; but for questions of morale and where we are dealing with the realm of ideas, even the remote past may sparkle for us with a freshness and a compelling clarity.

If you have not read about Marathon, you can easily do so in Creasy's *Fifteen Decisive Battles of the World*, where Sir Edward gives the essentials in a scant 30 pages. The main details are readily grasped. The great Persian emperor, Darius, determined to punish those upstart Greeks to the west, sent an expedition of some 100,000 men by sea to do so. This force landed at Marathon, a coastal plain encircled by a crescent of mountains some 24 miles northeast of Athens.* The Greeks, somewhat over 11,000 strong, stationed themselves in the hills at the center of the crescent.

After extended debate (remember, Athens was a democracy, and policy evolved from free discussion) the eleven officers comprising the Council of War voted to attack the Persians assembling on the plain below them and agreed on an appropriate tactic. The disparity in numbers between the Persians and the

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*The precise distance from Marathon to Athens remains in doubt. One source says 22 miles, another gives 24 miles; both vary from the traditional racing distance of 26 miles. Thus we compromise on 24 miles. These disparities help underscore my point that one shouldn't look for precise "answers" in history because different sources give different facts.

Greeks accurately reflected the relative size of the contesting states: on the one hand, imperial might drawn from two continents; on the other, two tiny city states endowed by nature with only meager resources. Nevertheless, the decision of the Greek leaders was to attack.

The story of the battle can be quickly told. The Greek line, extended to present the widest possible front, charged down upon the Persian forces camping on the plain. We are informed that they covered the mile between the two armies on the run. By approaching on the run, the Greeks caught the Persians off-balance. The hordes of Darius had to take up their positions in haste, but the obvious thinness of the advancing Greek line deceived them into anticipating an easy victory. When the clash occurred, the Persians, by sheer weight of numbers, forced the weak Greek center to fall back. According to plan, the Greek forces in the center retired slowly, contesting each step. Their left and right wings, heavily reinforced in anticipation of what was to come, gradually pivoted inward to face the advancing Persian center and attacked from both flanks in a classic double envelopment. In the panic that followed, the Persians fled to their boats and were cut down by the thousands.

What, then, can this battle tell us? We can see at a glance that a skillful deployment, thinning out the center of the phalanx and strengthening the wings, made possible a successful tactical maneuver. But what other factors were involved? Greek morale was high. The Athenians knew they were fighting for the survival of their nation, their city state. Their homes, their wives and children, their future hopes were all at hazard. Desperation can make men braver than they know. Further, Greek military intelligence was efficient; the Athenians knew that for all his numbers, Darius's army was made up of a motley array of many tribes and nations whose diversities in language could scarcely fail to impede effective military operations. Moreover, who could say with assurance that all these tribesmen, so recently subjugated by the Great King, were willing to give their best effort and lay their lives on the line for Persia? (Will Poles, Czechs, Hungarians, and Rumanians all fight for the U.S.S.R. with that last full measure of devotion that wins battles? Is U.S. Army Field Manual 100-5 really so far off the mark when it admonishes "fight out-numbered and win"?)

Air officers sometimes ask, Do the principles of war (more properly the "principles of battle," for war is a larger political phenomenon) still have any validity? See for yourself whether they do. It is doubtful if any military commander ever sat down and planned his strategy and tactics with the list of principles before him as an inspiration. But *after* he has drawn up his plan, it makes good sense to test one's handiwork by checking a proposed course of action against the conventional principles. To be sure, not everybody agrees on precisely what these principles are. And even within a given enumeration of 9 or 10 or 12 principles, it not infrequently turns out that two or more seem to contradict in a given situation. Does that mean the principles are worthless, dangerously deceptive, or unsound? Not at all.

The principles of war are not mandates speaking with the authority of a law of nature. Most certainly they do not operate with the inexorable quality of

gravity; they are, rather, a convenient checklist. They are prods to thinking, not cookbook ingredients to be spooned in routinely. The justification for having a list of principles is their use in stimulating thought, no more.

So let's go down the line and think about the decisions of the Athenian polemarch (the term for war ruler—note the kinship to our word "polemics") as he laid out his plan for attacking the Persians. We have no trouble spotting the principle of the *objective*. If the Greeks failed to whip Darius's army, the fate of Athens was sealed. Clearly the proximity of the Persians to Athens ruled out any strategy of delay and retreat, trading space for time. Only by taking the *initiative* could the Greeks hope to win. Is that what we mean by the principle of the *offensive*? Then there is the principle of *mass*. The Greeks might, in the name of prudence, have left a large portion of their force back home to man the city walls, but they relegated that task to the elderly and ineffectives in order to concentrate their mass at the critical point. Again, the principle of *economy of force* is discernible in the thinning down of the Greek center, well below the conventional formation eight spears deep customarily employed in the Greek phalanx. By reducing depth, men were freed to extend the line so it would reach across the entire Persian front, leaving no flanks to be turned.

As for the principle of *maneuver*, this has already been identified. The Greeks did not simply hurl their mass at the Persians but relied on a carefully planned maneuver to make up for the disparity in size between the two armies. So, too, *surprise* and *simplicity* have already been addressed. The tactical recoil of the center, which was virtually inevitable given the numerical weight of the Persians, was turned into an asset. The inevitable retirement of the thin center was converted to an advantage by using it as the basis for a tactical surprise as the two wings, while seeming to recoil, were in fact only obeying a preplanned maneuver to position themselves for a double envelopment of the Persian flanks in their disordered pursuit of the retiring Greek center. Above all, this stratagem was simple; everyone involved could readily grasp its essentials with ease.

Unity of command has also been addressed already in discussing the process by which the Greeks' decision to attack was reached. In the camp of the tyrant, the word of the Great King or his viceroy was law. His most skillful subordinates would hesitate before they dared suggest that his tactical scheme was in the slightest respect defective. As a consequence, while the Persians might seem to have achieved unity of command centered on Darius or his surrogate, in fact, no such unity did exist. Subordinate commanders, persuaded against their will in the absence of free discussion, "were of the opinion still." And men who doubt the wisdom of a given course of action are little likely to perform with the utmost zeal. By contrast, the Athenian plan, hammered out in open council, could count on the adherence, freely given, of every Greek commander.

But what about the principle of *security?* As almost invariably happens, here we encounter a contradiction. By obeying the principle of mass, the Athenians must, perforce, neglect the principle of security. By concentrating their effectives at Marathon, they all but denuded the walls of Athens. This violated the principle of security; but the violation was taken knowingly, a calculated risk. Under the circumstances, it seemed the wisest choice.

Have I neglected your favorite principle drawn from some other list, authoritative or otherwise? No matter, my purpose is most certainly not to imply infallibility. I only wish to demonstrate that if one will but read history, the record of past human experience, there is much to be gained. And if one will read actively, aggressively, searchingly, with questions in mind and propounded as one goes, then that reading can become exceedingly productive.

Read Sir Edward Creasy's Marathon for yourself. If you disagree with my interpretation, my commentary, so much the better. Such disagreement, if well-founded on evidence, only serves to suggest that you are thinking seriously about the enduring problems of strategy and tactics. The object of this exercise is not to prove me right and you wrong, or vice versa, but to get able young Air Force officers to reflect deeply on problems of strategy and tactics. Read history first to sharpen your intellectual tools; then try to determine if the principles of war or battle actually do apply to air weapons. There's a task fairly crying to be done. No one has ever really effectively determined whether the principles do indeed apply to air warfare with or without exception. Any takers?

Durham, North Carolina

SUN PIN'S *ART OF WAR* A SUMMARY

Dr John W. Killigrew

IN 1972 the Chinese government announced the discovery of certain burial sites and tombs dating from the Han Dynasty (206 B.C. to A.D. 220). One of the more momentous discoveries occurred at Yin-Chueh-shan in Lin-i county, Shantung province, where a tomb contained important works on history, philosophy, and military affairs. Of special significance was the discovery of the work entitled Sun Pin Ping-fa (literally "military tactics" or

"rules of war") or Sun Pin's *Art of War.* This work, lost for over 1700 years, had been the focus of debate over the centuries, and scholars were confused over the identity of Sun Pin and Sun Wu: Were there two persons or one person, and was the Sun Pin Ping-fa part of the famous Sun Wu Ping-fa? In the edition of Sun Tzu's *Art of War* edited by Brigadier General Samuel B. Griffith, USMC (Ret), there is a brief biography of Sun Pin, but it is not clear as to the real existence and reality of a Sun Pin.[1] These recent excavations have shed more light on ancient Chinese history and biography and are important in giving us more detailed knowledge and understanding of the role of military affairs in ancient Chinese history, as well as knowledge of ancient Chinese military thought.

Sun Pin lived during what is known in Chinese history as the Warring States period, and he rose to fame as adviser or chief of staff of the army of the state of Ch'i. This was a time of intense military and diplomatic rivalry among the various states during the late Chou period, and Sun Pin assisted the state of Ch'i in its military affairs and advised Ch'i in victory in two famous battles: the Battle of Kuei-ling in 352 B.C. and the Battle of Ma-ling in 341 B.C. In contrast to his famous predecessor, Sun Tzu of Wu, it appears that Sun Pin actually commanded troops, because his writings give much more detail concerning tactical formations and maneuvers as well as general instruction in overall strategic and political principles. Scholars give no exact dates for the life of Sun Pin.

The Sun Pin Ping-fa discovered in 1972 consists of inscribed bamboo strips bound together by leather thongs. The document is divided into thirty sections or chapters, with the titles written at the top or on the back side of the first tablet or strip of each section or at the end of the section. Not all the inscriptions are legible, and thus some inference or extrapolation must be made in respect to the meaning of certain passages. Since its discovery, some publicity has been given to the Sun Pin Ping-fa in Chinese journals devoted to archaeology and cultural relics, and two editions have been published in the Chinese language.

This article, a brief summary of the military thought of Sun Pin, is based on the author's translation of the Taiwan edition of the Sun Pin Ping-fa.[2] Four main themes or factors stand out in the Sun Pin Ping-fa: (a) a prudent and cautious attitude toward war, such caution described as "kingly deportment"; (b) the use of guile or stratagem in order to bring about a favorable tactical situation, ideally an ambuscade; (c) the interplay and interaction of contradictions as found in the yin and yang principle; and (d) considerable attention and stress on various tactical and combat formations and the attack and defense of walled cities.

APPROPRIATELY, the Sun Pin Ping-fa begins with an account of a battle situation in which stratagem and guile figure predominantly. Sun Pin at this time was an adviser to the King of Ch'i, and the enemy of the state of Ch'i was the state of Wei. The Wei army under the command of its general, P'ang

Chuan, had attacked an ally of Ch'i, the state of Chao. The question proposed to Sun Pin was what policy and decisions should be made by the state of Ch'i in coming to the aid of its ally. Then Sun Pin advised various stratagems and traps that would lead or cause P'ang Chuan to become arrogant, overconfident, and careless. For example, he advised that two Ch'i cities vulnerable to Wei attack be garrisoned and commanded by two incompetent and ineffective commanders. These cities would be sacrificed in order to tempt P'ang Chuan. Second, Sun Pin advised advancing some of the Ch'i forces in an ineffective assault against the powerful walled Wei city of Sang-liang. Even after this move and the loss of the border cities, Sun Pin advised sending some light chariot forces against the Wei capital of Ta-liang. His purpose was to demonstrate a gross military incompetency and weakness on the part of the Ch'i state. Tempted and enticed by such military inferiority, P'ang Chuan withdrew his forces from Chao state, abandoned his wagon and supply trains, and in forced marches rushed his entire army to attack the capital of Ch'i. Thereupon Sun Pin set up an ambush in the hilly and difficult terrain near Kuei-ling and defeated P'ang Chuan as he crossed the border of Ch'i en route to the capital. Thus Ch'i was able to force a withdrawal of the Wei army from Chao and in addition defeated and captured P'ang Chuan and destroyed his army.[3]

Following this the Sun Pin Ping-fa gives an account of the visit of Sun Pin to King Hui of Ch'i. The conversation between the two, in dialogue form, is to the effect that military affairs are in constant flux and a perpetual military advantage of one state over another cannot be depended on. Furthermore, Sun Pin notes that even a state victorious in war suffers damage, and military affairs are a most important and necessary element in statecraft. Even the legendary founding emperors of China, Yao and Shun and the Duke of Chou, were unable to achieve any success toward establishing a benevolent and righteous rule without first organizing a military force in order to subjugate and reform the empire. (pp. 33-39)

In another section King Hui asks Sun Pin to discourse on the principle in the deployment and use of troops. The king sets forth various hypothetical situations, and in each reply Sun Pin emphasizes the need for guile and stratagem in order to create a battlefield situation whereby the enemy is ambushed. Even when one's own forces are numerically and organizationally superior to the enemy, Sun Pin advises the king to dispatch a force to make a side or auxiliary attack so that the unity of the king's forces would appear to be in disarray and without any discipline. The purpose is to bring about a situation where the enemy would be enticed to attack prematurely and be destroyed in a set ambush. (pp. 51-52)

During the visit to King Hui, T'ien Chi, a general of the state of Ch'i, asks Sun Pin to name the most important aspects of military affairs. The reply lists such factors as calculating the terrain, knowledge of the enemy and the psychology of its leaders, and taking the tactical offensive as the most important. (p. 54) After leaving the palace, Sun Pin is questioned by some of his disciples as to the military wisdom of the leaders of the state of Ch'i. Sun Pin notes that their wisdom is incomplete and that they had far to go to grasp the basic principle of

warfare: the use of the army without detailed preparation would lead to a disaster, and to exhaust the army and the nation in constant campaigns would bring destruction to the state of Ch'i in three generations. (p. 55) To Sun Pin the "ever-victorious" general would produce a calamity by "weakening the people and wasting the state." (p. 75)

leadership and combat principles

In discussing the qualities of generalship, five characteristics are listed: having the confidence of the ruler, the ability to coordinate various tactical units, the ability to capture and hold the hearts of the troops, and the ability to know the enemy. (p. 67) Sun Pin underlines the point that the general and ruler who are eager for military action would perish, and those who covet glory and victories would be disgraced. Furthermore, battlefield conditions, political circumstances, and a favorable military advantage could change rapidly, and that war was to be entered into with great caution. There was nothing more valuable than the unity of the people; therefore, the ideal situation was where the strategic defensive had been obtained as a consequence of one's own land being invaded and one's own people being killed by the aggressor. (p. 75)

Military commanders are urged to have a knowledge of and an insight into the principle of the universe or the Tao of the cosmos: the principle of yin and yang. Knowledge of the psychology of the masses or the "hearts of the people" and of the enemy situation and circumstances is also enjoined. Another factor in the "knowledge" equation is to know the theory and practical principles involved in various tactical formations, where and when to use the formations and how to entice the enemy into an ambush. Sun Pin advocates dividing the force into three main infantry units or divisions: one up and two back with support and aid from chariot and mounted troops on the flanks and rear, in all some eight distinct tactical divisions are outlined. (pp. 75-78)

This "formation-eight" developed during the Warring States period. At the time of the establishment of the Chou Dynasty, around 1027 B.C., the main battle element of the Chinese army was the four-horse chariot, but by the time of Sun Pin, during the fourth century B.C., this situation had changed and infantry had become the chief element with chariots and mounted forces employed as supporting arms. The effect was that battles were not as quickly or decisively decided as during the earlier period; more men were involved, wars were longer and more intense, and the size of the battlefield was larger.

Midway in the Sun Pin Ping-fa there is an interesting analogy between a bowman and a military force. The arrow is the army, the bow is the general, and the one who fires or shoots the bow and arrow is the ruler. The arrow is the formation that the army takes, and it is important that the heavy and sharp end come first and be followed in the rear by a light feather: the analogy being that the battle formation of an army in deployment should be comparable to the structure of an arrow. The bow is the general; if it is held incorrectly and not coordinated with the arrow, then, although the arrow is constructed correctly, it will not hit the target. "If generals are not coordinated even though the

formation is correct the army will not hit the target and be victorious." Shou
the arrow be balanced correctly, the bow stretched correctly, yet if the shoote
incompetent and not trained, there will still be an error. Therefore, Sun Pin
notes that for an army to be successful, there must be coordination and skill
between the army, the general, and the ruler. (p. 99)

Section IX of the Sun Pin Ping-fa discusses what is termed the "four
elements of battle": formation, power and strength, change in circumstances
perhaps what is commonly known as the "fog of battle"), and opportunity. F
again analogy is made to certain symbols. The double-edge sword is the sym
of the tactical formation taken by the army; the strength of a military force is
symbolized in the bow that contains stored-up power with a potential to kill a
100 feet; a boat or chariot is described as the symbol of change in that comba
can be waged either on land or water: one can change to meet the
circumstances; and, finally, the spearman or lancer, who grasps the pike or
lance, is the symbol of grasping or taking advantage of an opportunity that is
presented. (p. 97) The four factors are thus interrelated: the formation is the
cutting edge that crushes the enemy, victory lies in strength being superior to
enemy; the creation of superiority lies in the ability to change; and taking
advantage of change and power lies in grasping the opportunity of a new
situation. (p. 97)

Consistent with the military thought of other ancient Chinese traditions, Si
Pin stresses the importance of morale and "spirit of the people" that is
embodied in the army.[4] "In order to mobilize it is necessary to arouse the spi
of the people": this aroused spirit must be maintained from the time the army
mobilized when war breaks out, through the movement of the army to its
forward encampment, through its movement to the border area, and as the ar
advances into battle. (p. 123)

Following this section on morale and spirit, Sun Pin engages in a dialogue
with a military officer who proposes several tactical formations that a
hypothetical enemy might employ and asks Sun Pin how to deal with each. T
is similar to the earlier account of a dialogue with King Hui in that in each ca
Sun Pin advises the same solution to the problem: bring about a situation in
which the enemy regardless of his formation is enticed into a rash attack and
then falls into an ambush. (pp. 144-45)

One of the most interesting sections in the Sun Pin Ping-fa is a treatise on
what is termed "guest and host." The guest is an army of occupation, whereas
the host is the army that is called on to carry out a protracted war of resistance
against occupying force. The host, although weak in military power, is able
through prior arrangements and planning to force the guest to follow his plans
The host has the initiative; the guest can only respond and follow the initiative
the host.[5] The host, because of his innate knowledge of his native geography,
uses this factor to his advantage and is at ease in his own country. The guest
does not have knowledge of the geography and is almost blind and in constant
danger and a state of anxiety. (p. 153)

Skill in the art of war finds its zenith in the Sun Pin Ping-fa when one can
divide and dissolve the enemy forces and thus render numerical, materiel, and

resource superiority evanescent: "a nation although rich is not necessarily secure; a poor nation is not necessarily in danger; although military forces are numerous they are not necessarily victorious; a military force few in numbers is not necessarily defeated." (pp. 153-54) Skill in war, therefore, lies in the ability to cause the enemy to be divided, dispersed, to squander his arms and resources, to be short of supplies at the critical point of battle, and thus rendered ineffective. This theme is repeated from time to time in other sections of the Sun Pin Ping-fa. Skill in the conduct of battle also requires careful investigation and understanding of the terrain features so that it is used to one's advantage: bring about a situation in which the enemy forces are dispersed, scattered, and isolated. "If he has plentiful food supplies cause him to be hungry; if he has secure bases cause them (enemy) to be worried about fleeing for their lives." (p. 159) Sun Pin notes that in battle there are four roads or approaches to take: advance, retreat, movement-left, and movement-right; in addition there are five dispositions for a tactical unit to take: advance, retreat, left, right, and waiting in secrecy and silence for the opportunity to take one of the four roads or approaches. A skillful commander must be secure in taking any of the four roads and five dispositions and cause the enemy to be insecure and in dread of movement. (pp. 157-58)

As in the Sun Tzu *Art of War*, there is considerable attention given to portraying the traits or characteristics of a military commander such as loyalty, bravery, righteousness, trustworthiness, and the confidence and trust of superiors and inferiors: "confidence and trust are the two legs of military affairs." (p. 173) A general is advised to be daring yet cautious and concerned in using the army because it is an "invaluable jewel." (p. 175) The trait or characteristic of wisdom is defined as never slighting or underestimating a minor or weak enemy and never being intimidated by a strong or major enemy. The monarch of a state is admonished never to bypass the military commander and give direct orders to the troops once the commander has been given authoritative power. (p. 180)

During the Warring States period, it appears that the various states had different politico-military postures and policies depending on their geographical and political situation. Sun Pin's list gives five kinds of politico-military postures that a state might embody: (a) powerful, stern, and dignified; (b) proud and arrogant; (c) obstinate, self-reliant, and stubborn; (d) jealous, suspicious, and anxious; and (e) mild, soft, and yielding, yet scrupulously exact in foreign relations. Each of these postures in turn is to be met by an appropriate matching politico-military strategy: in meeting the first posture, one is advised to be bending and flexible in the use of political stratagems, diplomacy, and psychological gambits; in meeting a boastful and arrogant force, one should be respectful but carry out a war of endurance and protraction; in meeting a stubborn or self-reliant enemy, one should entice and tempt him; in meeting a suspicious and anxious enemy, one should aggress his front, flanks, rivers and dikes, and cut off his supplies; in meeting the weak, entice him to start the conflict and then by disturbances terrify and push him unprepared into battle.

This same section of the Sun Pin Ping-fa contains a lengthy treatise

concerning military administration or civil affairs in an occupied territory. An occupying force is advised not to act overly respectful and condescending in its deportment toward the occupied country; the occupier will be treated with contempt, and his administration will be ineffective. Likewise an overbearing and harsh rule will bring about resistance, and the occupation will be subverted Therefore, Sun Pin advocates the pairing together and mutual interdependence of "respectful action and overbearing action." (p. 164)

the Tao of military affairs:
grasping yin and yang

In a section entitled "military defeat," Sun Pin notes again the need to adhere to yin and yang. For example, to "contend with the enemies strength" instead of striking at his weaknesses brings about defeat through the "maltreatment of one's own forces." Furthermore, even if one has knowledge of tactical formations, knows the terrain, and seemingly has the spirit of the people behind him, it is still possible to fall into a trap or difficulty because of ignorance and lack of understanding of the limits of national strategy. (p. 167) National strategy can be defined as the goals or objectives of the politico-military posture of a state. If the national strategy does not complement the actual political reality of a state, there develops what is termed in the modern world a "credibility gap." Disaster and defeat, according to Sun Pin, are imminent when a state has a positive and forward national strategy and there exists within that same state a political situation that will not sustain and support such a strategy. Other aspects that lead to defeat are listed as the failure to take advantage of opportunities, ignorance of one's mistakes and errors, lack of insight into changing circumstances, doubts and anxieties, lack of comprehensive preparations, and politico-military policies that are not in harmony with the psychology and desires of the people.

The ability or inability to understand and grasp these intangible factors is termed the ability or inability to understand the Tao of military affairs. (p. 167) Furthermore, Tao gives a leader what might be termed charisma, insight, or a "sixth sense," so to speak. "To be coveted and fawned upon yet remain self-reliant; to receive favors yet remain respectful; to be weak yet strong; to yield yet remain firm is to have Tao." (p. 167)

The Sun Pin Ping-fa lists some nineteen factors that bring about the "loss of virtue" on the part of the commander and of course are to be avoided: included are such factors as boastful arrogance, jealousy, indecisiveness, recklessness, vindictiveness, and being incompetent yet thinking one is competent. (p. 185) There follows yet another list of some thirty-two factors that cause defeat in battle, some not necessarily reflecting conspicuous bad leadership: disunity, insubordination, troops bitter or weary, constant change in orders, partiality, disorganization of unit formations, and poor treatment of the wounded. In a section entitled "five rules and nine objectives," Sun Pin notes that weapons, training, food, numbers of personnel, and time and space required for

reinforcements to arrive are pivotal on the battlefield; if one is not superior to the enemy in a tactical situation in any of these factors, then battle is to be avoided. The nine objectives refer to the tactical objectives of battle: such as capturing provisions, gaining access to the use of water, the capture of a bridgehead to cross a river, the capture of a line of communications in order to cut off the supplies of an enemy, and the capture of a strategic point such as a frontier pass. (p. 201)

The concluding section of the Sun Pin Ping-fa is a tour de force on the interplay of yin and yang. Reflecting ancient Chinese cosmological principles, the text notes that factors in politics and strategy transform each other and revert to their opposites. Surpluses and shortages mutually interact; a short cut and the long way interact; many and few interact; tranquility and anxiety interact:

> Therefore do not use accumulation or concentration to face accumulation and concentration; do not use your scattered force to face scattered forces; do not use speed to face speed; do not use many to face many; and do not use few to oppose few. (p. 204)

The ideal is to complement and use the yin to face the yang; it should be yin against yang. Sun Pin continues:

> the enemy is concentrated then disperse to oppose; enemy has surplus then use emptiness to meet him; enemy takes short cut then take the long way; enemy moves quickly then move slowly. In all things adapt to him. (p. 205)

This theme is continued when Sun Pin speaks of "orthodox and the unorthodox." This is one of the longest sections in the Sun Pin Ping-fa and refers to the yin and yang of any situation. The Tao of the universe is the unity of opposites or the reversion of opposites; when something arrives at its full or limit, a decrease or wane sets in. This means that within any politico-military situation, as well as in the cosmological order of the universe, opposites are present; within an apparent superior and overwhelming military force, there is an inherent inferiority. "When there is life there is death, as in all myriad things." (p. 207) The text notes that everything that has a form or shape can be classified and given a name; everything that can be given a name can be overcome because it will have its insufficiency or inferiority within its apparent sufficiency and superiority: this is the principle of yin and yang that one is enjoined to adhere to in military affairs. A military force or military situation that has its "yang" of superiority has an inherent "yin" of inferiority; an apparent "yin" or hopeless situation or an apparent "yin" weak military force has its inherent "yang" of superiority. The military sage is to use this cosmological law in order to overcome and defeat the enemy. In warfare every situation or circumstance will have mutual inferiority and superiority; if this is the case, then every situation can be mastered if one is able to detect and understand and recognize the inferiority that is inherent in the apparent superiority of the enemy, or the converse, recognize the superiority that is inherent in one's inferiority. (p. 207) The Tao of military affairs is to understand and grasp the yin and yang that permeates politico-military reality.

Brockport, New York

Notes

1 *Sun Tzu, The Art of War,* translated and edited by Samuel B.
Griffith (New York. Oxford University Press, 1963). I am indebted to
Professor Ho Ping-ti, James Westfall Thompson Professor of History at
the University of Chicago, for introducing me to the newly discovered
text of the Sun Pin Ping-fa while I was attending the National Endow-
ment for the Humanities (NEH) Summer Seminar in Chinese History
at the University of Chicago, 1976. Professor Ho was Seminar Direc-
tor

2. I have studied two editions of the Sun Pin Ping-fa: Hsu P'ei-ken
and Wei Ju-lin, editors, *Sun Pin Ping-fa Chu-shu* (A Commentary of
Sun Pin's *Art of War*) (Taipei: Li Ming Publishing Company, 1976)
and Chan Li-po, editor, *Sun Pin Ping-fa* (Peking: Wen Wu Publishing
Company, 1975). An account of the excavation and a summary of the
Sun Pin Ping-fa, with considerable ideological and political embellish-
ment, can be found in an article by Chan Li-po entitled: "An introduc-
tion to the Fragmentary Bamboo Strips with the Text of the Sun Pin Art

of War." *Selections from People's Republic of China Magazines* (Hong
Kong: U.S. Consulate General, June 17, 1974), pp. 1-14. The Taiwan
edition was used in the preparation of this article because it is written in
regular characters. I am more familiar with this form of script than
with the simplified characters of the Peking edition. The notes and
notations of the two editions appear to be quite similar in content; the
Taiwan edition has a detailed and at times superfluous commentary at
the end of each section of the Sun Pin Ping-fa.

3 Hsu P'ei-ken and Wei Ju-lin, editors, *Sun Pin Ping-fa Chu-shu,* p.
29. Subsequent references to this edition are entered in parentheses
throughout the article.

4 Wei Ju-lin, *Chung-kuo Chun-shih Szu-hsiang shih* (A History of
Chinese Military Thought), (Taipei: National Defense College, 1968).

5. To better understand the subtlety in the Chinese meaning of ini-
tiative, see Scott A. Boorman, *The Protracted Game A Wei-Ch'i In-
terpretation of Maoist Revolutionary Strategy* (New York: Oxford Univer-
sity Press, 1969), pp. 31-32.

THE STRATEGIC DIMENSIONS OF GLOBAL WAR

Dr. Theodore Ropp

NO PROFESSIONAL military college presents the study of history for
fun. From time to time it is useful to "glance . . . at the past" before
asking the present about a future in which to decide about global war. In
a discussion of strategic dimensions of global war today "global" means
"general" and "coalition," just as it did from December 1941 to May 1942,
when the forcibly United Nations finally agreed on their goals, strategic plans,
staffs, commands, and forces. Their past also had been made by past leaders,
followers, and the media, whose records are interpreted by the historians.

The coalition members of 1914 were repeatedly confronted with
technological and military surprise as increasingly desperate demands for men,
supplies, and more and better weapons and fronts grew by accretion. Japan
became a distant coordinate ally. Italy wanted specific spoils, which further
complicated Anglo-French-Russian relations in the Near East. The Americans

entered with high potential, ideals, and zeal, and a combat-ready navy was thrown into convoy operations for which nobody was prepared and with orders to "cooperate." The army won its battle to fight as a separate force in its own sector. After Italy was nearly knocked out at Caporetto in 1917, a Supreme War Council was established but did little planning. A Supreme Allied Commander for France was appointed in April 1918, only after the Germans had almost driven a wedge between the French and British armies. During the "peace process," the Americans sacrificed some ideals for the League of Nations they then rejected. The French traded some territory for new Anglo-American guarantees that went down at the same time. Russia's former allies used armed force to help keep her revolution out of Central Europe. Japan was contained by treaty; China was protected by the United States, Britain, and France. Italy left the alliance, Russia went through new crises, and a militant Germany rearmed itself.

In spite of Anglo-American fears of another European war, the Grand Alliance slowly reformed. There were some specific agreements about strategy and tacit understandings about political goals. The failing League should be reformed. Since territorial losses had only made some nations more aggressive, a real effort would have to be made to make them peace loving by making them more democratic. New weapons should be more carefully assessed, particularly if they promised more mobility. The military lessons of the war, as seen by the British tank expert J. F. C. Fuller, were that "the business of industrialized war demanded . . . (1) political authority; (2) economic self-sufficiency; (3) national discipline; and (4) machine weapons." It also demanded peacetime preparations, which rather accurately reflected the Allies' resources and senses of urgency. An exposed and frightened France bought mechanized trenches, stockpiles, and mobile forces to provide the time to wait for British mobile forces and American supplies. From Italy and Japan, Britain shifted back to Flanders and adopted conscription and a crash air defense program. The Americans turned to planning for weapons production, rationing, transport, propaganda, and other requirements for global war. Their machine weapons were prototypes, except for the submarines, battleships, and carriers required to check Japan. If she could not be checked in China by economic measures short of war, then China became a primary American responsibility.

During the Gathering Storm, a reviving Grand Alliance saw Germany as the most likely primary aggressor and enemy for both geopolitical and military reasons. National and alliance decision-making machinery was better; leaders were more experienced. The Anglo-American debates on conscription, rationing, labor and press controls, finance, and weapons research and development now turned to the problems of scale and efficiency. But defensive coalitions must expect some political, military, and technological surprises. Coping with these, while not abandoning its basic plans, was to test the coalition's planners. In spite of great improvements in mobile weaponry, global shifts would be as time-consuming politically and militarily as Marlborough's shift from the Rhine to the Danube in 1704.

The surprises began with the Nazi-Soviet partition of Poland. East European

allies could now be helped only through the Mediterranean, though Hitler did not play his Balkan card until after the fall of France. Reviving France was complicated by Italy's entrance into the war, by a general who called himself France, and by a legal government which controlled the fleet and colonies. An attack on parts of that fleet, a Free French failure at Dakar, West Africa, and the seizure of Syria did not simplify things. The fall of France did simplify American support, which now had to flow through Britain. Coalition staffing was easier in a largely Anglophone alliance, including a weaker Britain less likely to take public umbrage at American anticolonialism. The Americans adopted conscription, a two-ocean navy, and a hemisphere defense plan. Destroyers were traded for British bases, heavy bomber production shared, naval patrols and air routes extended, Philippine defenses strengthened, and economic pressure put on Japan. Although this pressure encouraged Japan to consider the naval and amphibious attacks that were to set new models for such operations, Hitler's attack on Russia only confirmed the Allies' basic strategy. New surprises at Moscow, Pearl Harbor, in Southeast Asia, the Mediterranean, and the Atlantic opened the most desperate months of the war without, in the end, distorting Allied strategy. Hitler's declaration of war on the United States dampened "Japan first" ideas. And China's increased isolation confirmed the U.S. Navy's bias toward a direct attack on Japan when forces became available.

The Allied plans of April 1942 called for a war of attrition against Germany by blockade, bombardment, subversion, and limited offensives. Japan was to be contained by air and sea power, local ground forces, Chinese manpower, and Russia's Siberian divisions. The Arcadia (Washington) Conference (December 1941-January 1942) called for a return to Europe as early as 1943 and established the Combined Chiefs of Staff. Unified commands were set up for the major areas. The combined chiefs were responsible for the European-Mediterranean-Atlantic area; the British for the Middle East-Indian Ocean; the Americans for the Pacific; China, an even more distant coordinate ally, for China. Another coordinate ally, Russia, agreed to the "more majestic" Joint United Nations Declaration of January 1942, which replaced the Atlantic Charter of August 1941, written when the United States was still neutral. Russia would "preserve human rights and justice . . . as a matter of course." For planning, "It was sufficient," Winston Churchill later wrote, "that we should know their general sweep and timing . . . and that they [the Russians] should know ours."

One revision of the 1942 plan was made that same year. With the Germans striking deeper into Russia and Russia clamoring for a Second Front, the British wanted to seize French North Africa to help their Eighth Army. When the American joint chiefs suggested that they turn to a Japan-first strategy, Roosevelt ordered them to agree to the North African venture, which was launched once it seemed clear that the Russians would hold. It was an excellent coalition decision. It gave the coalition practice in the delicate arts of dealing with a defeated and a coordinate ally, shaking the shakiest enemy, and conducting a combined amphibious and land campaign against a small, trapped German army.

So the Allies surmounted these crises without really disruptive quarrels or laying the blame for coalition disasters. The longest and safest investigation was that of Pearl Harbor, an American interservice affair. Common danger had firmed the Allies' plans and resolve, except on how to rescue a China that could only hoard its own forces.

One of the coalition's major assumptions was that the nationalistic and democratic ideals of the great revolutions were still alive, that technology was expanding military possibilities, and that general wars were still tending to become global, thus increasing the complexities and possibilities of coalition planning. And we know now that the politically crucial points at which the battered defenders coalesced enough to complete a strategic plan, and at which victory came within sight were more clearly separated than in the two other coalition wars with which the participants were familiar; that first period came after the Arcadia Conference, the second after the Yalta Conference of February 1945.

Though the great offensive, as the Americans had warned, had to be put off until 1944, there were still critical decisions to be made. Why was it though that such a plan did not incur new political "debts"?

• With all the great powers now committed, no new promises would be made unless it became necessary between the culminating point of the Axis attack and the culminating point of Allied victory.

• The coalition had not abandoned the principles of mass and concentration.

• In what it expected to be the decisive area, the European-Mediterranean-Atlantic, it retained responsibility for its unpaid military and political debts from the First War, and for those incurred during the defensive phase of the Second. Such debts, perhaps inevitable in a defensive coalition, are best incurred by national, not coalition, leaders. The Polish, Danish, Norwegian, Belgian, French, and Yugoslavian decisions to surrender, flee, scorch the earth, or go underground were all controversial, but they damaged the coalition less than its role in forcing surrender on Czechoslovakia. The hardest decisions for our present, overcommitted Grand Alliance have been those to abandon small or unfit allies; future decisions may involve the use of nuclear weapons. The "safest" decisions during a defensive phase are to pick up bases that may be useful later, e.g., Greenland, Iceland, or some of those cut loose in the Pacific and Indian oceans by strategists who think that technology has made bases useless, can make its own, or conjure up Marines.

• The centers of the resistance to Napoleon were London and Saint Petersburg. Losers, zealots, and turncoats gathered there, while internal opponents waited for liberation by "no-name" soldiers and statesmen. Such centers were more dispersed in 1918. The 1942 centers were London, Moscow, and Washington. London and Washington also carried the hopes of Europeans overseas whose homelands had been liberated in the First War under leaders who had learned much about lobbying from that experience. A war that began in Eastern Europe compounded those overseas political debts, while Stalin

compounded his to his foreign dupes and zealots. Since a true believer finds no bridge too far, these political passions exploded after the achievement of victory. But rocks seized after the tide turns may also incur political debts. French North Africa involved some; the 1943 Italian surrender involved more. The party who would accept anything less than unconditional surrender for Germany would have taken unacceptable political losses. In battling the sanguine Churchill over beaches, the Americans became more right with time and distance, but their regional decisions about the best beaches to Japan did little for China.

• Hindsight notes that most regional decisions turned out well, while, where they did not, the regions had to accept responsibility for blunders. Americans did solve the political, military, interservice, and technological problems of "their" Pacific, once they decided that Pearl Harbor's passions did not justify changes in the European commitment. Churchill was stuck with his Indian empire. His Singapore follies moved Australia into the Pacific, a move aided by Roosevelt's politically dangerous order to his most brilliant general to leave the Philippines for Australia, and by that general's decision to fight for Papua—a decision that forced the U.S. Navy to consider the Coral Sea as one way to Japan. That interservice issue was to be compromised, but China was so bottled up that the resulting political explosion occurred postwar.

• The year 1942 was a good one to settle current interservice and technological issues; nobody had time for long-term settlements. The designated planners did what they were told to do. It was better, Eisenhower later remarked, than worrying about events they could not control. The emerging capabilities of bombers, carriers, and amphibious forces were avidly grasped by planners trained in industrial mobilization. Useful changes were adopted as quickly as possible. Training and commanding the resultant new forces took all the time of reforming theorists who might otherwise have disagreed over whether to bomb Germany into submission or defeat Japan by submarine, surface, or air forces. These interservice quarrels thus were postponed until the postwar era. Central to those rows was a bomb built to meet a technological threat in Europe; it was first used in an American theater where a coordinate ally appeared ahead of time. Saving American lives was the reason for its use. How pent-up passions for revenge, ideology, and racism contributed to that decision is impossible to say. But the Americans, not the coalition, were stuck with the decision.

Many of the coalition's later decisions turned on meeting what Eisenhower later called the European invasion's preconditions:

[1] that our Air Force would be . . . overwhelming; . . . [2] that the German air forces would be virtually swept from the skies and our air bombers could practically isolate the attack area; . . . [3] that the U-boat would be so . . . countered that our convoys could count on . . . a safe Atlantic crossing; [4] that our supporting naval vessels would . . . batter down local defenses and [5] that specialized landing craft could . . . [pour ashore] [6] a great army through an initial breach.

He did not list, though he may have expected decisions from difficult subordinates, the timing of strategic and tactical air operations, the latter's targeting, the timing and targeting of supporting Mediterranean operations,

and, once a lodgment had been made, the timing and targeting of break out by whom and pursuit to where. The lists of decisions for other theaters are just as long. Eisenhower further claimed that:

> Nothing is more difficult in war than to adhere to a single strategic plan. Unforeseen and glittering promise . . . and unexpected difficulty or risk . . . present constant temptation to desert the chosen line of action. . . . Realization of the plan was far removed from its making. . . . But the war in Europe was finally won because . . . —in spite of delay, difficulty, pressure, and profitable preliminary operations in the Mediterranean which themselves offered a temptation to forsake the original concept—the President, General Marshall, and many others never wavered from . . . launching a full-out invasion of Europe across the English Channel at the earliest practicable moment.

History also proves that historians are always right after the fact. And as that great General Omar Bradley has remarked, it is more fun to be right after a war of maneuver with real decisions, battles, heroes and villains, heart and mind shakers than after one of attrition. The Napoleonic and Second World Wars support more second-guessers than the First. What most of the lists of mistakes and lost opportunities suggest is that strategic choice was not much easier in a global war than in a European war between world powers.

ONE of the best lists is still Hanson Baldwin's *Great Mistakes of the War* (1950). It begins with our lack of "peace aims." We had "only the vaguest kind of idea, expressed in the vaguest kind of general principles . . . of the kind of postwar world we wanted." This "Basic Fallacy" led to the others: "Unconditional Surrender, Loss of Eastern Europe, Loss of Central Europe, MacArthur and the Philippines—Origins of Service Jealousies, Appeasement in Asia, The Atomic Bomb—The Penalty of Expediency." But the Basic Fallacy may have reflected the interwar idea that Wilson had been too rigid about national lines in an Eastern Europe which the Allies did not control and in his fight for the League of Nations. Franklin D. Roosevelt's charm and political ego did get his United Nations and about all of the industrial areas of the world which even a technologically dominant United States might have hoped to revive and reeducate. The "illusion," aided by "wartime propaganda," was that our culminating victory was complete and global.

Why was the World War II coalition a success, at least by World War I standards?

- The original plan, based on the military principles of mass and concentration against the coalition's major military and political enemy, was sound.

- Its leaders had a good grasp of geopolitical and military realities.

- There was a better grasp of technological possibilities and of the need for unified staffs and commands—political, economic, and military—than in the First War, partly because of that experience.

- The Western Allies' political goals combined democracy and nationalism with the hope that national and ideological interests could be compromised in a postwar United Nations.

- The goals represented a consensus that had grown out of the American, French, and Industrial Revolutions, one with partisans throughout the world.

- They were lucky. The aggressors were even worse at coalition than at interservice cooperation.

- The coalition carried through its own plans with a mixture of charismatic leadership and political and military tact, which we may lack in our currently overstructured and aging grand alliances.

HOW our alliances will deal with fanatics, after a generation of major, minor, and mininational and social revolutions, is another current question. Time has decreased and complexity increased with the range and power of weapons and communications. No coalition may be able to balance the national interests involved in using nuclear weapons, whether the aggression is indirect and local or direct and total. Both coalitions' leaders have made a show of dispersing the decision-making process, while trying to keep absolute weapons in their own hands. Therefore, rights and responsibilities are no better balanced internationally than in many national polities. Suffice it to say that all historical argument is by analogy, and that there are vast technological, political, and military differences between the coalitions of 1942 and 1980.

Durham, North Carolina

Regarding sources

Major quotations are from J. F. C. Fuller, *Machine Warfare* (London, 1943), p. 35; Dwight D. Eisenhower, *Crusade in Europe* (Garden City, 1948), pp. 46, 48; Roger Parkinson, *Clausewitz: A Biography* (New York, 1970), p. 287; Carl von Clausewitz, *On War*, translated by O. J. M. Jolles (New York, 1943), pp. 513, 563; Hanson W. Baldwin, *Great Mistakes of the War* (London, 1950), p. 3 and Table of Contents.

One of the most somber aspects of the study of history is that it suggests no obvious ways by which mankind could have avoided folly.

Gaddis Smith
American Diplomacy during the Second World War

When we compel the past to speak, we want neither the gibberish of total recall nor the nostalgia of fond memories; we would like the past to speak wisely to our present needs.

Howard Zinn
New Deal Thought
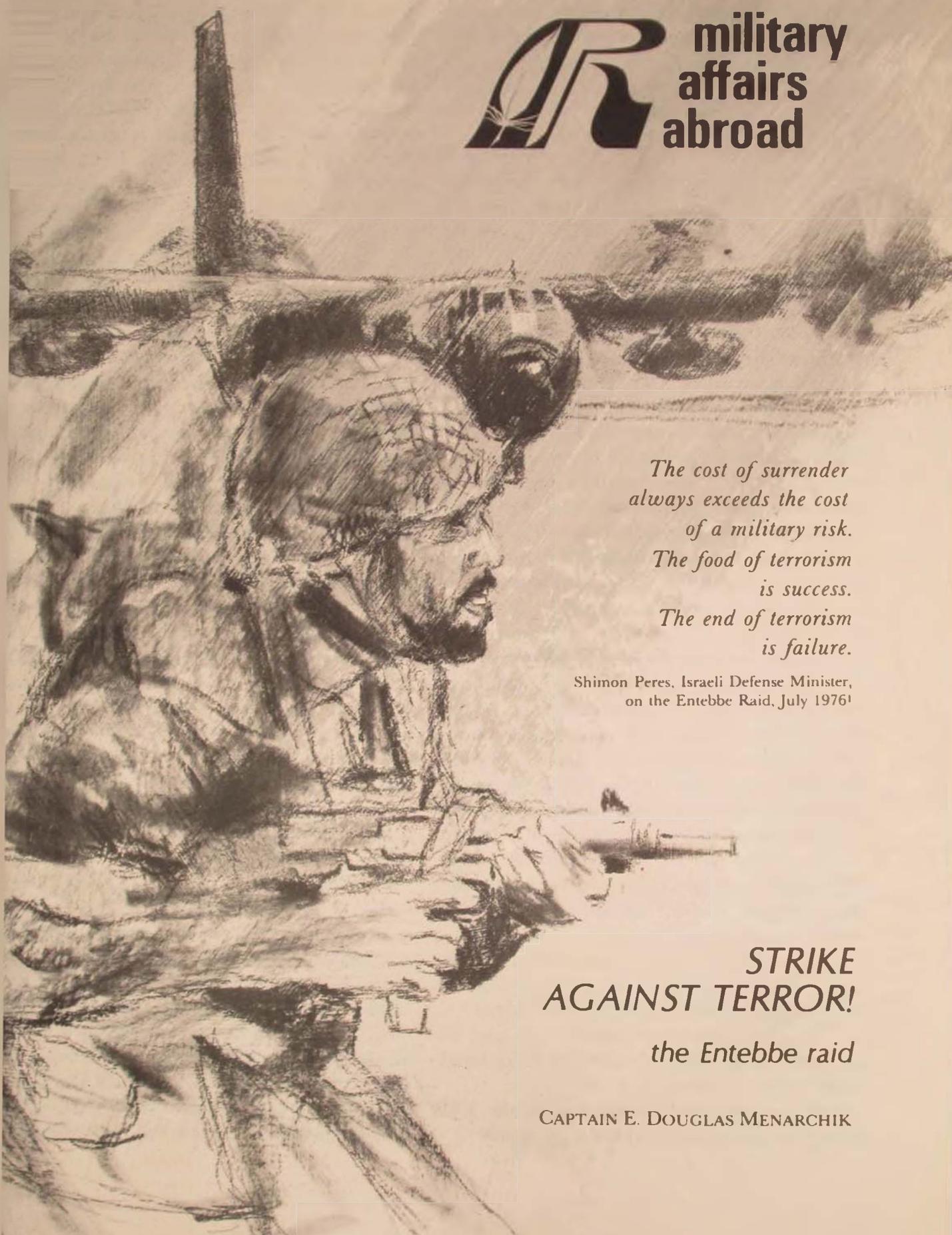
*The cost of surrender
always exceeds the cost
of a military risk.
The food of terrorism
is success.
The end of terrorism
is failure.*

Shimon Peres, Israeli Defense Minister,
on the Entebbe Raid, July 1976[1]

STRIKE
AGAINST TERROR!

the Entebbe raid

CAPTAIN E. DOUGLAS MENARCHIK

Dateline Entebbe: Israeli troops rescue 92 countrymen held by terrorists.

Dateline Mogadisho: West German GSG-9 assault teams release 86 hostages hijacked by terrorists.

Dateline Larnaca: 15 Egyptian commandos killed in abortive rescue attempt to release kidnapped hostages.

IN THE past decade, terrorist attacks have become commonplace headlines in our press. Not so commonplace have been rescue attempts of assault teams dispatched by targeted governments. Indeed, between July 1976 and April 1980, three nation-states of the international community had used military or paramilitary forces to resolve a terrorist-initiated crisis. National decision-makers in Israel, West Germany, and Egypt demonstrated their national resolve by using a limited force in response to a limited terrorist threat.[2] These countries sent counter-terrorist assault teams into foreign countries to rescue victims of hijackings. The assault teams at Entebbe and Mogadisho successfully rescued hijacked victims at minimal loss to themselves and the hostages. The abortive Egyptian assault at Larnaca, however, ended in operational failure: 15 Egyptian commandos died. Israel, West Germany, and Egypt, regional powers with regional interests, have sustained a barrage of terrorist attacks. The United States, a global power with global interests, is even more vulnerable since terrorism is not an impartial political beast of prey.

U.S. military decision-makers and planners, then, must ask some necessary questions: Are U.S. interests threatened by terrorism. If so, is the United States capable of responding with force to a terrorist-initiated crisis?

Air power played a vital role in the Entebbe, Mogadisho, and Larnaca counterter-rorist operations. Accordingly, I will highlight the role of air power in the Entebbe operation and give a general analytical framework from which several specific recommendations are derived for planners structuring a U.S. counterterrorist force's air assets.

Unlimited Potential for Limited Crises

the nature of the terrorism phenomenon

Brian Jenkins has observed that "terrorism has become a new element in international relations," and its use as a new mode of conflict appears to have increased markedly in the past decade.[3] Attempts at defining terrorism have proved difficult because it has no precise, widely accepted definition. This definitional problem derives from the fact that terrorism "has become a fad word which is used promiscuously and is often applied to a variety of acts of violence [including classic forms of crime] which are not strictly terrorism by definition."[4] Indeed, terrorism has become a sensational subject, glamorized in the news media and blown out of proportion to its real impact on Western society. Measured against the world volume of violence, terrorist violence is trivial; but the greatest danger posed by terrorists lies not in the physical damage they do but in the atmosphere of alarm they create.[5]

Terror by criminals, crazies, and crusaders has plagued the established order throughout history. Criminals terrorized for personal gain; crazies terrorized as a result of a mental aberration; while crusaders terrorized for long-range political-ideological goals. This last form, political terrorism, is not mindless, senseless, nor irrational violence but a violent form of graffiti aimed at a world audience and not the immediate victims.[6] It is a theory with specific tactical and strategic objectives.

Terrorism as a political phenomenon

received its major impetus only in the Jacobin era of the French Revolution, but that type of terrorism was "enforcement" terrorism, that is, a psychopolitical technique used to sustain a group already in power.[7] Contemporary "agitational" terrorism is different from the great terror of the French Revolution in that it is a psychopolitical technique of rebellion from below sometimes used as an initial step to gain power. It is a strategy of the weak with a goal to elicit a provocative and repressive response from a targeted regime in the hopes of creating an atmosphere of revolution.

Revolutionaries of the past decade have increasingly relied on the strategy of transnational agitational terrorism to achieve their long-range political-ideological objectives. Transnational agitational terrorism, as used here, is the planned threat or use of extranormal violence for long-term political purposes when the action is intended to influence the attitude and behavior of a target group wider than its immediate victims and with ramifications that transcend national boundaries.[8] The general global malaise of the 1970s provides revolutionaries with the permissive environment and opportunities to use the strategy of transnational agitational terrorism as a vehicle to initiate change.[9] As one author noted, we are indeed living in the time of the jackal.[10] Terrorism has become a global concern. Other nations have been affected but so has the United States.

U.S. interests and transnational terrorism

The general rise in transnational terrorist activity worldwide is a necessary concern for U.S. military leaders responsible for the security of U.S. global interests. Statistically, the number of transnational terrorist incidents has increased throughout the decade from 1968-77, increasing from 111 in 1968 to 279 in 1977. One source shows that of the 2690 transnational terrorist incidents world-wide in the 1968-77 time period, 1148 (42.6 percent) were directed against U.S. targets.[11] Thus, terrorist activity is not evenly distributed against the nation-states, nor is it evenly distributed geographically.

Terrorist activity incidents are distributed geographically as follows: Western Europe 964 (35.8 percent), Latin America 747 (27.8 percent), Middle East/North Africa 431 (16 percent), North America 274 (10.2 percent), Asia 155 (5.8 percent), and other areas with 119 incidents (4.4 percent). The distribution of terrorist attacks against U.S. targets is as follows: Latin America with 455 incidents or 39.6 percent; Western Europe, 298 incidents or 25.9 percent; Middle East/North Africa, 194 incidents or 16.9 percent; Asia, 84 incidents or 7.3 percent; North America, 79 incidents or 6.9 percent; and other areas with 38 incidents or 3.3 percent. Of the 1148 total terrorist attacks on U.S. citizens or property, 602 or 52.4 percent have been against U.S. government/military targets and 546 or 47.6 percent against U.S. business or private interests. U.S. military officials or property account for 167 incidents (14.5 percent).

The categories of terrorist attacks used in our data source are kidnapping, barricade-hostage, letter bombing, incendiary bombing, explosive bombing, armed attack, hijacking, assassination, break-in and/or theft, sniping, and other. We restrict our analysis to kidnapping, barricade-hostage, and hijacking categories since these have a higher reasonable probability of eliciting a U.S. counterterrorist force response. The other categories of attack are of an immediate nature and hence provide little or no time for response. Kidnappings (90 incidents) account for 7.8 percent of terrorist activity against U.S. interests, barricade-hostage (13 incidents) account for 1.1 percent, and hijacking (34 incidents) account for 3.0 percent.(See Figure 1.)

The current trend in terrorists' targeting of U.S. interests tended to decline slightly in the 1975-77 time period from the peak period oc-

	North America	Mideast / North Africa	West Europe	Latin America	Asia	Other	Total
Worldwide kidnapping	2	32	20	117	10	35	216 (8.0%)
U.S. kidnapping	0	19	1	56	1	13	90 (7.8%)
Worldwide barricade-hostage	4	14	20	6	3	2	49 (1.8%)
U.S. barricade-hostage	3	6	1	2	1	0	13 (1.1%)
Worldwide hijacking	5	23	19	21	15	7	90 (3.3%)
U.S. hijacking	5	3	11	5	10	0	34 (3.0%)

Figure 1. Transnational terrorist incidents by category of attack and geographic distribution, 1968-77

curring in the 1970-72 time period. (See Figure 2.) Kidnapping and hijacking, as attack-types against U.S. targets tended to decline in the 1975-77 time period from their peaks in 1970, while barricade-hostage incidents have remained at a relatively consistent level. Figure 3 depicts the geographic distribution of transnational terrorist attacks against U.S. targets by attack-type.

The data reveal several interesting points. First, terrorist targeting of U.S. interests ac-

count for 42.6 percent of the total incidents worldwide in the past 10 years. Thus we conclude that a genuine terrorist threat exists against U.S. interests abroad. Second, of the 1148 terrorist incidents in the past decade, only 137 (11.9 percent) have been of a kidnapping, barricade-hostage, or hijacking attack-type. These three attack-types are most likely to elicit a U.S. counterterrorist force response (5.1 percent, that is, 137 kidnapping, barricade-hostage, or hijacking of the

Figure 2. Distribution of terrorist incidents by year, 1968-77

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	Total
By category of attack											
Kidnapping—worldwide	1	3	32	17	11	37	25	38	30	22	216 (8.0%)
Kidnapping—U.S.	1	2	17	9	2	20	8	20	7	4	90 (7.8%)
Barricade-hostage—worldwide	0	0	5	1	3	8	9	14	4	5	49 (1.8%)
Barricade-hostage—U.S.	0	0	3	0	1	2	2	1	1	3	13 (1.1%)
Hijacking—worldwide	3	11	21	9	14	6	8	4	6	8	90 (3.3%)
Hijacking—U.S.	0	4	12	3	4	0	0	2	5	4	34 (3.0%)
By category of U.S. target											
U.S. diplomatic official / property	12	17	52	51	22	19	12	12	12	21	230 (20%)
Other U.S. government	26	32	57	21	20	10	16	14	2	7	205 (17.9%)
U.S. military official / property	4	2	38	36	11	12	12	9	33	10	167 (14.5%)
U.S. business facilities / executives	6	35	24	40	44	51	86	42	52	33	413 (36%)
U.S. private citizens	3	7	17	5	12	10	13	27	26	13	113 (11.6%)

2690 total worldwide). These aggregate statistics demonstrate a small but standing transnational terrorist threat to U.S. interests abroad likely to require counterterrorist forces to resolve the crisis.
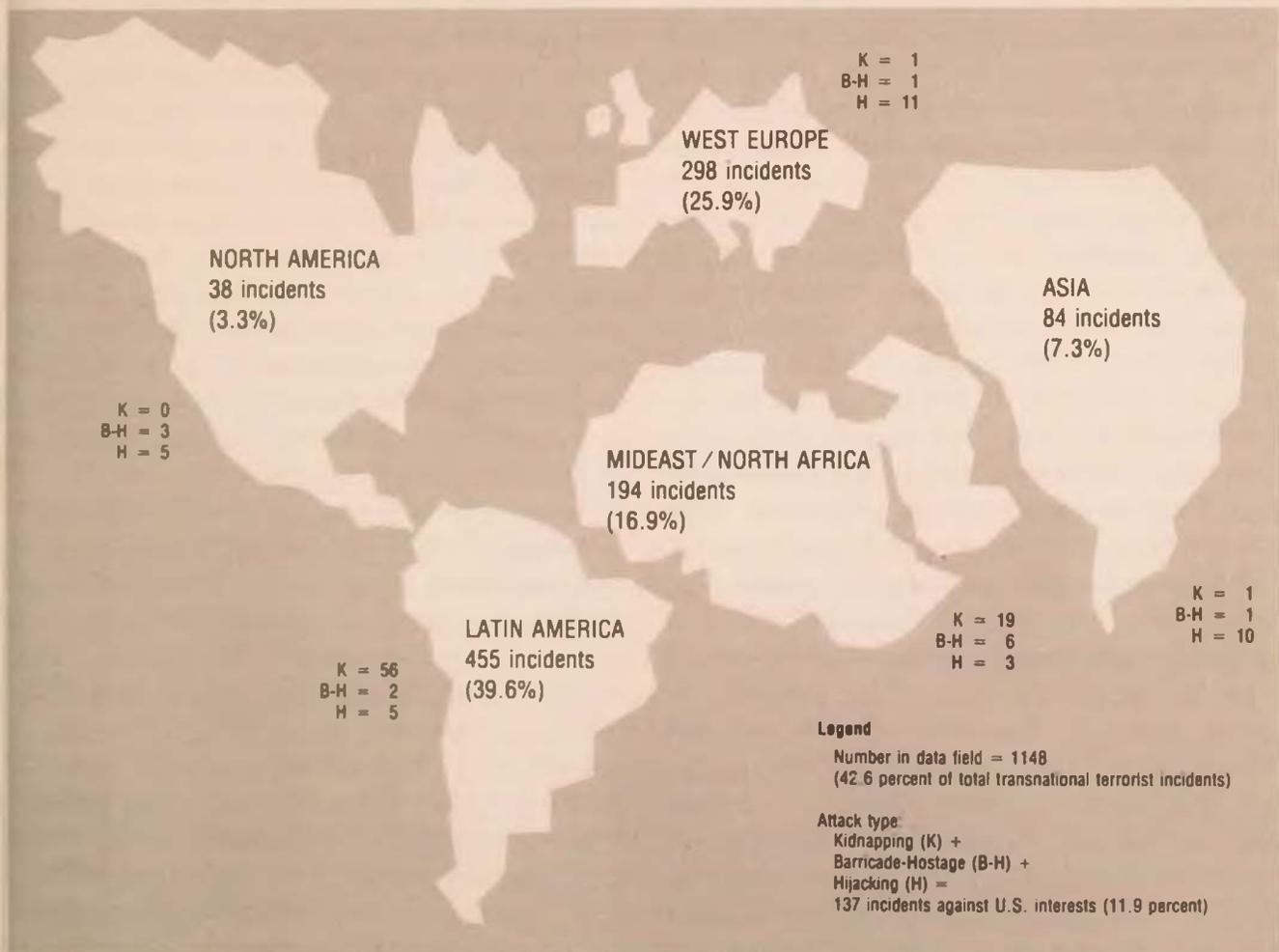
The Entebbe Operation: Factors for Analysis

Several salient factors are germane to the analysis of the Entebbe operation.[12]

• Is a counterterrorist force response feasible or even possible under the time constraint?

• Is deployment time adequate to meet the deadline?

• How did the time factor affect the search for options?

• How did the time factor affect option preparation?

• Did the time factor necessitate "ad hocism," or were rehearsals possible?

• What types of operational environments are possible?

• What implications do the types of operational environments have for the planner?

• How do range and route influence counterterrorist force planners?

Figure 3. Transnational terrorist incidents targeted against U.S. interests, 1968-77

K = 1
B-H = 1
H = 11

WEST EUROPE
298 incidents
(25.9%)

NORTH AMERICA
38 incidents
(3.3%)

ASIA
84 incidents
(7.3%)

K = 0
B-H = 3
H = 5

MIDEAST / NORTH AFRICA
194 incidents
(16.9%)

K = 1
B-H = 1
H = 10

LATIN AMERICA
455 incidents
(39.6%)

K = 56
B-H = 2
H = 5

K = 19
B-H = 6
H = 3

Legend
Number in data field = 1148
(42.6 percent of total transnational terrorist incidents)

Attack type:
Kidnapping (K) +
Barricade-Hostage (B-H) +
Hijacking (H) =
137 incidents against U.S. interests (11.9 percent)

• Were air assets used in a C³ mode; and if so, how were they used?

the time factor

The time factor refers to the duration of the crisis, from its recognition through its termination, and includes an analysis of the effect terrorist deadlines had on planners. The time factor proved critical in the Entebbe counterterrorist raid and affected, if not determined, the nature of the rescue attempt.

The Entebbe crisis began in the early afternoon of 27 June 1976 and ended seven days later, shortly after midnight on 4 July 1976. High-ranking Israeli political officials received notification of the hijacking within 30 minutes. They immediately formed a cabinet-level special crisis-action team to coordinate the response.[13] The terrorist action-cadre established an initial deadline of 1500 hours on 1 July 1976. This first deadline schedule shaped initial Israeli responses in terms of option search and preparation.

From the beginning of the crisis, the Israelis followed an *unstructured* dual-track approach.[14] In the first phase, from crisis initiation to the first terrorist deadline, the cabinet sought the release of the hostages through diplomatic negotiations. In the meantime, military planners, following automatic standard operating procedures, searched for viable military options to meet the deadline. By the end of the third day of continuous military preparation, assault and airlift forces had been identified and a timetable set. Approximately thirty hours prior to the first deadline, the first assault plans, although based on incomplete intelligence, had been prepared for cabinet approval. Israeli political leaders, however, determined that negotiations with the terrorists were the most viable option available at that time. High-ranking military leaders reported that the first rescue plans had low probabilities of success. This political decision set into motion the processes that changed the context and configuration of the crisis. When the terrorists extended their deadline by three days, additional options availed themselves to the Israelis. A new focus and orientation emerged and set the stage for the military option, which culminated in the successful rescue operation.

The second phase of the operation began when the terrorists released the non-Israeli/non-Jewish hostages and set a new deadline of 1500 hours on 4 July 1976. Israeli intelligence units interrogated the released hostages in Paris. This additional information filled previously critical intelligence gaps. A more complete target folder and the three-day time extension allowed Israeli military planners to restructure their forces and prepare new options. They completed a second plan by the fifth day.

As the hijacking drama unfolded, the ministerial team perceived fewer viable political options open to them. With the deadline drawing nearer and fewer negotiable assets available, they approved the revised military option on 3 July 1976. The Israeli assault forces had rehearsed the plan the previous evening and were launched to preempt the second terrorist deadline. Israeli political leaders gave final authority to conduct the assault while the force was airborne, en route to Entebbe.

In the Entebbe crisis, high-ranking political decision-makers and military planners had little or no prior warning. They were all required to make accelerated decisions because of the short time for response. The surprise element in the crisis tended to reduce the alternatives examined by the decision-makers. The perception of a lack of alternatives as the deadlines approached tended to push the force option to the fore. Of greatest importance to the military planners, however, were the terrorist deadline schedules. Deadline schedules determine

deployment time available, thoroughness of planning, search for practical military and nonmilitary options, option preparation, and rehearsals.

Time and feasibility of force response. Deadline schedules limited the planners' scope of search for military and nonmilitary options. Strategic and tactical airlift were essential to comply with the deadlines. Significantly, Israel was unable to resolve her crisis by the end of the first deadline by way of diplomatic negotiations or political bargaining; but, air assets were apparently made available and capable of airlifting assault forces to meet the first deadline constraints. The limiting factor, however, was the lack of adequate search time for options and option preparation for the critical ground assault phases. Planners must stress the need for official negotiators to expand the time dimension as much as possible to ensure proper option search, preparation, implementation, and force employment.

Israeli leaders decided to negotiate rather than employ force to meet the first terrorist deadline. One of the initial military options to meet the 1 July deadline called for the insertion of a small strike force to eliminate the terrorists. Once this force accomplished its mission, they were to surrender to the good offices of the Ugandan authorities. This plan was based on the premise that Ugandan officials were not willfully supporting the terrorists. The three-day time extension enabled the Israelis to analyze updated intelligence from the released hostages (this confirmed in Israeli minds Ugandan complicity), revise plans, and rehearse the mission.

Thus, air support made possible a military option under the time constraints of the first deadlines (approximately three days after crisis initiation); but a military option was not deemed practical or realistic because of perceived needs for expanded decision-making time and ground assault problems.

Time and the search for options. The time factor affected the search for options in the Entebbe raid. Political leaders decided that no viable military option was available to meet the first deadline. The time extension changed the decision-making environment and resulted in a continued search with new options opening up. It resulted in response reorientation, from a nonmilitary crisis resolution to a military crisis resolution.

Time and option preparation. The time factor affected the Entebbe option preparation. The decision to negotiate with the terrorists prior to the first deadline coincided with the terrorists' release of non-Israeli hostages and the generation of new intelligence. Israeli planners and political leaders then determined that a military option was now viable and politically essential. While they kept diplomatic options open, national leaders also unintentionally provided the strategic deception necessary to implement a military option. That Israeli leaders planned options to address contingencies evolving out of mission failure is indicated by the fact that an airborne command post linked the ground forces' commander with Israeli national leaders. In actuality, the airborne communication link served only as an information conduit; had the operation been compromised, national leaders were available to make on-the-spot political decisions.

The time extension in the Entebbe raid enabled the Israelis to rehearse the rescue attempt, including a landing assault. This rehearsal confirmed in the Israeli chief of staff's mind that the plan had a reasonable probability of success. Previously, he had been skeptical of an ad hoc military adventure.

operational environment

A second important factor is the operational environment. The operational environment refers not only to the specific location of the terrorists and the hostages but also to the total

military setting. The type of operational environment into which planners may have to insert their assault forces in a counterterrorist operation is a critical variable with many ramifications. Each type of operational environment levies certain demands on planners who are considering the use of air assets in a force response.

The Israeli planners encountered a hostile operational environment. Israel's ministerial-level crisis-action team established as first priority for the mission the safe release of the hostages. Therefore, not only was force necessary to eliminate the terrorists but also to isolate the surrounding assault area from intervening hostile forces. A hostile operational environment has important implications for the planner.

Israeli intelligence determined that Ugandan authorities were aiding and abetting the terrorists. Accordingly, planners determined that mission success depended on secrecy, strategic deception, and tactical surprise. The continuing dialogue and negotiations with the terrorists provided the strategic deception. Equally important was the necessity of tactical surprise at the Entebbe airport. Tactical surprise entailed the following: an unannounced arrival; high speed off-loading and deployment of ground forces to the target area; hasty elimination of the terrorists and neutralization of Ugandan perimeter guards; isolation of the battle zone to ensure safe enplaning of the rescued hostages; and effective control of a defensive perimeter, including the new runways and new terminal areas, to prevent external Ugandan intervention.[15]

Usually, terrorist action cadres have extremely limited communication capabilities. They seldom carry bulky or sophisticated communication equipment on operations. Because of Ugandan complicity, however, Israeli planners had to ensure total secrecy of the force option, that is, the Ugandan national intelligence system had to remain uninformed of the rescue attempt. Indeed, a suicide-prone action cadre, with warning of an impending rescue attempt, could take drastic actions with disastrous consequences for both the assault forces and hostages. The C-130 Pathfinders landed late in the evening, using a blacked-out, muffled engine approach. Mission success also depended on a quick ground reaction capability of both the assault forces and the assault aircraft. The aircraft were capable of rapid and quick ground maneuverability to position themselves advantageously to facilitate optimal ground force deployment. At Entebbe, the C-130 assault landings and their maneuverability on the ground facilitated quick ground-force deployment for closing with the terrorists. The elapsed time from aircraft touchdown to terrorist elimination was about eight minutes. Proper use of air power was a major contributing factor in achieving tactical surprise at Entebbe.

range and flight path

Range and route factors refer to the distances and specific flight path necessary to transport the assault forces and their equipment from the home station to the operational environment and return.

Range and route of flight are important air power considerations in counterterrorist operations. The Entebbe raid has been described as the "longest-range commando raid in history"—a crisis resolved by force over a 4800-mile roundtrip distance.[16] The mission required a low-level clandestine infiltration and tactical maneuvering on the ground. Range made the operation long distance. These considerations narrowed the Israeli choices of aircraft to the C-130 type aircraft. The Israelis launched their forces from a base in Israel, refueled in the Sinai, thence flew low-level down the Red Sea to avoid Arab radar detection, south across Ethiopia along the mountains which parallel the Sudan-Ethiopia border, over Kenya to

Uganda. The C-130s used civil navigation aids, internal navigation systems, and dead reckoning for the clandestine penetration.

Range constraints necessitated an intermediate stopover in Nairobi, Kenya, for refueling for the return leg. Without Kenya's support, Israel may have been forced to use her C-135 aircraft for the mission, including the tactical phases, thereby denying them short-field/quiet-landing capabilities, quick off-loading, and ground maneuverability.[17]

airlift requirements

Airlift requirements refer to the factors leading to the choice of aircraft types and numbers needed to accomplish the mission and include analysis of logistical needs for transporting the assault force and its support to the operational environment and return, with hostages.

The composition, structure, and size of the air assets for the Entebbe raid were determined by the operational environment, range, ground force mission requirements, forces available, and number of hostages to be rescued. Ground forces numbered more than 200 personnel with associated equipment, including several vehicles. There were 102 hostages to be rescued. The operational environment necessitated a clandestine, long-range, low-level penetration of hostile air space. Tactical considerations for the clandestine operation required a military type aircraft capable of a blacked-out, short-field landing, muffled approach on landing roll, rapid ground maneuverability, and quick off-loading of ground forces.

From the assets available in the air order of battle and the above considerations, Israeli air planners determined that 4 C-130 and 2 C-135 aircraft were required for the Entebbe operation. The first C-130 to land transported the counterterrorist assault team, part of the neutralizing force, the ground command element, and their associated equip-

ment. Its objective was to achieve surprise, free and secure the hostages, secure the runway, and set guide lights for the remaining assault aircraft. The second aircraft landed four minutes later. Its objective was the neutralization of the new control tower for the civilian airport, the security of the assembly area, and the cutting of Ugandan communications. The ground forces on the third aircraft reinforced the perimeter. The fourth aircraft carried refueling equipment and personnel, backup ground forces, and medical support.

One C-135 with El Al Israel Airlines' markings orbited above Entebbe and served as a link between the ground forces with Israel's national decision-makers. A second C-135 was pre-positioned in Nairobi, Kenya, for emergency medical treatment of an expected 85 casualties.

command, control, and communications (C³)

Since World War II, academic studies indicate an increased involvement of high-level policymakers in "lower-level" decisions in crisis situations, where there are perceived threats to significant national interests.[18] Key U.S. policymakers have increased their command, control, and communications, in various crisis situations, to the lowest tactical level. Israeli policymakers, too, were heavily engaged in the minute complexities of the Entebbe operation but structured their role through the command, control, and communications network to act in response to exigencies if the planned mission went awry but not to make tactical decisions if the plan worked.

Israeli air planners used the communications equipment aboard the C-135 as a relay link between the ground force commander and the national leaders, thereby ensuring the highest level political-military interface to manage contingencies but allowing the ground commander to implement the mili-

tary plan. The Israelis did not possess a global communication network and had no other means than a high-altitude relay platform to provide long distance communications.

The Entebbe command and control structure passed from the political-ministerial crisis-action team to the Chief of Staff of the Israeli Defense Forces, Lieutenant General Mordechai Gur. The military structure was a direct line from General Gur to the Task Force Commander, with no intervening agencies. This direct access facilitated military-political interface, increased information flow capacity, and optimized secrecy.[19]

Entebbe: Its Implications

The lessons learned from the Israeli counterterrorist operation and the analysis of the statistical terrorist threat to U.S. global interests provide a beginning framework for U.S. air power planners to structure a counterterrorist response force. The implications derived from this study are numerous. We offer three general prescriptions to establish a proper working orientation for the air power planner.

First, it behooves the air power planner to be intimate with the nature of transnational agitational terrorism, the unique features of low-intensity counterterrorist operations, and the subsequent constraints these place on military option preparation. The expertise and knowledge of such a narrow but important area tend to gravitate in the Special Operations/Special Forces community within the military and in the national and state police counterterrorist forces in the civilian arena. These agencies are, therefore, logically suggested as the proper locus for counterterrorist force option preparation.

Second, early interface with the National Command Authorities (NCA) would be essential for appropriate option preparation and proper force response. Planners must

have continuous access to national decision-makers so that the selected option is appropriate to the evolving terrorist incident. The "packaging" of air assets is predicated on the military planners' understanding of the need to control possible escalation at the lowest levels. His planning must be in harmony with the established political objectives. As illustrated in the Entebbe crisis, the planner may have to plan as if the decision to use force had been made even though the decision to use force is not made until the last minute. Planners must understand NCA objectives, guidelines, and limiting factors.

A desired goal is to create a benign operational environment and thereby improve the probability of operational success (as defined in political, not military, terms). While diplomatic and legalistic negotiations consume valuable time and may lose operational opportunities, they may create the benign operational environment and the essential cooperative support from the hosting government.

Thus, air power planners should emphasize the need to negotiate for maximum time, to call for support of national political leaders to take appropriate public action to support a strategic deception if a clandestine infiltration is required, and to call for a close integration of intelligence, operations, and national political-military decision-making agencies. Further, interface with similarly constituted allied counterterrorist assault forces facilitates transfer of technology, techniques, procedures, etc. Such mutual cooperation is already established among Israeli, West German, British, and Dutch forces.

Third, "ad hocism" in counterterrorist operations is dangerous. An in-being counterterrorist response force with a highly trained cadre, sophisticated equipment, and sufficient contingency plans to span probable terrorist attack modes and situations enhance the probability of operational success. The Israelis had similar plans and were able to

practice the specific operation prior to its execution.[20] It was the flexibility of strategic airlift that made the mission possible. The Israelis had in existence a quick-reaction force. Counterterrorist operations are highly complex and a high-risk at best. Mission failure has numerous adverse ramifications, including loss of life and loss of national prestige. The essential point is that preplanned, prepackaged forces afford greater flexibility to respond in a fluid crisis situation.

Analysis of the Entebbe operation and statistics on transnational agitational terrorism offer several specific prescriptions for U.S. air power planners. The time factor is often predicated on the terrorist demand schedule. Extension of deadlines historically tends to enhance the probability of operational success. Strategic, as well as tactical, airlift on notice and earmarked for quick reaction is essential for possible U.S. antiterrorist operations. Earliest possible notice to designated units is essential.

Designation of certain aircraft for counterterrorist operations is costly and time-consuming, but it is suggested here for the following reasons: (1) earmarked aircraft may have to be specially configured to carry unique equipment used by the assault forces; (2) earmarked aircrews should train and coordinate with the assault forces to include covert movement and infiltration/exfiltration procedures, hostile environment penetration, diversionary tactics, special communication procedures, and special landing and ground maneuvering techniques (for example, rough terrain, assault, night, and blacked-out landings); and (3) several types of aircraft may be required, depending on operational environment and mission requirements. Special equipment (such as sophisticated navigation, electronic countermeasures, radio directional finding, noise and heat suppression, special delivery, and communications gear) may be essential.

U.S. air power planners are faced with the full range of operational environment categories, varying from hostile to benign. Long-range, low-level clandestine infiltration may entail the use of several highly specialized aircraft such as the refuelable MC-130 Combat Talon for a hostile environment. However, the use of high visibility or commonly seen military aircraft such as the C-141 or the C-135 with civil markings tends to have fewer political and diplomatic ramifications, especially in Third World countries where all transnational counterterrorist operations have occurred.[21] Several aircraft of each type may have to be used depending on mission requirements, ranging from a small force insertion of approximately 60 military personnel (as the West German and Egyptian counterterrorist raids in Mogadisho and Larnaca, respectively), a medium-sized force such as the Entebbe force, or a large force approaching 1000 personnel into a hostile area.

JAKOB BURCKHARDT, the nineteenth-century historian of the Renaissance, once noted that "the true use of history is not to make men more clever the next time, but to make them wiser forever."[22] Statistics indicate that U.S. interests will be attacked by transnational terrorists. The question is whether U.S. planners can learn from past terrorist initiated crises and become wiser in applying U.S. forces in counterterroist operations.

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Notes

1 Quoted in *Aviation Week & Space Technology*, August 2, 1976, p. 25

2. The term "limited threat" as used here refers to a perceived threat to a national interest less than national survival, national independence, well-being, but an interest that is significant to a nation-state.

3 Brian M. Jenkins, *International Terrorism: A New Kind of Warfare* (Santa Monica: Rand Corporation, 1974), p. 1

4. Brian M. Jenkins, quoted in David Carlton and Carlo Schaerf, editors, *International Terrorism and World Security* (London: Croom Helm, 1975), pp. 13-14.

5. See Brian M. Jenkins, *Combatting International Terrorism: The Role of Congress* (Santa Monica: Rand Corporation, 1977), p. 5.

6. See Frederick J. Hacker, *Crusaders, Criminals, Crazies: Terror and Terrorism in Our Time* (New York: Bantam Books, Inc., 1976); Jenkins, *International Terrorism: A New Kind of Warfare*, p. 3.

7. See David Fromkin, "The Strategy of Terrorism" in *Foreign Affairs*, July 1975, pp. 683-98.

8. See *International Terrorism in 1977: A Research Paper* (Washington, D.C.: National Foreign Assessment Center, 1978), p. 1 ff. Hereafter referred to as *International Terrorism*.

9. Terrorism literature cites numerous factors leading to the rise of terrorism: an ever increasing number of nation-states which have not been able to stabilize their political, economic, or social institutions; controversial international, national, and subnational issues; means available including mass communication, transportation, small but powerful weapons, the increasing capacities of the terrorist groups coupled with the increasing vulnerabilities of open societies, among others.

10. Frederick Forsyth, *Day of the Jackal* (New York: Bantam Books, 1971).

11. See *International Terrorism*, Brian M. Jenkins and Janera A. Johnson, *International Terrorism: A Chronology, 1968-1974* (Santa Monica: Rand Corporation, 1975); and Brian M. Jenkins and Janera A. Johnson, *International Terrorism: A Chronology, 1974 Supplement* (Santa Monica: Rand Corporation, 1976). Data compiled on terrorism differ markedly from one monitoring agency to another. A major reason for these differences is due to no universally accepted definition of terrorism.

12. The details for the study were compiled from: Y. Ben-Porat et al., *Entebbe Rescue* (New York: Dell Publishing Company, 1977); William Stevenson and Uri Dan, *90 Minutes at Entebbe* (New York: Bantam Books, 1976); *Foreign Broadcasting Information Service* sections on Middle East/North Africa, Western Europe, and Sub-Saharan Africa, from 27 June 1976-4 July 1976, and newspaper, journal, and periodical coverage of the incident. For a general survey of the latter, see Air University Bibliography, *The Entebbe Raid*.

13. The special crisis-action team was composed of Prime Minister Rabin, Defense Minister Peres, Foreign Minister Allon, Minister-without-Portfolio Galili, Justice Minister Zadok, and Transportation Minister Yaakobi.

14. I contend that a structured dual-track approach is not supported by analysis of other sources. Rabin, as Israel's prime minister and responsible for the ultimate decision and its consequences, kept his options open. He initially supported a diplomatic response but shifted to a military response as the crisis unfolded. Rabin seems to have been influenced in his change of position by the evolving circumstances and by Peres, the defense minister, who supported a military response from the outset of the crisis. Which played the predominant role in Rabin's shift in position, evolving circumstances or the pressures of the organizational process, is yet undetermined. Hence, I choose to use the term "unstructured" dual-track approach. The crisis-action team, as a unit, initially followed a diplomatic approach, while the military unit responsible for counterterrorist responses followed their standard operating procedures and, supported by Defense Minister Peres, proceeded with preparations of a military option. The diplomatic option was not a strategic deception for the military option. The Entebbe raid decision was a series of overlapping decisions.

15. See Ben-Porat, p. 254.

16. A remark by Yitzhak Rabin, quoted in Ben-Porat, p. xi.

17. For a discussion of Kenya's role, see *Foreign Broadcasting Information Service*, Sub-Saharan African section, 4-15 July 1976.

18. See, for instance, Glenn Paige, *The Korean Decision*, Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis*, Alexander L. George et al., *The Limits of Coercive Diplomacy: Laos, Cuba, Vietnam*; and Richard G. Head et al., *Crisis Resolution: Presidential Decision-making in the Mayaguez and Korean Confrontations*.

19. The United States used a similar structure for the Son Tay raid into North Vietnam.

20. The Israelis have carried out commando and counterterrorist operations within Israel and in the Arab-Israel zone of conflict, for example, the raids into Beirut, targeting al-Fatah leaders, and the Beirut airport raid.

21. Reference is made to the West German counterterrorist raid into Mogadisho, Somalia, and the Egyptian counterterrorist raid into Larnaca, Cyprus.

22. Quoted in Alexander L. George et al., *The Limits of Coercive Diplomacy: Laos, Cuba, Vietnam* (Boston: Little, Brown, 1971).

Woe to the government, which, relying on half-hearted politics and a shackled military policy, meets a foe who, like the untamed elements, knows no law other than his own power!

· Clausewitz, *On War*

commentary

"Principles of Deterrence"

In the November-December 1979 issue, John M. Collins, Senior Specialist in National Defense at the Library of Congress and author of *Grand Strategy* and *American and Soviet Military Trends*, argued for a cogent and careful development of Principles of Deterrence. The exercise suggested by Collins in reviewing his list of principles was a device to cultivate dialogue without setting concrete postulates. The following are critical responses prompted by the Collins device.

The Editor

Comment by Lieutenant Colonel Michael B. Seaton, USAF

IF deterrence of nuclear war were the dominant national security objective of the United States, as John M. Collins asserted in the opening of his "Principles of Deterrence," then the avoidance of nuclear war for the United States could simply be a matter of surrender when a belligerent state such as the U.S.S.R. credibly threatened nuclear attack. Instead, the dominant national security objective of the United States is preservation of our way of life and freedom of choice of life-styles among other free people of the world.

We must not confuse national security objectives with policies and strategies designed to achieve those objectives, lest pursuit of the policy become the objective. Although it is not yet clear that we can or should codify a body of knowledge called Principles of Deterrence, any such potential codification must have the objective as its first principle. The preventive aim of a national security strategy is not always self-evident, as suggested by Collins in his Principle of Change.

It may be that Collins is attempting to create principles of deterrence out of erudite principles of war which, by their depth and diversity, defy codification. Bernard Brodie points out in his *War and Politics* that:

> Although Clausewitz himself frequently speaks loosely of certain "principles" to be observed and followed—he could hardly do otherwise than seek to establish certain generalizations at least in his analytical works—he specifically rejected the notion that there could be any well-defined

body of particular rules or principles that universally dictated one form of behavior rather than another. . . . Clausewitz would have been appalled at [attempts to encapsulate centuries of experience and volumes of reflection into a few tersely worded and usually numbered principles of war] and not surprised at some of the terrible blunders that have been made in the name of those "principles."[1]

Brodie, Collins, and the views of the Six-Man Group notwithstanding, I do feel a free exchange of views on national security strategy in general and military strategy in particular to be a worthwhile endeavor.

Conflict Cause

Overconcern or, in Collins's words, "constant cognizance of war-causing conditions" may in fact lead political and military leaders away from the manipulable causes of war and particularly the manipulable causes of conflict at the lower end of the conflict spectrum. Herman Kahn's concern, for example, about the "deterrer becoming too strong" thereby inviting preventive or preemptive war seems an improbable proposition in the modern era.[2] A preemptive nuclear strike, showing preference for a "fearful end rather than endless fear," hardly seems an operative construct in an era of mutual assured destruction and rational leadership. Perhaps Hans Morgenthau was but half-right about the necessity for a balance of power due to the absence of a final arbiter with enforcement power. Nuclear proliferation may be evidence that modern states view possession of nuclear weapons as the ultimate guarantor of security. Might we have been wrong about nuclear proliferation? Might proliferation make conflict—any conflict—less likely out of fear of the consequences?

Deterrent Properties

With regard to Collins's properties of deterrence, we would do well to remember that theories do not persuade, dissuade, coerce, or compel.

Whether individual or governmental, the calculations of risks, gains, and losses determine the persuasiveness of ideas. Deterrence is a theory, "a theory of the skillful *nonuse* of military forces."[3] Thomas Schelling in 1963 and Brodie ten years later, among a dozen others, questioned whether the military services were in fact intellectually prepared to exploit the *threat* of force.

Since I take exception to a number of Collins's properties of deterrence, brief descriptions of some of these differences may be useful. First, I do not believe that reward is a viable persuasive element in situations of calculated aggression. In such situations, operative persuasive elements range from fatal punishment (assured destruction) as a deterrent against strategic nuclear attack to denial of goal attainability in the case of conventional aggression. In the absence of hard knowledge about enemy intentions, reward for not doing something is a hit-or-miss proposition. The "appropriate" level of punishment in the event of nuclear aggression might arguably be tied to intentions as well, but I would argue against such linkage. Rewards, therefore, both large and small, should only be used to persuade a priori, it seems to me.

Second, among the Primary Deterrent Properties, I suggest persuasive capabilities which must include military power employable throughout the conflict spectrum. A range of capabilities is required for effective deterrence. Both the muscle and supporting options, strategies, and concepts are required for effective deterrence. We have always been long on military muscle but short on innovative and effective options, strategies, and concepts for deployment/employment of that muscle, which was perceived by U.S. political leaders as relevant to the various crises at hand. Colonel Robert Reed argued in 1975 that, "military strategy [needed to] be brought into a much closer relationship with policies and strategies for use of all other elements of national power."[4] A rapid deployment force is one such concept; many others are needed. For example, we need a near real-time options development system (to supplement the joint operations planning system

within the Joint Chiefs of Staff and the unified and specified commands) capable of tailoring military options in crises to National Command Authorities specifications. Such a capability would provide a giant stride toward Colonel Reed's objective. Another concept might be to put terminally guided conventional warheads on selected intercontinental ballistic boosters. Yet another might be the exploitation of mechanisms for nonlethal interference with enemy military command, control, or diplomatic communications.

Third, a deterrent property missing from Collins's Figure 3, under "intentions," is the intention not only to fight but to *win*. Conventional, non-military, académie wisdom has rejected the notion of winning, and one has to ponder just how far this idea has receded even from the military consciousness. In deterrence, as in war, there is no substitute for victory, and declaring that one's intentions lie in victory will enhance deterrence!

Finally, I would add actions causing détente failure as "Deeds to be deterred." Only in this regime do rewards or the promise of rewards seem viable persuasive constructs. An adaptation of Schelling's compellence may provide an operative framework for the idea that rewards, as positive motivators of behavior, can be continuously applied until the other side acts to break off the reasons or incentives for reward.

But what of the longer term? If former President Lyndon Johnson had taken determined and long-duration action against the Soviets for their invasion of Czechoslovakia 12 years ago, are deterrent principles suddenly now apparent that were not foreseen a decade ago? I don't think so. I think Collins is correct in asserting that none of the principle norms are immutable, for vital national interests are not black and white but various—often indistinguishable—shades of gray. It is the job of the executive branch to illuminate the gradations for the purpose of designing actions to preserve, protect, and defend the vital national interests of the United States. Such illumination is fundamental and must precede policy, strategy, and tactics designed to achieve the objectives. President Carter, in his State of the Union address, illuminated the fact that Afghanistan was peripheral but the Persian Gulf vital to U.S. interests. It should suprise no one, therefore, that Soviet troops will remain in Afghanistan.

On reflection, I have talked little here about principles of deterrence per se but, rather, have focused on deterrent properties and theory. Perhaps this means that the dialogue is the most important thing Collins has sparked. Clausewitz would surely agree.

Strategy is a bit like research and development (R&D), but doesn't R&D begin with a requirement?

Santa Monica, California

Notes

1. Bernard Brodie, *War and Politics* (New York: Macmillan, 1973), p. 446 (Emphasis added.) Also treated in Brodie, *Strategy in the Missile Age* (Princeton, New Jersey: Princeton University Press, 1959), pp. 21-33. To further quote Brodie is illuminating—up to a point:

In short, the catalog of principles [of war] must be recognized for what it is, which is a device intended to circumvent the need for months and years of study of and rumination on a very difficult subject, presented mostly in the form of military and political history and the "lessons" that may be justly derived therefrom. (p. 448)

One begins to wonder, however, about the wisdom of quoting Brodie, for, in the next sentence, he states:

However, it has to be added that in the training of the modern officer such study and rumination are not allowed for, either at the staff college level or the war college. It takes too much time, and it also takes analytical and reflective qualities of mind that are not commonly found either among student officers or among their instructors.

Dr. Brodie surely cannot have so summarily dismissed the possibility that many officers undertake analytical and reflective thinking on their own initiative as a vital part of their professional development. To wit, the "Fire-Counterfire" column of this publication.

2. Herman Kahn, *On Thermonuclear War* (Princeton, New Jersey: Princeton University Press, 1960), p. 157.

3. Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, Massachusetts: Harvard University Press, 1963), p. 9.

4. Colonel Robert H. Reed, USAF, "On Deterrence: A Broadened Perspective," *Air University Review*, May-June 1975, p. 5.

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Comment by
Lieutenant Colonel Richard E. Porter, USAF

WHILE wholeheartedly supporting John Collins's search for a "systematic way to shape schemes for nuclear deterrence," I have strong reservations. It is a decision-maker's individual intellectual framework not a set of principles that permits the formulation of consistent and appropriate actions.

This assertion puts me in the uncomfortable position of discussing the article which I feel Collins should have written rather than the one he wrote. For this, however, I would hold Collins partly to blame. He proceeded to recommend Principles of Deterrence without first establishing their prospective suitability and utility.

Borrowing the Principles of War concept and applying it to deterrence may well have merit, but the reader deserves at least some evidence that such principles have proved useful to those who have planned and executed military strategy. While both the author and editor assume that such is the case, it is not self-evident to me.

In my own reading of military history, I have found little evidence that the Principles of War were ever more than prescriptive slogans, more useful to those who critique action than to those who must take it. When such principles have shown promise, it is because they followed an intellectual framework rather than preceded it.

The Soviets recognize Principles of War in this fashion—as part of a defined strategy and intellectual framework. Accordingly, their principles are assigned priorities and integrated into their overall strategic objectives, for the use of planners and decision-makers.

If the formulation of an intellectual framework must be the first task, how then do we proceed? Do we explore the unknown ground by wandering through it, or do we stand at a single point and sweep the horizon? The literature is filled with possible approaches.

Although Collins's intent was to suggest Principles of Deterrence not methods for structuring a

theory, his article suggested two basic approaches to the problem. In the first, we arbitrarily define which elements belong in theory and then seek the relationships that tie them together. In the second, we focus first on the relationships themselves and use this as a basis for determining which elements should be included and which should not.

Collins's approach to deterrence is open-ended and reflects the first approach. He defines deterrence as "a strategy for peace" and includes in it every type of confrontation—"political, economic, technological, social, paramilitary, and military. . . ." I believe that such an encompassing approach makes it extremely difficult to tie things together. I suggest that Collins's open-ended approach to deterrence may well raise more issues—with or without an acceptable body of principles—than it resolves.

Of the two approaches, the second appears to offer the most promise. We begin with a clearly defined premise and carefully focus on the relationships that tie various elements together, by carefully tracking each idea back to the original premise and testing it before it can become a part of the whole. While the beginning is narrowly defined, the eventual coverage may be extensive.

To demonstrate how the two approaches can lead to very different conclusions, we can arbitrarily select a specific premise and compare its interpretation of a major historical event to that suggested by Collins's approach. It is obvious, for example, that since the Soviets enjoy an overriding superiority in conventional military forces, the United States seeks to counter as a deterrent with its recognized superiority in nuclear weapons. Deterrence theory subsequently progresses from this premise—the United States' seeking political leverage from its strategic advantage counters the Soviets' conventional advantage.

Without developing this construct any further, the Soviet takeover of Afghanistan offers an in-

teresting comparison. If one applies Collins's "strategy for peace" approach, deterrence is still at work in the form of economic and political sanctions promised by the United States and her allies. Such sanctions are nonmilitary forms of punishment designed to dissuade the Soviets from any similar actions in the future. The narrow approach postulated above, however, suggests that deterrence is not necessarily at work. The proposed sanctions do not qualify as deterrence measures. They are not actions that correlate to the use of srategic power to counter conventional power. The Soviet takeover in this case demonstrates a failure of deterrence. After all, the original premise held that U.S. strategic superiority would counter Soviet conventional superiority.

The validity of either interpretation is academic and not central to this discussion. What is important is that both views produce not only very different judgments as to what happened but also end up asking very different questions. Collins's approach asks: How do we make deterrence work better? The other approach asks: Where do we go from here?

If these disparate approaches share common ground, it is in recognition of the fact that power relationships have shifted in the world. If rattling nuclear sabers proved somewhat useful in the past, there is little indication that this will be so in the future. The use of military force to support political goals is becoming increasingly more complex.

Although I do not share Collins's confidence that Principles of Deterrence, in the context of a capital checklist, offers concrete assistance to the decision-maker, I support his assertion that deterrence theory urgently requires a new look—or better yet, a complete reassessment.

While I have strayed far from a narrow critique of Collins's principles, I did so in the interest of expanding the debate. His article, in fact, was the major stimulus for the ideas presented here. In this sense, I am indebted to him. Our differences, however, are fundamental. Until convinced otherwise, I shall hold fast to the conviction that principles are not to be discovered in the world but in the intellectual interpretation of it.

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Comment by
Lieutenant Colonel Phillip D. Gardner, USAF

IS IT feasible to formulate a practical checklist of principles predicated on deterrence theories that could be consulted by U.S. strategists? John M. Collins presents an interesting list of precepts, but he does not offer a means for determining its value as a practical guide to action. How can the principles be substantiated? One possible method is to verify the underlying theories and then show by logic tests that the principles are consistent with them. This approach invariably yields an edifying result: failure. It fails because no one has yet validated the theories. This is an interesting deficiency and worth exploring for what it reveals about the character and limitations of deterrence theories and principles.·

It will be useful to begin the exploration by reviewing writings on principles of deterrence and tying them to a body of theory. The literature on principles consists of the articles by Collins and Colonel (now Brigadier General) Robert H. Reed, USAF.[1] Both authors discuss major deterrence concepts and categories of conflict, refer to principles of war, and offer lists of principles of deterrence. (See Figure 1.)

It is evident that they view their lists as predicated on theories that surfaced during the

1955-65 avalanche of innovative strategic thought by analysts such as Bernard Brodie, Herman Kahn, Thomas Schelling, Glenn Snyder, and Albert Wohlstetter.[2] The primary objectives of these theorists were to evaluate the impact of nuclear weapons on international relations and to develop methodologies for analyzing the manipulation of threat as an instrument to forestall aggression.

1955-65 deterrence theories

This body of theory forms a coherent intellectual framework, which aligns and clarifies relationships among major concepts about the use and role of power in international politics. The theory is elegant in its structural simplicity yet sophisticated enough to accommodate powerful analytical models, games, psychological analyses, and econometric logic. However, the theory has two significant limitations: *extrinsic*, events the theory explicitly excludes and *intrinsic* to the logical construct of the theory.

The extrinsic—what the theory knows it doesn't know. Accidents, miscalculations, and irrational acts are considered outside the explanatory bounds of the theory. This creates two categories of problems: (1) validity, is the event intentional and therefore explained by the theory? and (2) definition, what constitutes a miscalculation, and what is irrational? Problems in the first category revolve around the question of deciding whether the event is actual or a ploy to gain an advantage. (Was the accidental missile launch really an accident?) Problems in the second category arise from information inequalities and interpretive differences. Even if adversaries could share perfect information and thus reduce the potential for miscalculations, cultural differences in logic structures can still cause them to arrive at different conclusions. As U.S. Ambassador to Japan, Joseph C. Grew commented when assessing the possibility of an attack on Pearl Harbor, "National sanity would dictate against such an event, but Japanese sanity cannot be measured by our own standards of logic."[3]

In short, the universe of events outside the theory's explanatory boundaries is large and significant. Apparently deterrence theory and rules of English spelling are distinctive in having more exceptions than applications.

The intrinsic—what the theory thinks it explains. Deterrence theory explains rational actor gain-loss calculations on the manipulation of threat, but it explores the subject within a very narrow construct. The theory's applicability is constrained by its heavy deductive content. Since initial premises and fundamental assumptions cannot be verified by deductive logic within the confines of the theory, one cannot know or prove why deterrence succeeds. This does not mean that the theory is invalid; it simply says that, in its present state, much of it is unverifiable. This is a partial explanation of why, as Collins observes, the deterrent theory has lain fallow since the publication of seminal studies.

Figure 1. Principles of deterrence

Reed	Collins
Credibility of means	Preparedness
Credibility of will	Nonprovocation
Clarity of intent	Prudence (consider need for defenses)
Controllability	Publicity
Flexibility	Credibility
Negotiation	Uncertainty (technique to use when credibility is low)
Unity of effort	Paradox (may have to fight for peace)
Economy of effort	Independence (from allies and competitor cooperation)
Interdependency (alliances)	Change Flexibility

What is the rest of the explanation? In large part, the theory never satisfactorily resolved the question that inspired the 1955-65 studies, finding a meaningful way to relate nuclear weapons to political objectives.

What is the purpose of nuclear weapons?

One major postulate of nuclear deterrence theory is that there can be no meaningful outcome of a nuclear war:

> Because of the destruction wrought by nuclear weapons, war can no longer be considered, as in the famous dictum of Clausewitz, to be the continuation of policy by other means. Nuclear weapons have made nuclear war absurd.[4]

The formula that nuclear war cannot have a victor has two major effects on the body of deterrence theory: (1) it divorces deterrence from warfighting; and (2) it elevates deterrence from a strategy (means) to an objective (end). The first effect is evident in Collins's definition that "Deterrence is a strategy for peace, not war." If this is true, the strategy vanishes just at the moment when guidance is most needed. Obviously, deterrence can and should play an intrawar role in the form of escalation control. There is a need for a body of concepts to describe that role and further to specify the transfer of deterrence value down the hierarchy of conflict from one level to the next. Reed recognizes this need to transfer from passive to active deterrence in a discussion of the relationship of traditional principles of deterrence to principles of war. The second effect, elevating deterrence to an objective, erects a conceptual shield between the task of deterrence and the purpose of deterrence. There is need for a theoretical construct that bridges the gap between deterrence and defense and does so in a fashion that correlates the short-term military balance with the more fundamental political and economic consideration of relations among nations.[*]

One final requirement for the necessary new concepts: they should be verifiable. And there is a growing body of work that attempts to do this.

empirical verifiers

In a recent review of trends in deterrence theories, Robert Jervis identifies three waves of U.S. theorists.[5] The first wave appeared immediately after World War II and served as basis for the 1955-65 second wave. Deterrence writings of the third wave are primarily empirical studies. The major contributors to date are Alexander George, Patrick Morgan, and Richard Smoke.[6] The primary tool of the third-wave theorist is the case study, although other methods of analysis are also being used. Since the third wave is in part a riptide from the second, nearly as much emphasis is placed on delineating the limitations of deterrence concepts as on specifying their use. The third wave is discovering some interesting attributes of deterrence practices and has the potential to develop into a meaningful, coherent body of studies. Empirical verification is a tedious process, so it is unlikely that findings will be published at the rate that concepts were generated by the second-wave analysts.

IN THE meantime, what are the principles of deterrence, and how are they to be used? The principles that Reed and Collins agree on are prescriptive rather than descriptive, which arouses a suspicion that they are more deeply rooted in experience than in predictive theory. This condition accords with the approach used by Clausewitz, who based his general theory of war on experience and the study of history. In this regard, Clausewitz's view of the role of principles and theory is instructive.

Clausewitz held that theory serves to guide one's attention to relevant history. Theory illumi-

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[*] For an innovative and significant work that addresses these needs and advances a comprehensive rationale to relate nuclear weapons and U.S. national objectives, see Carl H. Builder, *A Conceptual Framework for a National Strategy on Nuclear Weapons* (Rand Corporation, R-2598-AF, forthcoming.)

nates reality and increases understanding but will not suffice as a guide to specific future actions.

> If principles and rules develop from the observation that theory institutes, if the truth crystallizes into these forms, then theory will not oppose this natural law of the mind. It will rather, if the arch ends in such a keystone, bring it out more prominently, but it does so only to satisfy the philosophical law of thought. . . . For even these principles and rules serve more to determine in the reflective mind the general outlines of its accustomed movements than as signposts pointing the way to execution.[7]

In some instances individual principles apply but not in others. To select the appropriate action for a specific situation, one must accurately perceive reality and understand the entire intellectual construct from which the relevant principles were derived. Clausewitz calls this ability genius, and Rear Admiral Henry E. Eccles labels it an "intuitive grasp of the whole."[8] A strategist who has attained this level of intuitive understanding does not operate from a checklist of principles; and one who has not attained this level will not gain much from a checklist, for the list itself does not answer the question of which principles and when to apply. A strategist who relies on precepts to guide action risks allowing theory to dominate reality and distort perceptions of events. This is why Clausewitz warns that theory can be used to educate the mind but should not accompany the military commander "to the battlefield."[9]

SUCCESS in any human activity embodies certain principles. Reed and Collins offer several principles of deterrence distilled from the authors' experience, observation, and contemplation. Principles predicated on present deterrence theory are questionable, for it has yet to be shown that fundamental elements of the theory can be empirically verified. And even principles that are found to be valid should be used as aids to study and understanding rather than as practical checklists for action.

Santa Monica, California

Notes

1. Robert H. Reed, "On Deterrence: A Broadened Perspective," *Air University Review*, May-June 1975, pp. 2-17. At that time Reed was a member of the USAF Six Man Group of colonels (Reed, Stuart W. Bowen, Robert W. Kennedy, William H. L. Mullins, John L. Piotrowski, and Leonard J. Siegert) who collaborated at Air University on studies for the Air Force Chief of Staff.

2. Major works by these analysts during the mid-1950s to mid-1960s include the following: Brodie, *Strategy in the Missile Age* (Princeton University Press, 1959); Kahn, *On Thermonuclear War* (Princeton University Press, 1960), *Thinking About the Unthinkable* (Horizon Press, 1962), and *On Escalation: Metaphors and Scenarios* (Praeger, 1965); Schelling, *The Strategy of Conflict* (Harvard University Press, 1960), with Morton H. Halperin, *Strategy and Arms Control* (Twentieth Century Fund, 1961), and *Arms and Influence* (Yale University Press, 1966); Snyder, *Deterrence and Defense: Toward a Theory of National Security* (Princeton University Press, 1961); and Wohlstetter, "The Delicate Balance of Terror," *Foreign Affairs*, January 1959, pp. 211-34.

3. Quoted in Roberta Wohlstetter's *Pearl Harbor: Warning and Decision* (Stanford University Press, 1962), p. 354.

4. Y. Harkabi, *Nuclear War and Nuclear Peace* (Jerusalem: Israel Program for Scientific Translations, 1966), p. 4.

5. Robert Jervis, "Deterrence Theory Revisited," *World Politics*, January 1979, pp. 289-324.

6. Major third-wave works include Alexander George and Richard Smoke, *Deterrence in American Foreign Policy: Theory and Practice* (Columbia University Press, 1974); Patrick Morgan, *Deterrence: A Conceptual Analysis* (Sage, 1977); and Smoke, *War: Controlling Escalation* (Harvard University Press, 1977). For some interesting approaches to the task of testing deterrence theories, read Raoul Naroll, Vern L. Bullough, and Frada Naroll, *Military Deterrence in History: A Pilot Cross-Historical Survey* (State University of New York Press, 1974); Bruce Russett, "The Calculus of Deterrence," *Journal of Conflict Resolution*, June 1963, pp. 97-109; and Clinton F. Fink, "More Calculations about Deterrence," *Journal of Conflict Resolution*, March 1965, pp. 54-65. See also Colin S. Gray, "Across the Nuclear Divide—Strategic Studies, Past and Present," *International Security*, Summer 1977, pp. 24-46.

7. Clausewitz, *War, Politics, and Power*, translated and edited by Edward M. Collins, Colonel, USAF (Regnery, 1962), p. 158. The same passage in a different translation is found in Clausewitz, *On War*, translated and edited by Michael Howard and Peter Paret (Princeton University Press, 1976), p. 141.
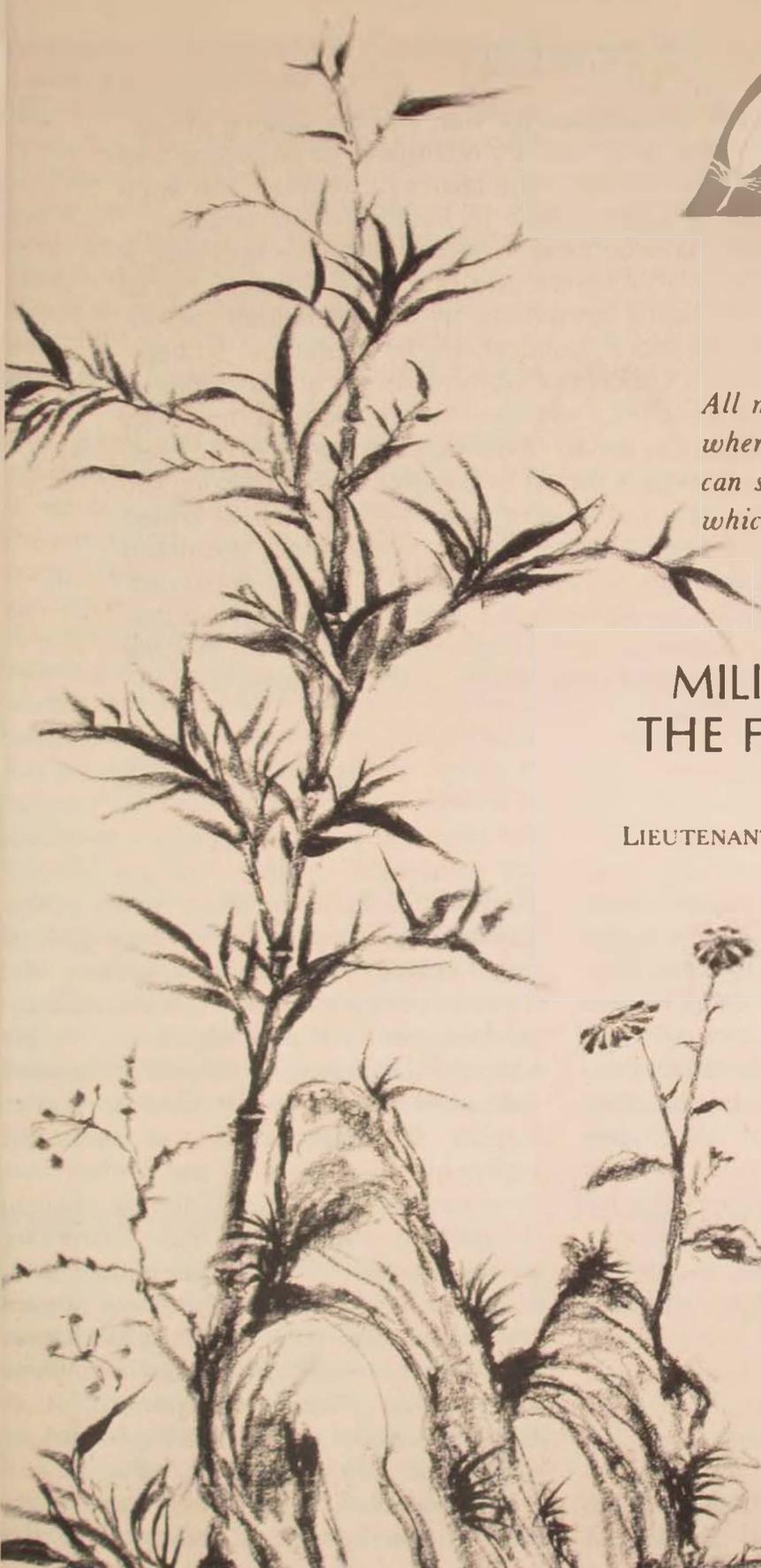
8. Eccles, "Strategy—The Theory and Application," *Naval War College Review*, May-June 1979, p. 19.

9. Howard and Paret, *On War*, p. 141.

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*All men can see these tactics
whereby I conquer, but what none
can see is the strategy out of
which victory is evolved.*

Sun Tzu, *The Art of War*
500 B.C.

MILITARY STRATEGY,
THE FORGOTTEN ART

LIEUTENANT COLONEL WILLIAM T. RUDD

Strategy

Strategy deals with war, preparation for war, and the waging of war. Narrowly defined, it is the art of military command, of projecting and directing a campaign. It is different from tactics . . . in much the same way that an orchestra is different from its individual instruments . . . But as war and society have become more complicated—and war, it must be remembered, is an inherent part of society—strategy has of necessity required increasing consideration of nonmilitary factors, economic, psychological, moral, political, and technological. Strategy, therefore, is not merely a concept of wartime, but is an inherent element of state craft at all times. Only the most restricted terminology would now define strategy as the art of military command. In the present-day world, then, strategy is the art of controlling and utilizing the resources of a nation—or a coalition of nations—including its armed forces, to the end that its vital interests shall be effectively promoted and secured against enemies, actual, potential, or merely presumed. The highest type of strategy—sometimes called grand strategy—is that which so integrates the policies and armaments of the nation that the resort to war is either rendered unnecessary or is undertaken with the maximum chance of victory.

Edward Mead Earle
Makers of Modern Strategy

AFTER five years of growing concern for our military capabilities and posture, I was prompted to put some of my thoughts on paper.

In my opinion, the most serious problem facing our country and the military is the absence of a clear, consistent, and coherent national (grand) strategy and a concomitant statement and application of long-range strategic objectives. This I see as the primary cause for the decline of U.S. power and influence abroad in recent years. Furthermore, I view the absence of a system to develop gifted military strategists as a factor contributing to the problem.

absence of a U.S.
national (grand) strategy

In 1977, former Defense Intelligence Agency director, Lieutenant General Daniel O. Graham, U.S. Army (Ret), stated: "There has been no formulation of basic U.S. national strategy since the waning years of the Truman administration when the strategy of containment was promulgated. . . . "[1] Now with the University of Miami's Center for Advanced International Studies, Graham implies that thirty years of status quo retrenchment policies by the United States have enabled the Soviet Union to challenge the position of the United States as the single most powerful military nation in the world, a fact that he indicates increasingly portends grave consequences for U.S. vital national and international interests. Graham further asserts that "successful pursuit of the Kremlin's global goals lies in the formulation of a superior Soviet strategy." But, he adds, "The success of Soviet strategy has not been due so much to the brilliance of their

strategists as to an eclipse of strategic thinking *per se* in the United States."[2]

In essence, grand and national military strategy are a continuum. By providing clear and coherent political aims and a plan to achieve them, grand strategy serves as an overarching framework for national military strategy. Within this framework, national military strategy shapes and coordinates its plans and resources into an element of national power capable of achieving the stated aims. Since there is no clear boundary between grand and national military strategy, each should be consistent with and reinforce the other. Without the framework of a coherent grand strategy, however, military strategy either becomes self-serving or is forgotten.

Unfortunately, it appears to me that our growing preoccupation with resource allocation has been at the expense of military strategy and has had a profound and perverse effect on the military services. The impact of this trend has been evidenced by a decline in military advice as program management has gradually replaced military strategy as the primary military responsibility. This trend, plus organizational deficiencies and institutional neglect within the U.S. military, has caused national military strategy to become a forgotten art as the services and the Joint Chiefs of Staff (JCS) recast their focus and efforts on subsidiary issues of hardware, cost-effectiveness, and service doctrine.[3]

the problem gets attention

In the intervening years since General Graham so cogently identified the absence of grand strategy as the major national security problem in the United States, pressure has begun to mount for solutions. In late 1978, Senator Gary Hart recommended establishment of a grand strategy for the United States, one reflecting our international interests. Like other proponents, he cited the expansion of Soviet political, economic, and military presence in Sub-Sahara Africa and southwestern Asia and the simultaneous decline of U.S. military and financial capabilities as the stimulus for his actions.[4]

Senator Hart's concern is reinforced by Stanley Hoffmann, Harvard Center for International Studies professor and former member of the Council on Foreign Relations. Carnegie Prize-winner Hoffmann sees the inconsistency and incoherence of U.S. foreign policy as destabilizing. He states that

in the absence of a strategy which tries to channel conflicting forces and to prevent the contradictions between policies that aim at equally valid goals from breeding chaos, the conduct of foreign policy risks becoming a succession of ad hoc moves, with frequent changes of course or warring implications.[5]

Implicit here is the lack of continuity in grand strategy that occurs with a change of administration and the failure of the United States to sustain long-range strategic objectives. Hoffman sees the problem clearly. It stems from an absence of coherence in grand strategy and a lack of consensus for that strategy. He hit home when he stated: "For drift to end, . . . a final condition is needed: not a grand design of dubious value, or a mere collection of lofty goals, but a strategic rationale that brings the fragments together."[6]

the need for institutional change

Hoffmann did not go far enough, however. What he might have added, but did not, is that perhaps our grand strategy should be elevated above partisan politics. A coherent national strategy, founded on logic and a realistic appraisal of the world environment, should have long-range strategic objectives that sustain U.S. national interests. Properly formulated, this grand strategy should elicit

consensus from the left and the right, liberal and conservative, Republican and Democrat, alike. It should be possible for differences to exist over means to attain these objectives while maintaining the coherence of the strategy intact. But for this idea to work, for national grand strategy to be elevated above special interests, several changes in the existing national security structure are required.

The foremost change needed is the establishment of a national strategic analysis and planning system that is insulated from partisanship and agency parochialism. This system should be designed to provide long-range strategic continuity, regardless of the political party or administration in power. Its purpose should be to perform continual political, military, and economic analysis and strategy formulation. This system, staffed with the best and brightest minds in political, military, and economic operations strategy, should report to the executive branch and have permanent representatives from the Department of State, the National Security Council, the Council of Economic Advisers, and the military services.[7] Its primary duties should be to formulate global and regional grand strategy, long-range strategic objectives, and to evaluate the costs and benefits of strategy alternatives. Finally, one of its most important tasks would be to assess and measure continually the conformance or appropriateness of fit of strategic objectives and commitments with the political, military, and economic organizations, forces, and capabilities postured to attain those objectives or honor those commitments.

Second, I believe the Department of Defense needs a workable system that elevates national military strategy and strategic planning to a preeminent position in national security affairs. This system should integrate *unified* and *combined* military strategy formulation and planning with the national strategic analysis and planning system, provide continuity in the development of long-

range strategic objectives, and produce the caliber of military officer capable of developing combined-arms military strategy. The system should be insulated from service parochialism by placing it directly under the Secretary of Defense. Military officers selected for this system might become permanent members of a "sixth service," the Joint Strategic Planning Service (JSPS). Selection criteria for this elite service should require staff duty on unified and combined commands to qualify for the DOD and national strategic planning staffs. Membership in this service might be a prerequisite for command of unified and combined commands and for Chairman of the Joint Chiefs of Staff. The JSPS member's specialty would be joint and combined strategy, planning, and employment. If these changes were effected, the product should be a more rational, coherent, and integrated grand strategy supported by mutually reinforcing political, economic, and military strategies.

This subject is timely because the mood for change is right. The coming years will see a great ferment on national security and foreign policy issues. U.S. military professionals must find a way to contribute sound military advice to this process, advice grounded in considerations of strategy. Nothing is more powerful than the idea whose time has come. The services should not let this opportunity be lost.

Military Strategy

The U.S. military should meet the challenge squarely and initiate those changes that will provide lasting benefits to the nation and its people. However, to reestablish military strategy permanently to its rightful place in U.S. military affairs requires the military to *recognize* and *alleviate* those conditions and institutional deficiencies that caused U.S. military strategy to become the forgotten art. The root cause for this decline of strategic

thought can be traced to at least four institutional failures by the U.S. military.

institutional military failures

As a group, we in the military have failed to fulfill part of our primary responsibility to the American people and the nation. This has been a subtle, unconscious failure rather than a conscious, overt commission or omission; but a failing, nevertheless. In brief, the military's prime responsibility is to be ever prepared to protect, defend, and further the vital national interests of the United States, under all circumstances. This presumes the existence of a logical, rational, and coherent unified military strategy to achieve strategic objectives with a force structure and capabilities postured within the framework of that strategy. Continuation of organizational deficiencies within the services and the JCS make the formulation of coherent unified military strategy almost an impossibility. Until a truly unified national military strategic planning staff is created, the problem will persist. The present organizational structure cannot work because of the absence of an integrated and unified military appraisal of policy objectives in either the services or the JCS. Further, change historically has been resisted within the services for fear of losing roles, missions, and funding, though there have been noteworthy examples of cooperation such as TAC/TRADOC and joint logistics efforts. Finally, our military organizational structure tends to force the separate services to attempt to solve each new problem or counter each new threat within the framework of single service resources and capabilities.

Without coherent national military strategy for a framework, the military cannot help failing to develop optimum force posture and capabilities. In the past, national security policy such as Mutual Assured Destruction (MAD) and essential equivalence appear to me to have been founded on superficial concepts without combat validity. Similarly, military doctrine, concepts, and force structure founded on concepts such as quality versus quantity, high-low mix, and force multipliers appear to me overly simplistic. If my perception is correct, the missing element is a coherent strategy which glues the pieces together and gives the whole—doctrine, concepts, and force structure—an irrefutable logic. Small wonder that, on analysis, nuclear and conventional forces are not designed and planned to cooperate in a continuum of war or that military communications, facilities, and equipments have not been designed to withstand attack. These failings and more devolve from the absence of military strategy and our failure to solve our own organizational and institutional problems.

Without the coordination that comes from developing and integrating grand strategy and military strategy, there has evolved a gap or misfit between national security objectives and military capabilities to attain them. Vietnam is, of course, the most classic example where policy called for civic action and training whereas military capabilities mainly provided conventional war roles and missions. In my view, we have failed most notably in communicating to the civilian leadership the gap which many times exists between commitment and capability. If that is not the case, we have at least failed to convince the civilian leadership that we recognize the need to close the gap between capability and commitment with changes in our organization, force structure, and capability. The Mideast has provided the most recent examples of this problem.

The second major institutional failure of the military has been our lack of comprehension of the true value of grand and military strategy to the success of politico-military endeavors. The father of Soviet military strategy, Mikhail V. Frunze, (as reported by

D. F. White) put it best at the Eleventh Congress of the Soviets of Workers, Peasants, Cossacks, and Red Army representatives in Moscow in 1922:

". . . the principal condition for the formulation of an adequate military [strategy] was its strict coordination with the general aims of the state and the material and spiritual resources at its disposal. He admitted that it was impossible to invent such a [strategy]"; its elements already existed, and the work of military theorists was to appraise these elements and to bring them together into a coherent system in accordance with "the basic teachings of military science and the requirements of military art."[8]

The value, then, of coherent military strategy formulation is the evolution of the single best campaign scheme based on all factors involved. This scheme, though subject to changes and modifications as factors change, produces the highest likelihood of success and also suggests required priorities for forces and capabilities. Since it has coherence, all necessary supporting actions are more clearly illuminated. I do not think we in the U.S. military have understood this concept as well as we should. In addition, pressures from DOD for cost-effectiveness and systems analysis techniques led the military into an era wherein the focus, controls, and incentives were placed on the peacetime administrative matters of resource allocation and program management. Accordingly, service concentration shifted from strategic imperatives and attendant implications to subsidiary analysis on tactical details and technology improvements. Weapons became ends in themselves; nuclear weapons and strategic bombardment became substitutes for reasoned strategy. In the end, the problem also became our own failure to be honest with ourselves; a failure of our convictions that without strategy the choice of weapons is

superfluous, and the failure to modify our institutions and organizations to regain a capability to formulate that strategic framework on which all else rests.

The third major institutional military failure is an outgrowth of the first two. Since we have failed to accord military strategy its premier position in military affairs, it is understandable that no champions for organizational or institutional change have appeared in the active military. Numerous presidential commissions in recent years have cited the lack of organizations for unified and integrated strategic analysis and planning.[9] Several retired general officers, in private conversation, made similar statements of varying degree. For whatever reason, it is my perception that the U.S. military has a long history of inattention to strategy and its consequences.

In my view, these consequences include:

• the inability of the JCS to formulate integrated, unified military strategy;

• the absence of organizations in the military or DOD exclusively dedicated to national military strategic analysis, formulation, and planning;

• the absence of representatives for commanders in chief (CINCs) of unified commands in the force structure and budget process at the national level;

• the absence of a national military commander and staff to direct and provide guidance to the CINCs;

• the failure of military commanders to view strategy development and planning as a military staff function.

All these failures inhibit the implementation of coherent national military strategy.[10]

Last, and perhaps most damaging, has been our failure to create an "institution of excellence," to use Colonel T. N. Dupuy's words. In analyzing why Germany produced combat superiority in battle during two wars,

Dupuy concluded that it was because Germany consistently created more effective military institutions than any other country. Specifically, he found that the German General Staff became, in fact, an institution of excellence in the German military. The General Staff organization is unacceptable to the United States, but perhaps a study of its methods of developing excellence could be of benefit. Essentially, they stressed ten processes in their goal of excellence; the first six applying here. These were rigid selection, examinations for advancement, specialized training, and emphasis on historical analysis, initiative, and responsibility.[11] The point to be made is that they *had* a system; the system was demanding; it was founded on education, historical study and analysis, and specialized training; and it was used to groom their strategists, staff members, and, consequently, their combat commanders. This has been our most significant failure—the failure to develop a system to identify, select, educate, train, and use officers specially skilled in the art of war. Officers who are products of this type of system are urgently needed as military strategists, combat staff members, and, most important, as combat commanders. The problem has been one of failing to recognize the unique educational and analytical needs required to produce these superior military strategists, staffers, and commanders. Critical to their development, as Dupuy points out, are rigid selection standards, intensive educational preparation, an intimate knowledge of military history and strategy, and a sense of responsibility and initiative. The challenge to the military today is to accept our greater responsibility to the nation. This responsibility requires rational, coherent military and grand strategies. These strategies will be evolved only if our institutions foster the development of officers whose knowledge of military history, strategy, and military operations gives them the rare logic and insight demanded of the task.

the long road back

Reinstating coherent military strategic thought in the services will not be easy and cannot be accomplished with short-term fixes. It will require changing rigid institutional values, initiating organizational and functional improvements, and building an "institution of excellence" which inbreeds strategic thought into select officers.

The primary challenge the services face is the development of a system to identify, select, educate, and train highly qualified officers as military strategists. Criteria for selection will have to be established. By building areas of academic concentration, the professional military education (PME) system could be adapted to provide the majority of the educational needs. Officers selected as junior captains could enter Squadron Officer School with a concentration in military strategy and history. On returning to Air Command and Staff College, some of these same officers could continue a more detailed exploration of military history and strategic analysis, and with accreditation, could graduate from ACSC with a master's degree in military strategy. Air War College could provide doctorate-level work, and for a few select officers, Ph.D. degrees could be completed at civilian institutions. This process would provide a steady supply of bright military strategists for staff duty within the military. An added byproduct would be scholarly works on strategy from graduates of the program.

To develop and utilize this proposed new breed of military strategist effectively, the formulation of military strategy must be recognized as a required staff function at major command level and above. A military strategy function should be created on the special staff of all major commands. Air Force specialty codes (AFSC) should be designated for these positions and graduates of the PME program assigned these codes.

Over a period of years, every major headquarters and command could possess a strategy division manned with experts possessing the credentials to formulate coherent unified strategy.

Organizationally, strategy or strategic planning divisions should report directly to the commander or commander in chief and maintain coordination with the director of operations. Additionally, strategic planning staffs should also be manned with political and economic analysts to provide a balanced focus at each level. Strategic planning staffs for the service headquarters should coordinate with the theater staffs to provide a global service view. Furthermore, they should respond to the joint strategic planning staff in DOD with service inputs and also provide a source of manpower for joint staff manning. The joint strategic planning staff, working with political and economic counterparts, would be removed from parent service influence and biases as permanent members of the "sixth service" mentioned earlier. The joint staff would coordinate with unified command staffs and integrate global and regional military strategy. Under this concept, JCS roles and functions would require a redetermination. Finally, organizational changes would be needed to reflect approved service and joint strategic planning staff strategies in the force structure and budgeting process. These organizational actions, conscientiously applied, should remove the institutional barriers described and foster realistic, coherent strategy formulation and force development.

IT IS MY perception that the national power and international influence of the United States are on the wane largely due to the failure to evolve and implement coherent grand and national military strategy and long-range objectives. As always, the first step in correcting the problem is the identification of relevant causal factors. In this instance, it is suggested that organizational and institutional deficiencies present in the national security machinery, i.e., services, unified commands, DOD, and executive branch, encourage service advocacy at the expense of integrated strategy. Moreover, a national emphasis on resource allocation rather than strategy has exacerbated the situation by forcing the individual services to reorient their attention and efforts inward on subsidiary issues of hardware, cost-effectiveness, and doctrine. Sadly, however, without the framework of a grand and national military strategy, the rationale that cements these issues into a coherent whole has been lost.

To alleviate these deficiencies, I propose the establishment of strategic analysis and planning staffs—for grand strategy in the executive branch and for national military strategy in the Office of the Secretary of Defense—with supporting strategy staffs at the service headquarters, major unified and combined commands, and major subordinate commands. Military personnel for the strategy function should be provided from a small select group of officers highly educated and skilled in military history, strategy, analysis, and combat employment. The intensive educational preparation necessary could be provided by developing areas of concentration at the PME schools and linking each school's contribution in the progressive development of career military strategists. For until there are skilled military strategists, there can be little hope for competent strategy.

Looking back, perhaps the agony that was Vietnam could have been avoided, perhaps even the current energy crisis averted, had we met our national strategic responsibilities with courage and insight. This thought alone should spur us to overcome our neglect and work to build "institutions of excellence" capable of producing coherent grand and national military strategy.

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Notes

1. "The Decline of US Strategic Thought," *Air Force*, August 1977, p. 27.
2. Ibid
3. Ibid., p. 29
4. Drew Middleton, "Specialists Debate a US Global Policy," *New York Times*, December 27, 1978, p. A-7
5. Stanley Hoffmann, "A View from At Home: The Perils of Incoherence," *Foreign Affairs*, vol. 57, no. 3, 1979, p. 463.
6. Ibid., p. 489
7. Paul R. Schratz, "The U.S. Defense Establishment: Trends in Organizational Structures, Functions and Interrelationships," Ph.D. dissertation, Ohio State University, 1972, p. 515.
8. Edward Mead Earle, editor, *Makers of Modern Strategy* (Princeton, New Jersey: Princeton University Press, 1971), p. 344. I have substituted the word "strategy" for "doctrine" in the quotation to better convey Frunze's meaning.
9. *Report to the Secretary of Defense on the National Military Command Structure*, Washington, 1978, pp. 24-39, 48-58
10. Schratz, pp. 486-583.
11. Colonel T. N. Dupuy, USA (Ret), *A Genius for War: The German Army and General Staff, 1807-1945* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1977), p. 303.

CIVILIANS IN UNIFORM

Dr. Thomas H. Etzold

We have always won our wars with a bunch of damned civilians in uniform anxious to get back to their own affairs.[1]

W. J. Holmes

WHAT to say about manpower? Since the turn of the year, with crisis in Afghanistan, the nation's news has regularly included discussions of America's military manpower needs. Early in the year, the President called for renewal of draft registration, possibly to include women. At the end of January, in a statement paralleled by those of other service chiefs, the Chief of Naval Operations testified to Congress that "adverse trends in retention of our key supervisory talent—our most experienced middlegrade leaders—are fast becoming *the* critical constraint on the size, capability, and readiness of the Navy.... The talent drain occasioned by inadequate compensation is clearly the single most serious concern I have about the present state of the Navy."[2]

In the following weeks, public opposition to draft registration reemerged from its own version of "deep standby"; Congress proved unwilling to take the political risks associated with reviving the Selective Service System; several reputable analyses from inside the government as well as outside seemed to indicate that adequate military manpower would be available without a draft. By March, the military manpower issue had intersected with the nation's runaway inflation problem. Hence the headline of the March 17, 1980 *Air Force Times:* "Carter Tells DoD: Stop Complaining about Pay."[3]

This overview of the manpower issue's evolution early in 1980 illustrates an irony of American political discourse. In most cases, issues must attract a certain attention, a national level of sensitivity and interest, before much is done about them. This simply reflects American consensus-style politics, and it is a fundamental feature of our democratic system. The irony: issues that finally obtain such attention run a heightened risk of being obscured, distorted, oversimplified, misunderstood, and mishandled.

The attention accorded military manpower concerns in the last few months makes it imperative to attend those few writings of substance and utility pushed aside by the rush of journalistic treatments. Kenneth J.

Coffey's recent book on the all-volunteer force (AVF) is one such writing.* Dr. Coffey, formerly an official in the Selective Service Administration, then a consultant to various defense agencies and offices on manpower issues, and most recently a manpower expert for the General Accounting Office, should be familiar to readers of this periodical. His article, "Defending Europe against a Conventional Attack," appeared in the January-February 1980 issue of *Air University Review*.[4] Because that article and the contents of Coffey's book run closely in parallel, his views require only brief recapitulation here.

Dr. Coffey believes that, in a number of ways, the adoption of an all-volunteer force manning policy has diminished American military capability, and especially its commitment to reinforce Europe in a NATO war. Although the regular, active duty forces are not demonstrably lower in quality or worse off than they might have been under a draft system, Coffey argues that the reserve forces have suffered serious erosions of quality and strength by almost every meaningful measure. In accepting the higher manpower costs of an AVF in a time of inflation and budgetary constraints, the United States has forfeited its ability to support both a short war and a long war posture in relation to the NATO contingency. In Coffey's opinion, this development has been ignored at policy levels, causing a widening gap between American capabilities and American commitments in the very case the administration has designated its top priority.

Nevertheless, as Coffey correctly notes, and as the course of public debate early in 1980 confirmed, things have not reached the point at which the Congress and the public are ready to terminate the AVF experiment.

He therefore has focused on refinements of present manpower policy. "What additional measures," he asks, "can be taken by the armed forces to reduce AVF-related manpower problems? Second, what adjustments can be made in AVF mobilization and deployment policies to provide a more realistic deterrent against a conventional attack on NATO by the Warsaw Pact? And third, what changes should be made in U.S. strategic policies in order to reconcile the capabilities of the AVF with U.S. war-sustaining commitments?"

Some readers may find Dr. Coffey's questions better, in some respects, than the suggested answers; but among his recommendations several deserve further consideration. One is his suggestion of a limited draft—it could also, perhaps, be a program of special inducements—designed to fill out the Individual Ready Reserve, now dangerously undermanned. Another is the possibility of establishing a system of individual rather than unit replacements, to allow more efficient and flexible use of the manpower now in the reserve. Most important, and doubtless most controversial, Dr. Coffey argues that "the total force policy and the commitment to maintain a long war-sustaining capability are anachronisms of a past era when a large mass army was the order of the day. . . . in an era of volunteerism, the willingness of the American people to support the armed forces and to participate therein should determine the level of strategic commitments. At least for the foreseeable future, the nation's commitments should be reduced in order to reflect the level of capabilities."

In its conclusions, quoted above, this book raises profound questions of policy and strategy—of policy in terms of the determinants of national goals or commitments, of strategy in terms of the classic relationship between ends and means. Regrettably, however, the book does so in a manner that

*Kenneth J Coffey, *Strategic Implications of the All-Volunteer Force The Conventional Defense of Central Europe* (Chapel Hill: The University of North Carolina Press, 1979, $15.00 cloth, $9.00 paper), 210 pages

epitomizes the worst consequences of the literal-minded rationalism that so often gets defense analysts and functionaries into political trouble. Whatever the dictates of reason tidily applied to political calculus, the American people do not, and should not, determine their strategic commitments on the basis of "the willingness of the people to support the armed forces." A nation's interests, goals, and commitments are shaped by profound historical and political forces, not only by the pressures of the moment. Nations pursue their interests and attempt to meet their commitments not only with armed force but through the intelligent use of other instrumentalities of influence. Indeed, great statesmen and the nations they serve often seek to manipulate their circumstances and opportunities, as well as those of their adversaries, so that tests of power must give way to tests of skill.

As for strategy, it is a commonplace to say that means must be adequate to the task at hand. But it is equally fundamental to prevent considerations of means from dominating, or indeed determining, considerations of ends. Further, as many of the great military leaders of history have proclaimed, the intangible elements of war, politics, and power weigh heavily in the determination of results. There is nothing easy, automatic, or even truly scientific about calculating the relation between this nation's commitments and its capabilities in the AVF—or any other—era.

The manpower issues this country now faces are serious, and they will remain important for some time to come. Dr. Coffey's book contains valuable discussions of the AVF experiment's effects on American military capability. To preach prudence; to scrutinize the relation between commitments and capabilities well in advance of need; to assess the domestic political environment as it bears on national purposes and preparedness: these are worthy endeavors, for the most part well pursued in Dr. Coffey's book. But, as I have argued elsewhere, the military and its apologists must learn to present manpower issues in terms that are both meaningful and usable in the customary ends-means debates of American politics.[5] In doing so, it will, as always, be necessary to guard against the tendency of good logic to overwhelm good judgment.

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Notes

1. W. J. Holmes, *Double-edged Secrets: U.S. Naval Intelligence Operations in the Pacific during World War II* (Annapolis: U.S. Naval Institute Press, 1979), p. 169

2. *A Report by Chief of Naval Operations Admiral Thomas B. Hayward, U.S. Navy on the Fiscal Year 1981 Military Posture and Fiscal Year 1981 Budget of the United States Navy,* 31 January 1980 (Naval War College print of typescript version), p. 7

3. This story further reported that the President had complained of "the constant drum of criticism from top military officials." According to this report, and to others as well, the President added, in the memorandum to Secretary of Defense Harold Brown that: "You should assess other factors involved in reenlistment problems.... When I was in the Navy, pay was not the major factor."

4. Kenneth J. Coffey, "Defending Europe against a Conventional Attack," *Air University Review,* January-February 1980, pp. 47-59.

5. Thomas H. Etzold, "Our Diminishing Manpower Resources," *Army,* January 1980, pp. 10-14.

books and ideas

Douglas Mac Arthur

INDIVIDUALISM AND MILITARY LEADERSHIP

Dr Stanley L. Falk

AMERICANS like to think of themselves as individualists. The image of the independent, self-confident nonconformist has long been part of our national tradition—seen both at home and abroad as characteristic, refreshing, and appropriate in a new and burgeoning society.

Likewise, American military leaders who have captured the public imagination have with few exceptions been cast in a mold of dramatic individualism. Each appeared to be his own master, confident in his superiority and strikingly independent or casual about such things as conformity, conventional means and methods, and the traditional rules for organizational success. This suggests a curious paradox. For the fact of the matter is that willful individualism and effective military leadership are not necessarily compatible. They may indeed be completely incongruous.

Individualism suggests an independence of thought or action, a peculiarity or egocentrism, pursued regardless of the common

or collective interests of the group. Individualists may sometimes further group objectives; but in a highly structured organization or society, their behavior is generally frowned on as at least anomalous and at worst disruptive. Individualism is not normally a positive principle of social organization.

Leadership, on the other hand, is a thoroughly approved form of social behavior. While certain individualistic tendencies such as personal heroism or colorful identifying characteristics may be desirable in a leader, by and large leadership contributes positively to society by becoming a part of the whole rather than by following an alternative or independent course. It thus embodies the interests and objectives of the group as much as it acts to guide, focus, and advance them. The more tightly organized the society, the more this is normally the case.

Successful leadership depends to a large extent on the willingness of those who are led to regard the leader as one with themselves, with shared aims and desires, and as the expression of all that is good and true within the group. Whatever the individualistic tendencies that contribute to the success of leadership, its basis is the ability of the leader to epitomize and be accepted by the society being led.

Leadership, in sum, is a positive social value because it represents the social organization that it reflects. It thus stands in contradistinction to a less typical and frequently antisocial individualism. Nowhere is this more apparent than in the precisely structured, disciplined neatness of the military organization. The military emphasizes more than any other form of society the group over the individual, conformity over deviance, hierarchy and subordination over égalité and debate, the whole over its parts. Individualized values are a threat to the entire range of traditional military norms. The soldier's precise bureaucratic imperative is

undermined by the self-assertiveness and free choice of the individual.

Despite this apparent incompatibility, we seem to prefer our military leaders as independent heroes—usually with picturesque or peculiar modes of behavior—with their success apparently based on singular habits of thought, speech, dress, or action. The military leader, in this romantic view, becomes less the epitome of the disciplined structure from which he springs than a strange aberration from that institution: esoteric, heterodoxical, egocentric. We accept as the very symbol of military leadership a form of individualism that emphasizes flamboyant personality, unconventional ways, and a willingness to disregard the accepted professional ethic. However incorrect this picture of military leadership may be, we remain more impressed with the regal grandiosity of a MacArthur or the calculated madness of a Patton than with the quiet but effective conventional skills of a Bradley or a Krueger. We thus conclude that for leaders, at least, the individual should ignore the system, independence may be more effective than discipline, nonconformity wins more battles than tradition.

The implications of this reasoning may be disturbing or reassuring, depending on your point of view. But two recent volumes of military biography, *American Caesar* and *On to Berlin*, provide case studies of contrasting styles of leadership and individualism, and each offers additional evidence with which to study the question at hand.

THE first, William Manchester's monumental and much publicized study of General Douglas MacArthur, describes a military leader whose individualism à outrance aroused conflicting passions and ended in tragedy. The second, an autobiographical essay by Lieutenant General James M. Gavin, provides an example of controlled individualism far more ac-

ceptable and effective in a military leader.

The image of MacArthur that emerges from Manchester's fascinating study is a complicated one.† MacArthur inherited his military skills and independent nature from his father, the brilliant and controversial General Arthur MacArthur; but he was dominated by his aggressive, politically minded mother, to whom he owed much for his success. Not surprisingly, with such a background, he led his class at West Point and wore a general's stars at the age of thirty-eight. The latter stemmed in part from his impressive and heroic record in World War I, when he also established the striking individual style, panache, and willful disregard for custom and authority that was to characterize him for the rest of his life. He was also developing a reputation for military genius and personal, almost foolhardy courage.

After the war, he served as a distinguished superintendent of the Military Academy; sat on the court-martial of the contentious General Billy Mitchell; married, divorced, and took a mistress (whom he hid from his mother); and apparently ended his career as Army Chief of Staff—not without a further controversial performance against the Bonus Marchers. Sent as military adviser to the Philippine Commonwealth, he retired from the Army and assumed the post of Field Marshal of the Philippine Armed Forces. The approach of World War II brought his recall to active duty, a second military career, and another dramatic decade of success, failure, and, above all, controversy.

Throughout his personal and professional life, MacArthur displayed an intense blend of contradictory talents and senses. Imaginative, energetic, and bold, he had a flair for drama and oratory and the capability to lead and inspire. But he also showed a consuming arrogance, a surprising willingness to fawn on superiors and, at times, to fall back on needlessly conservative tactics, a disturbing emotionalism, and a disruptive political ambition that in the end proved fatal to an already tarnished image.

Manchester's biography suits his subject. Like MacArthur, it is grand, brilliant, intensely literate, and high-flown—a remarkable tour de force. But it is also, like the general, unbalanced, unreliable, erratic, melodramatic, and self-serving. At first glance, Manchester's work appears objective, thoroughly researched, and fully documented. But it is basically pro-MacArthur, and the author has overlooked or ignored major archival sources as well as several important published works. He has admittedly leaned very heavily on D. Clayton James's scholarly and reliable volumes on MacArthur,[1] while nevertheless accepting uncritically other, less trustworthy sources. He has, in fact, added very little to James's earlier findings. Manchester's footnotes, finally, are confusing and misleading.

Manchester's errors or casual twistings of fact are numerous—from such tiny but needless slips as misdating the Bataan Death March and including in its ranks the Americans taken prisoner on Corregidor a month later to such major fallacies as repeating the old canards about the alleged MacArthur-Pershing or MacArthur-Marshall feuds. Nor does it help Manchester's pretense to balance when he accepts MacArthur's paranoid view of knaves or fools in Washington who supposedly, from the Philippines through Korea, consistently sought to undermine the general.

One of Manchester's most annoying faults is his misuse of comparative, and often selective, casualty figures to prove MacArthur's

greatness. Manchester served in the U.S. Marine Corps during World War II and was seriously wounded on Okinawa. MacArthur's bypassing strategy, with its apparent lighter casualty toll, is thus far more attractive to him than the type of direct assault operation in which he himself was disabled. This is an understandable preference, but it is based on erroneous or misleading data and dubious interpretations.

MacArthur's casualties, writes Manchester, "from Australia to V-J Day were fewer than those in the Battle of the Bulge." (pp. 4, 691) The general lost fewer men "between his arrival in Australia and his return to Philippine waters over two years later" than fell in the "single" battles of Anzio or Normandy. (p. 339) Thousands of troops were "sacrificed" elsewhere in the Pacific and Europe because commanders refused to adopt "MacArthur's brilliant maneuvering [that] would provide the war's shortest casualty lists." (pp. 431, 328) Thus, the heavy American casualties on Okinawa constituted a needless loss, which MacArthur would have avoided by better strategy and more imaginative tactics. MacArthur, in short, could have won the war faster and cheaper, in Europe as well as in the Pacific.

There are many things wrong with this analysis. First of all, Manchester is not comparing like things. The total American and enemy forces involved in the Southwest Pacific were far less than the huge numbers engaged in Europe and Africa. Moreover, by ignoring MacArthur's losses in the first Philippine campaign (approximately 140,000 Filipino and American troops captured or killed)[2] as well as the general's large casualties after his "return to Philippine waters," in the comparison with Anzio or Normandy, Manchester selects a period in which MacArthur commanded relatively few forces. He also apparently overlooks Australian casualties incurred under MacArthur while fighting Japanese forces previously bypassed by the Americans.

Furthermore, the impact of MacArthur's advance—Manchester to the contrary—was not nearly as significant as that of the major offensives in Europe or the central Pacific. Operations in the Southwest Pacific, however punishing to the enemy, were clearly peripheral to the primary American thrust toward the heart of Japan. The decisive blows were struck in the central Pacific. There, once the availability of powerful carrier task forces made it possible, Admiral Chester Nimitz's forces moved faster and farther in more significant strategic jumps and maneuvers than MacArthur ever did. In the eight months from November 1943 to July 1944, the drive across the central Pacific made greater leaps over longer spaces than MacArthur achieved in the nearly three years it took him to go from Australia to Manila. Nimitz's advance, moreover, led to the direct strategic bombing of all Japan, which would end the war within little more than another year. MacArthur, despite his great, yet bloody victory in the Philippines, never could do as much.

It is also clear that when MacArthur attacked major objectives that could not be bypassed, his casualties were no lower than anyone else's. By Manchester's own admission, for example, the seizure of Papua cost the general three times as many killed and consideralby more wounded than Nimitz lost in capturing Guadalcanal during the same period. (p. 328) As for Okinawa, Manchester uses two sets of casualty figures, both misleading. The first, roughly 49,000 killed and wounded, actually includes nearly 10,000 naval losses that he neglects to mention; the second, 65,631, includes over 26,000 nonbattle casualties, also unmentioned. (pp. 431, 611) In fact, the approximately 39,000 actual American ground combat casualties on Okinawa were roughly equal to the nearly 38,000 MacArthur suffered on Luzon, where the general's 93,000 nonbattle casualties were

almost four times more than those incurred on Okinawa.[3]

But why prolong the comparison? Capturing strongly defended, major objectives entails taking casualties. And sooner or later, bypassing or the indirect approach must give way to some sort of decisive battle. In the central Pacific, the aim was to seize bases from which to apply decisive air power against the heart of Japan. For MacArthur, the Philippines were the decisive point; and his stubborn opposition to allocating resources to any other strategy or effort revealed him to be less of a grand strategist than a prideful, designing self-server.

Not only does Manchester miss this point but he also fails to understand that MacArthur, in his disdain and contempt for both civil and military authority, symbolized the age-old struggle between military discipline and willful individualism. For all his brilliance and success, MacArthur ultimately failed as a soldier because his perverse ambitions and conceits led him to reject the professional values of the military system.

THE model of leadership that William Manchester offers in MacArthur, unfortunately, ignores the great majority of American military leaders whose effectiveness has depended less on flamboyance or idiosyncracy than on a firm foundation of purposeful force, disciplined action, and solid professionalism. James M. Gavin is more typical of the latter. He is more to be respected than MacArthur as a soldier, and his book is more honest than Manchester's.

Unlike MacArthur, but like many other American generals, Gavin sprang from relatively humble origins.[†] Son of a coal miner, he was graduated from West Point in 1929 and rose from the rank of captain in 1941 to become one of the youngest division commanders in World War II. In an equally distinguished postmilitary career, he served as Kennedy's ambassador to France and later became board chairman of Arthur D. Little. Soldier, intellect, manager, frequent lecturer, and author of six books, Gavin offers a keen, analytic view of any subject he addresses. *On to Berlin* is an exciting and clearly written narrative of his experience with the 82d Airborne Division from Sicily through the end of the war in Europe. He provides a colorful

James M. Gavin

and illuminating view of airborne operations and of the tactics and strategy of the campaign against Germany and Italy. In the process he offers a valuable insight to his concept of military leadership.

Like MacArthur, Gavin displayed personal bravery, imagination, style, and the ability to elicit fierce loyalty and support from his men. He was probably more broadly successful in the latter capability, since he

[†]James M. Gavin, *On to Berlin: Battles of an Airborne Commander, 1943-1946* (New York: Viking Press, 1978, $14.95), 336 pages.

eschewed the aloofness and mystery so dear to the MacArthurian image. Gavin believed primarily in a personal form of leadership that saw him fully engaged in combat alongside his men, whatever his command position. This is reminiscent of the Mac-Arthur of World War I; but, even then, one still has the feeling that Gavin would have been a far more personal and involved theater commander than MacArthur. Gavin, moreover, had no taste for the distinctive uniforms and symbols so important to MacArthur, but preferred instead the plain paratrooper jumpsuit and the sensible protection of a steel helmet. Not only did this serve to link him more closely with the men he led but, as he correctly observes, was less liable to attract attention and subject them to hostile fire.

Gavin's view that the commander should be as close as possible to the scene of action made him highly critical of General Eisenhower. Ike's "remoteness from the battle scene, when critical decisions had to be made," argues Gavin, was responsible for a number of important mistakes, from Sicily to Falaise and on through the final struggle for Germany. (p. 48) Historians may dispute this point (as they will decry some other gratuitous digs at Eisenhower in the book), but it clearly reflects Gavin's view of how battles should be fought and won, with the "commander in the midst of things." (p. 43)

Gavin is even more critical of Eisenhower's failure to capture Berlin. His argument is the standard one: that American forces, led by an airborne assault, could have seized Berlin before the Russians did and that this would have significantly altered the course of the subsequent Cold War. However, Gavin fails to make clear how grabbing Berlin would have helped matters, since we would have had to evacuate most of it anyway under the Allied agreements on postwar occupation zones—just as the Russians did after they had captured the city. Nor is it obvious that we could have occupied Berlin ahead of the Russians, who had more troops considerably closer to the German capital. As it was, Soviet forces took horrendous casualties in Berlin, and similar losses by American and British units would have been unacceptable at that stage of the war.

This point notwithstanding, General Gavin's book is still a first-rate account and a superb example of leadership in action. It should probably be read along with his earlier *Airborne Warfare*[4] if the reader seeks a comprehensive, overall picture of airborne operations in World War II. And the official Air Force history[5] will also have to be consulted for a proper view of the role of the Army Air Forces in transporting and supporting these operations. But for the smell of battle on the ground and the confusion and excitement of men, weapons, equipment, and vehicles dropped in disorder in the midst of combat, *On to Berlin* is excellent. Above all, it displays the individual leader at his best and demonstrates the character and strength of moral purpose that made Gavin an outstanding commander.

MANCHESTER'S biography of MacArthur and Gavin's personal memoir provide an excellent opportunity to compare two types of leaders. Both were individualists in their own way: MacArthur undisciplined and egocentric, Gavin controlled and dedicated. MacArthur's individualism was in the end destructive, Gavin's truly positive and professional.

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Notes

1 D. Clayton James, *The Years of MacArthur*, Vol. 1, *1880-1941*

Vol. II, 1941-1945 (Boston: Houghton Mifflin, 1970 and 1975). Volume III is in preparation.

2. Louis Morton, *The Fall of the Philippines* (Washington: Office of the Chief of Military History, Department of Army, 1953), p. 583.

3. Samuel Eliot Morison, *Victory in the Pacific, 1945* (Boston: Little, Brown, 1960), p. 282; Roy E. Appleman et al., *Okinawa, The Last Battle* (Washington: Historical Division, Department of Army, 1948), pp. 489-90; Robert Ross Smith, *Triumph in the Philippines* (Washington:

Office of the Chief of Military History, Department of Army, 1963), pp. 652, 692.

4. James M. Gavin, *Airborne Warfare* (Washington: Infantry Journal Press, 1947).

5. Wesley F. Craven and James L. Cate, editors, *The Army Air Forces in World War II*, 7 vols. (Chicago: University of Chicago Press, 1948-1958).

GETTING A JUMP ON OUR NUCLEAR FUTURE

LIEUTENANT COLONEL JOHN J. KOHOUT III

PREPARING for a challenging and dangerous future concerns policymaker, public servant, and informed citizen alike. The Council on Foreign Relations is facilitating this preparation by publishing the 1980s Project Studies which define and analyze a broad cross section of major policy issues for the 1980s and beyond. Among the first of some 25 volumes planned for this series are two that focus specifically on the nuclear dimension of the world that we will face through this decade. *Nuclear Weapons and World Politics: Alternatives for the Future* by David C. Gompert, Michael Mandelbaum, Richard L. Garwin, and John H. Barton addresses the impact of nuclear weapons on international relations in terms of a series of alternative nuclear systems. *Nuclear Proliferation: Motivations, Capabilities and Strategies for Control* by Ted Greenwood, Harold A. Feiveson, and Theodore B. Taylor treats more specifically the problem of nuclear proliferation in both its political and technological contexts.

The Council on Foreign Relations, Inc., of New York City, is a nonprofit organization dedicated to the promotion of awareness and understanding of foreign affairs. With almost 2000 members who possess special interest and experience in international relations, it is nonpartisan and receives no government funding. The council publishes the highly regarded quarterly *Foreign Affairs* and organizes other research efforts as the need is perceived.

The 1980s Project is the largest research program ever undertaken by the Council on Foreign Relations in its 58-year history. Responding to the perception that the institutions and methods upon which international relations have come to be based over the last three decades will not be adequate to respond to the challenges of the next, the council organized a massive research effort, seeking articles from more than eighty authors; the accepted articles are then integrated by the council staff into books that analyze the most crucial problem areas for the future international system. Both books evaluated in this review were discussed and integrated by the Council's Working Group on Nuclear Weapons and Other Weapons of Mass Destruction chaired by Cyrus R. Vance, former Secretary of State. A major effort to seek diverse opinions with particular emphasis on Third World viewpoints is an

element of this program. Funding for the project was obtained in grants from several major philanthropic organizations.[1]

*N*UCLEAR *Weapons and World Politics* † follows by almost exactly two decades Henry Kissinger's prestigious *Nuclear Weapons and Foreign Policy* (1957), which was also sponsored by the Council on Foreign Relations. *Nuclear Weapons and World Politics* is a penetrating attempt to analyze the impact of nuclear weapons on future public policy, which was also the intent of *Nuclear Weapons and Foreign Policy*. The framework of the analysis consists of four nuclear "regimes" or systems of ". . . international obligations, national force structure, and doctrines that together govern the role of nuclear weapons in war, peace and diplomacy." (p. 6) These regimes then lead the reader through the evolution of the world along four highly plausible diverging paths. These paths are so selected that there is excellent probability that they will at least bracket the reality that the future reveals.

Michael Mandelbaum of Harvard University presents the first nuclear regime. He argues that the most stable and desirable nuclear situation that we could realistically strive for in the decade ahead is exactly the one that we have now. It is proved, accepted, and does not involve the risk inherent in any significant change. The stability of the present nuclear balance rests on three pillars: nuclear anarchy—the absence of formal higher authority; equilibrium—the most important feature, itself composed of the three layers of mutually assured destruction, high force levels, and perceived equality; and, finally, nuclear hierarchy—stability between the superpowers imposes stability on the lesser nuclear powers. While nuclear proliferation poses a threat, it is less of a threat under this regime than it might be under any other.

Richard L. Garwin of the IBM Corporation proposes as his preferred nuclear regime one based on a unilateral reduction of U.S. nuclear weapon inventories to a significantly lower level where the United States would maintain only enough nuclear capacity to deter a nuclear attack. Since the goal is security at acceptable human and opportunity costs and since deterrence has nothing to do with the relative position of the two superpowers after a nuclear exchange but only before it, the great damage potential of nuclear weapons would enable the United States to follow such a policy of unilateral arms reduction. We would retain Minuteman, sea-launched ballistic missiles (SLBMs), and air-launched cruise missile (ALCM) armed bombers. Trident I could be added to the force, but all further SLBM, intercontinental ballistic missile (ICBM), or aircraft development would be stopped. Eventually a small, super-hard, single warhead ICBM could replace Minuteman when it ages to the point that it is no longer usable. Since we would renounce escalation of conventional hostilities to a nuclear level, NATO would have to be ready to defend itself and would probably find that conventionally armed ground-launched cruise missiles (GLCMs) could replace the U.S. tactial nuclear weapons presently deployed in Europe.

The third nuclear regime is presented by John H. Barton, Professor of Law at Stanford University. He visualizes a world where nuclear arms are proscribed as a manifesta-

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†David C. Gompert, Michael Mandelbaum, Richard L. Garwin, and John H. Barton, *Nuclear Weapons and World Politics: Alternatives for the Future* (New York: McGraw-Hill, 1977, $6.95 paper, $10.95 cloth), 370 pages.

tion of nation-state power. He intentionally minimizes the obstacles to denuclearization in order to elaborate on the types of world political organization under which it could be accomplished. There are four cogent reasons for the elimination of all nuclear weapons: their destructiveness is disproportionate to any conceivable political goal; proliferation of nuclear power may lead to a collapse of deterrence; the concept of use of nuclear weapons against civilian populations is in fundamental contradiction with the relationship between governments and the populations that constitute them; and, finally, nuclear weapons create a governmental power distinct from the government's political and economic base. The denuclearization of the world could take two possible directions: The more conceivable form would be incremental progress, where nation-states continue to exist but gradually relinquish increasing control over nuclear weapons to an international authority. Conflicts would be restrained to conventional wars for foreign policy goals. A more extreme model would be an internationalized world, where the former legitimacy of the nation-states would devolve on a world government possessing a monopoly on the use of force. The idealistic and improbable nature of this evolution is freely admitted by the author, but his regime does permit the exploration of a very real eventuality if nuclear weapons use ever crystallizes mankind's opposition to them.

The fourth regime, portrayed by David C. Gompert of the State Department, completes the array of nuclear futures by considering the deterioration of the first regime, our present situation, into an unstable and increasingly dangerous spiral toward nuclear holocaust. This deterioration could result from one of three driving factors. First, an increase in first-strike capability, coupled with effective active and passive defense measures, could create an irresistible incentive to initiate a nuclear conflict. Grotesquely, this destabilization would be aggravated by the reduction of launch vehicle numbers under Strategic Arms Limitation Talk (SALT) accords. Second, a significant strategic imbalance could develop in either the U.S. or the Soviet direction—either direction would be dangerous. Nuclear proliferation could so complicate the deterrence equation that it exceeds the capabilities of governmental leaders to maintain control. Third, use of a nuclear weapon by a new nuclear power in a regional context could ignite a major exchange.

*N*UCLEAR *Proliferation*† examines this challenge of the spread of nuclear weapons in far greater detail. In a perceptive introduction, David Gompert exposes the dilemma between the motivation of nonnuclear states, denied equal status with their nuclear brothers, to seek equality by building their own nuclear arsenals, and the resulting undeniable increase in the risk of nuclear war. He also sketches the interrelationship of such diverse underlying issues as the Third World need for energy, most efficiently obtained from fission reactors; the waning credibility of the American nuclear umbrella; the compensating availability of sophisticated conventional weaponry; the political leverage provided the Third World by the threat of proliferation; and the perception that the nuclear technology market is dominated by a very few nuclear powers.

Addressing the question of motivation among nonnuclear powers to acquire nuclear

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†Ted Greenwood, Harold A. Feiveson, and Theodore B. Taylor with an introduction by David C. Gompert, *Nuclear Proliferation: Motivations, Capabilities and Strategies for Control* (New York: McGraw-Hill, 1977, $4.95 paper, $8.95 cloth), 210 pages.

capabilities, Ted Greenwood of the Massachusetts Institute of Technology and Harvard sees such weapons as ". . . components of military force, as instruments and symbols of power that can be manipulated to promote their interests." (p. 25) The key decision is whether nuclear weapons will promote or detract from the primary interests of the country considering the nuclear option. Militating against the decision to build nuclear weapons is an international climate characterized by a strong aversion to the use of nuclear weapons and a perception that the greater the dispersion of nuclear weaponry, the greater the hazard of eventual nuclear war. Nuclear weapons could come into the hands of governments less affected by this aversion to their use; they could be developed by nations involved in chronic confrontation relationships with their neighbors; or the rate of proliferation could simply be too rapid to permit satisfactory accommodation by the international community.

Influencing proliferation is essentially a question of incentives and disincentives. Means must be found to ease the political and security problems that make the nuclear option attractive. Incentives to "go nuclear" can be reduced by firming up the protection implicit in alliances; international guarantees can be strengthened, along with the implementation of both diplomatic and economic steps to increase the prestige and voice of nonnuclear, particularly Third World, nations. Disincentives can also be increased. The guarantees of assistance to any nonnuclear state attacked by nuclear weapons implicit in the United Nations Security Council Resolution 255 is a source of protection that is lifted with the acquisition of any nuclear capability. Reduction or elimination of technical or financial aid can serve as either a multilateral or a bilateral sanction or disincentive. The management of international nuclear energy is a major factor in the proliferation issue which can be so conceived

that it can greatly modify the incentives and disincentives perceived by the nonnuclear powers in their development of weapons-related nuclear technology. Possession of nuclear weapons by nonstate entities— revolutionary or terrorist groups, whether political or criminal in motivation—is a low level but very real threat that must be answered with energetic security and protection measures and careful attention to the political situations within states requesting nuclear technology with weapons potential. There are no definite, ready-made answers to these problems. Only the sustained application of a general strategy aimed at limiting the spread of nuclear weapons offers the probability of restraining nuclear proliferation to a manageable level.

Harold A. Feiveson and Theodore B. Taylor, both of Princeton, focus on the nuclear fission processes being developed for energy production in terms of their impact on the nuclear weapon proliferation problem. They note that the pressure for nuclear fuel cycles, instead of once-through fuel use, is encouraging a drift toward the plutonium cycle, in spite of U.S. policy resistance to the related breeder reactor technology. The plutonium cycle is dangerous because it increases the amount of plutonium—capable of fueling a nuclear explosion—and it results in the transportation of weapon grade materials between fuel reprocessing centers and power reactors, as well as fuel storage in weapon-usable form. These materials are unnecessarily vulnerable to theft or misuse. The amount of plutonium in circulation would eventually be so great that it would challenge governmental ability to ensure adequate controls.

The authors maintain that, while expeditious action is required to keep the plutonium cycle from becoming the de facto base of the world's nuclear power industry, the pressure to end once-through fuel use is not yet that great, and adequate time is avail-

able for the study of other alternative fuel cycles less hazardous in terms of nuclear weapon proliferation. The thorium cycle is cited as a particularly likely approach to recycling fission fuels. The thorium cycle is based on the production of the ^{233}U isotope of uranium in a reactor fueled with thorium. While the ^{233}U isotope itself can be used to make weapons, it can be used for power generation in a form where it is diluted with other isotopes of uranium which ensure that the resulting isotopic mixture is unusable in weapons. Consequently, it is never transported or stored in a form with any weapon potential. The authors make a strong statement in favor of action to accelerate the development of the thorium cycle as quickly as possible in order to halt the present drift toward the plutonium cycle with its manifest danger.

BOTH of these volumes present clear and readable analyses of inescapable issues in the shaping of the nuclear future of this planet. Though the reader may not agree with all the specific points or arguments the authors make, he has the option of picking and choosing among the vividly portrayed alternatives they present. The reader will clearly profit from the lucid treatment of enormously complex relationships by scholars of the highest quality. These works provide a logical structure upon which one may array his own perceptions to form a solid and functional image of the future. These books also generate an enthusiasm which motivates the energetic study and concentrated thought needed to understand the world that we are now in the process of building. These two books, and their companion volumes in the 1980s Project, will provide readers with an excellent preparation for making a positive contribution to the decades ahead.

Strategy Division
Directorate of Plans
Hq USAF

Note

1. Indicative of the scope of the 1980s Project are some of the titles that have appeared (all from McGraw-Hill) to date: Fred Hirsch, Michael W. Doyle, and Edward L. Morse (with an introduction by William Diebold, Jr.), *Alternatives to Monetary Disorder* (1977); Stephen Green (with an introduction by Richard H. Ullman), *International Disaster Relief* (1977); Ann Cahn, Joseph Kruzel, Jacques Huntzinger, and Peter Dawkins, *Controlling Future Arms Trade* (1977); Catherine Gwin, Guy Pauker, Frank Golay, and Cynthia Eulos, *Diversity and Development in Southeast Asia: The Coming Decade* (1977); Roger Hansen, Albert Fishlow, Richard Fagen, and Carlos Diaz-Alejandro, *Rich and Poor Nations in the World Economy* (1977); Allen Whiting and Robert Dernberger, *China's Future: Foreign Policy and Economic Development in the Post-Mao Era* (1977); W. Howard Wriggens and Gunnar Adler-Karlsson, *Reducing Global Inequities* (1978); John Waterbury and Ragaei El Mallakh, *Middle East in the Coming Decade: From Wellhead to Well-being* (1978).

ENERGY: SPARK OF FUTURE CONFLICT?

CAPTAIN CHARLES A. ROYCE

We use 30 percent of all the energy . . . That isn't bad; that is good. That means we are the richest, strongest people in the world and that we have the highest standard of living in the world. That is why we need so much energy, and may it always be that way.

President Richard M. Nixon
November 1973

. . . a cutoff or deep reduction of oil and gas supply would result in the destruction or at least the crippling of the advanced free-market economies within a relatively short space of time. . . .

Secretary of Defense Harold Brown
August 1977

THE ENERGY imbroglio is without doubt one of the most critical issues facing our society today. Moreover, if the sheer weight of energy-related publications is a measure of significance, then the countless tons of pages printed in just the past five years elevate the topic to paramount importance.

Many strategists believe the energy-importing nations of the world to be in a Scylla-Charybdis situation with an undesirable dependence on foreign producers on one hand and a severe detriment to military capabilities and national security on the other. Whether this situation will lead to future conflict is conjecture. We know that it has in the past.

The subject of energy, including sources and types, has long been a cause of factionalism and friction. History is replete with conflicts over energy sources or conflicts where energy played an important role in determining the eventual outcome. For example, after D-day, 1944, German oil production became the highest priority target for Allied air strikes. Consequently, throughout the summer of 1944, German Panzer divisions in the field were severely hampered by fuel shortages. After the war, high-ranking German officers revealed that an early Allied air offensive against their petroleum industry would probably have significantly shortened the conflict.

When one considers that the Department of the Air Force alone during 1976 used about 8 percent of this nation's petroleum production and, in time of war, is projected to require 20 percent of the U.S. crude oil production, it is readily apparent that modern military forces are as dependent on energy sources as were the Allied and Axis powers during World War II.

Since most of our nation's energy needs are for petroleum and foreign imports currently account for half of the United States' oil requirements, the situation is ominous. For this reason, I will first review books on petroleum issues, then works about atomic energy, natural gas, and other energy sources.

oil

Robert Engler provides an in-depth account of the politics of oil and how it has shaped international relations over the past several years.[†] He begins by describing events surrounding the Arab oil embargo against countries aiding Israel in 1973. The restrictions caused severe shortages of petroleum products in the United States. The scarcity of oil extended even to Department of Defense ac-

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†Robert Engler, *The Brotherhood of Oil: Energy Policy and the Public Interest* (Chicago: University of Chicago Press, 1977, $12.50), 337 pages.

tivities and caused a thorough reevaluation of missions and priorities. Sharp price increases came as part of the shortages. Engler reports that Saudi Arabian oil revenues went from $3 billion in 1972 to more than $27 billion in 1974. Thus it is not surprising that Saudi Arabia emerged from the crisis as a leader in the world's petroleum industry.

In the spring of 1974, when the embargo was lifted, the energy-importing countries of the world began assessing the situation in an effort to determine their new international economic position. They discovered that the Western world was rapidly coming under new management because of oil. Engler then provides an authoritative evaluation of the policies that placed America and several other countries in such a vulnerable position. He points out that government's role over the years has been to keep the price of oil relatively low, thus encouraging a high consumption rate. The government's actions were a direct result of close association with the major oil companies. The relationship stemmed from the mutual view that our national security depended heavily on a stable, profitable domestic petroleum industry. As late as the end of 1972, the National Petroleum Council was still urging (despite brownouts and other energy shortages) retention of the oil import control program to protect the nation and the oil industry against the "menace of unrestricted imports."

The author then discusses how this feeling of oneness between the U.S. petroleum industry and our national security interests led to continued governmental support of oil companies' policies both at home and abroad, and how this sustentation led to our current vulnerability to the energy-producing countries. Throughout, Engler supports his

assertions with ample documentation. Overall, *The Brotherhood of Oil* is an excellent source on the politics of petroleum.

THE economics of oil are discussed at length in *The Changing Economics of World Energy*.† The editor, Bernhard J. Abrahamsson, presents several papers that were given at the Rocky Mountain Petroleum Economics Institute. The collection provides a broad look at the petroleum-related problems the United States will have to face in coming years. All the articles are written by prominent scholars, most of whom seem to have one message, i.e., our nation's leaders should develop an energy policy aimed at eventually making us self-sufficient. *The Changing Economics of World Energy* is a useful addition to a library concerned with the world's power situation.

THE American Enterprise Institute for Public Policy Research is a public supported, nonpartisan research organization. Its publications provide "objective analysis of national and international issues." *Energy for Europe*,†† from that organization, is an interdisciplinary work presaging the energy future of Europe through 1985. The book begins with a country-by-country review of Europe's energy history and proceeds to the current circumstances and national policies that have been hurriedly developed. In addition, since oil is as important to Europe as it is to the United States, de Carmoy examines four reasons why the Organization of Petroleum Exporting Countries (OPEC) is stronger than any producer cartel in the past: First, oil is the most impor-

†Bernhard J. Abrahamsson, editor, *The Changing Economics of World Energy* (Boulder, Colorado: Westview, 1976, $18.75), 165 pages.
††Guy de Carmoy, *Energy for Europe* (Washington, D.C.: American Enterprise, 1977, $3.25), 120 pages.

tant energy source in the world, and OPEC countries control 90 percent of world crude oil exports and 71 percent of proven reserves. Second, the price elasticity of demand for petroleum products is low. Third, OPEC is strong because there are now no satisfactory substitutes for oil. Fourth, Saudi Arabia's dominance in OPEC serves to ensure the group's cohesiveness.

By contrast, de Carmoy points out that, at present consumption rates, Europe's energy reserves will be exhausted by the year 2015. With the obvious prospect of considerable medium- and long-term imports adding to the asymmetric economic interdependence between Europe and oil-exporting countries, the author offers a rather simplistic solution: he advocates optimum management of Europe's limited resources. To support his recommendation, he quotes Mason Willrich: "In a world of politically independent nation-states, too much economic interdependency may lead to insecurity in particular nations and thus to instability in the international system as a whole." If this comes to pass, de Carmoy states, a European drift from the U.S. umbrella to a Soviet protectorate is conceivable due to the U.S.S.R.'s energy self-sufficiency. He assumes that Russia is self-sufficient, and this, of course, is debatable. In summary, *Energy for Europe* is a thought-provoking work and worthy of reading.

Europe and the United States have investigated several alternatives to oil, perhaps the most controversial of which is nuclear power.

atomic energy

In the opening section of *The Menace of Atomic Energy*,[†] Ralph Nader and John Ab-

botts provide an excellent background on another source of energy, nuclear power. The title betrays their feelings about atomic energy. The dedication then states that ". . . those who are trying to replace nuclear energy sources with alternatives such as solar energy are owed our everlasting gratitude."

The remainder of the book, then, is anticlimactic. While the authors make several ponderable points about the hazards associated with nuclear reactors and related hardware, the reader is virtually overpowered by their parochialism. The work teems with quotes such as "Faustian bargain for society," "technological Vietnam," and "courageous dissenters." On the other hand, chapter two does contain an authoritative and easily understandable description of the workings of the various types of nuclear reactors now in use. In a later chapter, Nader and Abbotts devote their attention to extolling the virtues of solar energy and provide only exiguous discussions of other alternatives to atomic power plants. Overall, *The Menace of Atomic Energy* is an important, if opinionated, book. Its authors ask some very disturbing questions about nuclear energy's past and its place in our present society.

*T*HE *Silent Bomb* is another compilation of articles, these decrying the dangers atomic reactors confront our society and environment with.[††]Initially, this very one-sided book lists three main reasons for public concern. One is that at present there is no satisfactory method of permanently disposing of radioactive wastes a reactor produces. The second cause for concern is the accidental release of radioactive materials that would occur in the event of a meltdown

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[†]Ralph Nader and John Abbotts, *The Menace of Atomic Energy* (New York: Norton, 1977, $10.95), 414 pages.

[††]Peter T. Faulkner, editor, *The Silent Bomb* (New York: Random House, 1977, $10.95), 382 pages.

and an accompanying containment rupture. The final reason for concern is that eventually criminals or terrorist groups will threaten society by attempting to sabotage or steal nuclear materials.

The Silent Bomb presents 23 essays on nuclear power-related subjects. Topics are past near-disasters, basic information about atomic reactors and safety, the nuclear power industry, some controversies, and views of the future. To keep this issue in proper perspective, the reader should remember that it presents emotional environmentalists' points of view.

Another energy source that has been the subject of numerous books and articles is gas.

natural gas

Transporting Natural Gas from the Arctic, The Alternative Systems is another of the Studies in Energy Policy of the American Enterprise Institute.† The essay opens with an excellent review of the American natural gas industry's recent past. This concise background serves as a base on which to build a discussion of the three alternative systems proposed for delivering natural gas from Prudhoe Bay, on Alaska's North Slope, to markets in the lower 48 states. The authors provide a detailed investigation of the Arctic Gas, Alcan Pipeline, and El Paso-Alaska proposals. The economic, environmental, and political analyses are based on qualitative and quantitative research and are objective. In addition, the text describes several possible supplements to Prudhoe Bay gas production: increase gas imports from Canada; import liquefied natural gas from Nigeria, Algeria, or elsewhere; manufacture gas from Appalachian shale; make synthetic gas from coal; investigate other known sources not fully explored.

other energy sources

A University of Oklahoma research team has written *Our Energy Future*.†† The book incorporates a discussion of energy supply technologies already mentioned in this article and also covers virtually all other power sources available in America today. It contains thorough examinations and comparisons of solid fuels, gaseous fuels, liquid fuels, electricity, solar power, and many other energy supply alternatives. The authors also describe the role research, development, and demonstration play in increasing the United States' energy-producing capabilities. This ambitious undertaking has resulted in an authoritative reference book on domestic energy resources.

EVEN though these texts range widely into diverse energy-related subjects, a common point emerges. If America is ever to become self-sufficient, it must immediately develop a realistic, long-range energy policy. For, if the energy imbalance is allowed to continue, worldwide competition for limited energy resources could be the spark of future conflict.

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†Walter J. Mead et al., *Transporting Natural Gas from the Arctic, The Alternative Systems* (Washington, D.C.: American Enterprise, 1977, $3.25), 111 pages.

††Don E. Kash et al., *Our Energy Future: The Role of Research, Development, and Demonstration in Reaching a National Consensus on Energy Supply* (Norman: University of Oklahoma Press, 1976, $5.95), 486 pages.

STRUCTURAL FLAWS OR INTERNAL COHESION?

a new look at Imperial Germany

Dr Dennis E. Showalter

THE modern historiography of Imperial Germany began when Fritz Fischer published *Griff nach der Weltmacht* in 1961. His claim that Germany desired and initiated general war in 1914 as part of a deliberate intention to dominate Europe had the major implication that at least some continuity existed between the foreign policies of Wilhelmian and Hitlerian Germany.[1] The Fischer thesis quickly generated another line of questioning as well. Might not similarities in the foreign policy of these states reflect or manifest similarities in domestic policies, social and economic structures, and ideologies and attitudes? This is not the kind of simple present-mindedness that interprets every event in German history from the defeat of Quintilius Varus, through the theology of Martin Luther, to the presidential election of 1925 in the glow of Hitler's crematoria. The new search for continuity in German history has, however, already produced its own orthodoxy. Standard interpretations now present the Second Reich as a society flawed from its inception. Its leaders, drawn overwhelmingly from preindustrial elites, were unable or unwilling to take the risks of bringing Germany fully into the nineteenth century. Through a combination of force, manipulation, and co-option, they succeeded in limiting the challenges posed by liberalism, socialism, and an emerging right-wing radicalism. These challenges, however, could not be completely eliminated by an establishment whose power bases were steadily eroding. The result was a dangerously unstable, increasingly fragmented society, a mixture of anachronism and modernity whose military and economic power combined with its geographic position to make it the real Sick Man of Europe in the years before 1914.[2]

FOR Fritz Stern this process began at the top. He discusses its evolution in terms of the relationship between Otto von Bismarck and Jewish financier Gerson Bleichröder.† Stern's Bismarck is a symbol and a representative of the old Prussian order, yet a man who at the same time sought to create a modern, united Germany. To do so he needed and sought the support of men like Bleichröder, men of wealth and ambition, forward-looking yet at the same time willing to compromise.

The key to the Second Empire's history is this collaboration of old and new. Whatever might be the internal logic of conflict between liberalism and capitalism on one hand and feudal, authoritarian concepts of society on the other, no decisive struggle for mastery took place in Bismarck's Germany. What emerged instead was a mutual recognition of interdependence manifested in a complex network of relationships concluded for mutual advantage. The bourgeoisie feared the rise of socialism. The aristocracy feared

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†Fritz Stern, *Gold and Iron: Bismarck, Bleichröder, and the Building of the German Empire* (New York: Knopf, 1977, $17.95), 620 pages.

the loss of its traditional position and prerogatives.

The connection symbolized by Bismarck and Bleichröder was more than a simple thieves' alliance. Each man sought in his own way to control events in a society suffering from future shock. Both succeeded well enough to become increasingly anachronistic. Neither the cabinet diplomat nor the court Jew could play the same roles in the 1890s as they had in the 1860s, particularly in a Germany that never fully understood where it was going and which included an increasing number of critics of the route, the speed, and the implied destination. But no major reforming impulses grew from a political structure deliberately turned against itself by Bismarck. This fact gives special poignance to the role played by the Jewish community and epitomized by Bleichröder. The Jews rose swiftly—so swiftly that on the whole they regarded chauvinism and anti-semitism as vestigial, destined to vanish through attrition. Rather than being mere survivals, however, these and similar attitudes were integral to the illiberal society Bleichröder had helped create. And this society's liberal, humanistic elements were too weak to give Germany's Jewish minority any real protection from its increasingly hostile Gentile neighbors.

Gold and Iron is the kind of magisterial work that is convincing from sheer bulk and compelling through intellectual force. Its portrait of a society warped by human judgments and human decisions rather than abstract and unevadable forces provides a valuable counterpoint to more deterministic interpretations, such as those of Hans-Ulrich Wehler. Yet there remains something almost naïve about Stern's belief that democratization, in the broad sense of that concept,

would have produced a more benevolent, more enduring Germany. Nineteenth-century Europe was racked by unprecedented challenges. The Second Empire cannot be automatically faulted for seeking alternate solutions to the problems posed by industrial, political, and social revolution. On its own terms and in its own times, Bismarck's Reich functioned well enough. If it may not have been Utopia, it was a far cry from Auschwitz. But how long could an illiberal, increasingly divided society cope with a world in constant, rapid flux?

ALAN PALMER'S *The Kaiser* provides part of the answer.† This book, like Stern's, concentrates on the great and near-great of Germany: William II and his entourage. Like Stern, Palmer sees his subject as reflecting German's strengths and weaknesses. William's upbringing and education, his physical infirmities, his early and intense exposure to the military elements of Bismarck's Reich produced a man more concerned with style than substance. He preferred to impress rather than convince. To the end of his reign, he remained a compound of guards officer and sentimentalist. His snap judgments, his ill-timed spontaneity, and his theatrical behavior bewildered or alienated his parents, his chancellors, and the cabinets of Europe. William's failure to mature, manifested in everything from his choice of advisers to his role in the July crisis, gave Germany an operetta government ruled by a monarch with a whim of iron. By itself the Kaiser's personality was not an inevitable harbinger of disaster. But in a state whose constitution bestowed ultimate, if not absolute, power on the emperor, a man with the character of

William II could do incalculable damage simply by behaving naturally.

Palmer makes no claims to original scholarship. His book is popular history, anecdotal, fast-paced, and readable, a solid synthesis of printed sources and interpretations. Its derivative nature adds force to Palmer's reasoning that Bismarck set the stage for William's personal rule: the book simply repeats current, standard arguments. Neither Stern nor Palmer sympathizes with Bismarck's growing conviction that only a strong central authority could cope with the problems facing a state which had been a geographic expression before 1871 and in many ways remained a geographic expression afterward. Both authors tend to exaggerate the potential power of their principal characters to change the course of the stream of time, as opposed to channeling its flow.[3]

Bismarck accepted the power of historical forces; William II was correspondingly convinced that events could be shaped by willpower. Unfortunately for Germany and Europe, he was not able to develop and pursue a consistent course of action in any direction. A planned preventive war, a coup d'état against what he defined as the opposition to his rule, even an attempt to utilize his public theatrics as the first step in making himself a modern Caesar—such coherent policies were foreign to William's temperament and talent. His eclipse in the course of World War I was a logical reflection of the impossibility of waging such a war by impulse. William was little more than a figurehead by 1918; his abdication seems to have been a relief from a role he found increasingly impossible to play.

THE genesis of the Second Empire can be explained in purely military terms. Similarly, Germany was able during World War I to assume the strategic and tactical defensive at a time when the superiority of defense over offense was unusually, if not

uniquely, high. This in turn meant that the German army's trained and experienced cadres were not decimated in futile attacks relatively early in the war, as were those of France. Nor did the Germans face Britain's problem of improvising a mass army, then keeping its junior leaders alive long enough to teach the replacements how to survive. It took Verdun, the Somme, and Passchendaele combined to wear down the German military machine to the point of collapse. And the nature of that collapse reflected the army's quality. Germany was definitely not stabbed in the back. But her defeat in the field was the defeat of an army whose physical and moral resources were exhausted, an army having nothing left with which to fight.

FEW historians would accept the argument that a high-quality military establishment could by itself sustain a state through four years of total war. Yet most current analyses focus on the discord that emerged in Germany as the initial euphoria of 1914 vanished. The Kaiser was ineffectual; the governing establishment was trying to fight a war whose nature few had forecast. As a result, four decades of stresses more or less camouflaged burst into the open. Conflicts over war aims and war production, hostilities among and within political parties, and antagonisms inside the High Command and the war cabinet were eviscerating Germany long before November 1918. The many articles and monographs dealing with such themes help their readers understand how a country so torn could blunder into a war, or, indeed, how a German government might even plan a conflict either to restore a viable domestic balance or from simple fecklessness. What remains incomprehensible in this context is how the society described by Fritz Stern and Alan Palmer was able to fight as long and as well as it did. The question is complicated by the tendency of too many scholars dealing both with the Second Em-

pire and World War I to regard 1914 as a watershed, a natural place to stop or start. Perhaps it is desirable for the next generation to begin bridging that particular gap. And perhaps it is even more desirable to begin seeking elements of positive continuity, ele-

ments of strength and cohesion, in the Empire of Bismarck and William II. The new orthodoxy, like its predecessors, remains open to challenge and revision.

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Notes

1. A useful discussion of the controversy surrounding Fritz Fischer and his conclusions is John A. Moses, *The Politics of Illusion. The Fischer Controversy in German Historiography* (New York: Barnes and Noble, 1975).

2. Recent English-language introductions to this issue include Richard J. Evans, "Wilhelm II's Germany and the Historians," in Richard J. Evans, editor. *Society and Politics in Wilhelmine Germany* (London: Croom Helm, 1978), pp. 11-39; and James J. Sheehan,

"Conflict and Cohesion among German Elites in the Nineteenth Century," in James J. Sheehan, editor. *Imperial Germany* (New York: New Viewpoints, 1976), pp. 62-92. Both articles contain useful bibliographies of German scholarship on the subject.

3. Cf. Norman Rich, "Imperial Germany: Two Views from the Top." *Journal of Modern History.* 1978. pp. 112-22, esp p. 114; and George Windell, "The Bismarckian Empire as a Federal State, 1866-1880: A Chronicle of Failure." *Central European History.* 1969. pp. 291-311.

SHAH MAT—THE RISE AND FALL OF MUHAMMAD REZA PAHLAVI

Dr. Lewis Ware

IN THE Middle East the game of chess is ended with the declaration of checkmate— *shah mat*—the king is dead! No expression seems more appropriate to the Iranian Revolution than this. The Shah has been dethroned and with him crumbled the edifice of his aspirations, aspirations which were in part erected on the tenuous assumptions of the Nixon Doctrine some ten years earlier. The game came to an end so abruptly, collapsed so completely, that both participants and observers had little time to register any reaction other than utter dismay and shock. There was much attendant clamor in the lower branches of the Grove of Academe, through which the theoreticians had once so blithely swung; where, at one time confident

of elaborating an airtight model for Iran's sustained stability, they were now loath to explain her precipitous demise. And the cynics and pundits alike, in government or on its margin, simply clucked their tongues in smug confirmation of what they always knew to be true: that the Middle East, inherently ungovernable and chaotic in the extreme, had again retreated beyond the pale of understanding.

The atmosphere of bewilderment and mutual recrimination prevails now as it did then. And yet there has appeared recently a work whose singular merit lies in its attempt, at a time when hindsight may still be premature, to reconstruct dispassionately the master plan of the game that went wrong. To

his end Amin Saikal has devoted his timely book. *The Rise and the Fall of the Shah.*†

Its principal theme is unambiguous. The Shah was the great modernizer of Iran. To further his goals he chose an autocratic model of nation-building bequeathed to him by his father, Reza Shah. During his reign a need for independence informed Muhammad Reza Pahlavi's vision of Iranian grandeur from which he never wavered and to which he applied the limitless resources of absolute monarchy. He failed to unite Iran under his person and destroyed in the process any possibility for Iran to act in an unrestrained environment. If modernizers were to be judged by their intents rather than by their products, the Shah might have gotten off lighter than he did despite his not inconsiderable excesses; and it is out of the humaneness implicit in this understanding that the author rejects the parochial point of view. Professor Saikal is critical but not condemnatory. One might say that running throughout his work there is an understated thread of sympathy for the deposed monarch. Clearly, this has contributed to the clarity of his perceptions and the convincing quality of his arguments.

The Shah, as Professor Saikal sees him, was caught on the horns of a geopolitical dilemma. To be so near to the Soviet Union and, therefore, always the object of Russian avidity was certainly bad enough; to have to depend ultimately on the United States for support against a covetous neighbor so as not to lend credence to the fallacy that Iran belonged in the Soviet orbit was perhaps even worse. The Shah believed that the legitimacy of Iran's independence, the bulwark of her physical security, lay in the transformation of his personal power into a political institution; for if Iran were to survive other than as a pawn of the superpowers, he had to base his power on a consensus for the monarchy.

This transformation demanded reform on an unprecedented scale, a veritable revolution in the evolutionary mode, and a series of steps that would free the resources of Iran for the construction of a bourgeois, capitalist society in which the gap between the socialization of the elites and the masses would be slowly obliterated. The popular base of rule would be enlarged releasing, as a consequence, the economic capacity of the country and the energies of the community for the service of transcendent national goals.

The Shah's White Revolution set this process in motion by sequestering the property of a small but influential landowning class in favor of the dispossessed, whom the government tried to organize along cooperative lines. A Literacy Corps came into existence simultaneously to prepare, in a very limited sociopolitical sense, the newly enfranchised class for its role of loyal citizenry. The land reform was then balanced by the sale of state-owned factories to private shareholders, thereby allowing the landowners the opportunity to reinvest their government reimbursements in capital-producing industries. With these basic reforms came a wholesale augmentation in resources allocated to the allied sectors of housing, health, education, and industrial training. To these ambitious projects was then added the rapidly increasing oil revenues that Iran accrued from her leadership in OPEC. ·

Eventually, the Shah's revolution was to convince the United States of Iran's long-term investment value, the main dividend of which was U.S. acquiescence to the Shah's demand for military carte blanche. This agreement permitted Iran to exercise a hitherto unrealized flexibility and stability in

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†Amin Saikal, *The Rise and the Fall of the Shah* (Princeton, New Jersey: Princeton University Press, 1980), 279 pages, including notes, bibliography, and index, no price indicated.

foreign relations. It encouraged the Shah to deal unilaterally with the U.S.S.R., gave him the right to insist on a regional status quo under Iranian hegemony, and, in the rapid shift to multipolar global relations after 1969, paved the way for the destruction of the absolute hold over Iranian petroleum exercised by the Western oil consortia.

And yet the substructure on which the Shah's ambitions and successes were founded was tragically flawed. To call his ultimate failure the result of the politics of "system management" or the politics of "manoeuvre" is to miss the point. The Shah's debacle came about because there had never been, nor could there ever be under the circumstances, a general agreement on the meaning of progress. As a consequence, the Shah was denied the very security and legitimacy his regime needed to exist.

To the United States, which had by the early seventies assumed the role of guarantor of Gulf security, progress signified military stability on Iran's northern frontier, an expanding electorate, a circumspect tolerance for an alternative to the Shah's rule within the nonideologically oriented opposition, and access to full and unfettered commercial relations with its rich client. To the Shah, progress meant consolidation of the power of his regime. He personally devoted himself to socioeconomic reform without establishing any concomitant political changes in the monolithic structure of the country's governmental apparatus. Institutionalized in his person, power was never invested in other legislative or executive organisms which remained politically truncated and operatively marginal to the state. The Shah exercised his privilege through his trusted minions whom he removed at will. Moreover, as part of his discretionary powers, he broadly defined the nature of the subversion against him and crushed it by means of SAVAK, his organ of state terror. Thus, instead of enlarging his

mandate through gradual access of the people to political liberties, he repressed his opposition, narrowed his base of legitimacy and created a force dedicated not to more viable alternatives for Iranian development but to the destruction of monarchical prerogative.

It was inevitable that reaction should occur in the form of an Islamic revolution led by a discontented class of mullahs whose lands, once held as pious foundations on which the power of the religious establishment was grounded, had been partially expropriated by the state. The Shah was not able to coopt these malcontents into the system or appropriate their claim to Islamic legitimacy. In the last days of the regime the people rallied behind the mullahs when the accumulated inconsistencies and contradictions of national socioeconomic and political dislocation had already become too heavy to bear. The United States, which had previously accepted in the broader context the authoritarian model of development, opposed it now on specific issues and linked continuing aid to ever-increasing demands for the liberalization of the regime. The series of repressions and the relaxation of control that followed weakened the Shah's already dubious ability to rule effectively while at the same time encouraged the opposition to coalesce around Islamic leaders.

THOSE who have studied the history of the modern Middle East were perhaps the only observers not to be surprised at the checkmate in Iran. History provides many poignant examples of the failure of regional states to create a national ecumene through modernization. Of particular interest to us are the example of Ottoman Turkey during the period of the Tanzimat reforms and Egypt in the period prior to the British occupation. Here ambitious rulers, anxious to cure the ills of a

decaying traditional society, sought to emulate the power of the West through military reforms. In the process they borrowed selectively from the corpus of Western technological and political ideas in an attempt to discover the right mix of prescriptions suitable to their circumstances, creating simultaneously the opportunity for the Western powers to integrate their clients into the European geopolitical system. This accelerated the development of new classes of political actors who competed for the right to determine the nation's orientation in a way that was sometimes inimical to its best interests. Under these conditions change could no longer be controlled and anarchy ensued.

Professor Saikal would agree, I am sure, that the study of these patterns cannot tell us what to do in similar situations. Nevertheless, as his admirable book points out, history can at least show us what *not* to do, furnish us with perspective on problems, and discipline our minds to the arduous task of finding solutions. In a world fast committing historicide, it is encouraging that a historian should call us to our senses by being the first, not the last, to address our confusion.

Air University Library
Maxwell AFB, Alabama

Potpourri

The Encyclopedia of Hot Air Balloons by Paul Garrison. New York: Drake Publishers, 1978. 128 pages, $6.95.

If reading a book were as exciting as actually flying a hot air balloon, then *The Encyclopedia of Hot Air Balloons* would be an exciting read, indeed. However, the book has presented an adequate description of the hard work involved and frustration with the weather that plagues the balloonist. Garrison included a description of an aborted flight as well as a successful flight, and in the process he described the equipment, crew responsibilities, and conditions that permit safe hot air balloon flights.

The pictures are more complete and descriptive of the various steps of inflating and flying a balloon than most publishers permit (although the negative is reversed on page 51). Thus the book would be useful even as an orientation manual for a new passenger or a beginning pilot. Although claiming the title of encyclopedia, it is not complete enough to prepare the student pilot for the written examination required by the Federal Aviation Administration before licensing, but it does include most of the regulations, a sample of

terms (correctly calling the top of the balloon the *apex* but omitting the more common usage *crown* and *crown line*), and a list of most of the models and manufacturers' prices (already outdated by inflation). I am distressed by a definition of AX as "a category of balloon" without the precision to say it is based on the volume size and hence lifting or load capacity of the balloon.

The historical chronology omits the day and month in many entries and names of most of the Gordon Bennett International Cup Race winners, which limits its usefulness. Although mentioning that preparation was under way, the book, unfortunately, was published just before the successful transatlantic flight of *Double Eagle II*, and thus missed that watershed event as the end point in the chronology.

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Orientalism by Edward Said. New York: Pantheon Press, 1978. 368 pages, index, and bibliography, $15.00.

Reading Edward Said's book *Orientalism* gives one the feeling that the inevitable has finally come to pass. *Orientalism* is a long overdue indictment of Middle Eastern scholarship, if not of the entire corpus of Western perceptions of the Middle East and Middle

Easterners. While it is true that Edward Said possesses no guild credentials that entitle him to his critique and is furthermore a native Palestinian—two considerations that will no doubt open him to the charge of presumption and political unreliability—still *Orientalism* cannot be dismissed. It is the beautifully crafted tour de force of an obviously talented man informed by an intelligence, sensibility, persuasiveness, and command of material rarely found among practitioners of Orientalism today. *Orientalism* is a challenge that demands to be answered.

The challenge itself comes in the form of a question. Said asks: "How is it that of all the disciplines that bear on a single region and its people Middle Eastern studies remains today the only one that has not undergone extensive revisionism?" Said answers the question with a contention: The study of the Middle East is the domain of the Orientalist, and Orientalism is a discipline that has not only created the image of who and what Middle Easterners and the Middle East are but in turn has become the discipline most profoundly influenced by its own epistemological bias. Hence, "Orientals were rarely seen or looked at; they were seen through, analyzed not as citizens, or even people, but as problems to be solved or confined or—as the colonial powers openly coveted their territory—taken over" (p. 207), a case, in the words of the distinguished Egyptian historian Anwar Abdel-malek, of the "hegemonism of possessing minorities." The reason this state of affairs has enjoyed such longevity, Said asserts, is due entirely to the manner by which Orientalism, as the dominant mode of perceiving minorities in the colonial situation, has come to influence the political decision-making process itself. Said's *Orientalism* is a clear and forthright history of that invidious connection.

In writing this history the author shows himself to be a deft handler of facts and ideas. Said begins by enumerating the representations of the Orient which abound in ancient and medieval European literature, all of which combine to set the tone of cultural disparity between East and West. Then he proceeds to show us how this disparity was elaborated by Western travelers to the Orient whose works serve to inform and rationalize the physical conquest of the region. The subsequent colonization of the Middle East, then, sets in motion two complementary trends: first, knowledge of the Middle East, acquired now by actual encounters between colonized and colonizer, forms a class of administrators who perpetuate this skewed dialectic in the metropole and second, spawns a class of scholars who lay the groundwork for the systematic investigation of Oriental phenomena through a universalizing historicism that denies to the Orient its place in a progressive world order. Henceforth, it will be (from

the Western point of view) a short but totally logical step to maintain control over the meaning of things Oriental in the name of realpolitik and national interests.

In the final analysis, Said's book, exhaustive and convincing as it may be, leaves the reader with an uneasiness that is the hallmark of all important statements: If everything the author says is justifiable, how can we gain any knowledge of the Middle East at all that is meaningful, accurate, and scientifically useful? Said does not presume to answer that query. This is a problem, he contends, for the next generation of scholars to confront in the opening of new avenues for the reconstruction of Middle Eastern studies. It is enough that *Orientalism* will stand as the first brave act of critical consciousness in this much neglected field.

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Working Smart: How to Accomplish More in Half the Time by Michael LeBoeuf. New York: McGraw-Hill, 1979, 232 pages, $8.95.

Working Smart is a well-organized, practical, and, if read to be used as a working tool, helpful book by Michael LeBoeuf answering his own question, "How can I get the greatest return on my investment of time and energy?"

LeBoeuf seems to have covered all the problems faced and time wasted in our work at home and on the job. His chapters entitled "Getting Organized," "Making Every Day Count," "Putting an End to Putting It Off," and "Minimizing Those Costly Interruptions" can apply to everyone, housewife to executive.

One of his helpful tips includes making a list of present-day and long-range objectives. He stresses that when you make your list of objectives and set priorities to them that you be realistic and that the priorities be your own! Now that you have thought these out, you can pursue your objectives efficiently (the way you go about reaching them) and effectively (the results).

Another helpful tip is to keep a time chart broken down into all phases of your workday—from telephone calls to meetings; see where your time is being spent (or wasted).

Other chapters, such as "Melting the Paper Blizzard" and "Who Else Can Do the Job?" can be helpful to those bosses who have to conserve time, money, and personnel. The author uses examples to show where money and time are wasted just filling out forms!

Working Smart is easy reading and can be helpful for

those who feel they never have enough time to get their job done, or for those who feel they never accomplish or finish what they have started.

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Confession and Avoidance, A Memoir by Leon Jaworski with Mickey Herskowitz. New York: Anchor Press/Doubleday, 1979, 325 pages, $10.95.

Reading Leon Jaworski's story evokes a range of responses from poignancy to anger, from pride to horror. Mickey Herskowitz, the "with" writer, has done a fine job of pulling together Jaworski's first-person tale, which moves from Waco to Nürnberg to Washington and historical points in between.

Herskowitz is a skilled journalist and sports writer. His style is so smooth and simple that at times it appears to belong in the juvenile publishing genre. But don't be fooled by the quick pace. This is writing that crackles with humor, insight, and suspense.

As Jaworski talks about his early trials, some of the conflicts come alive, like those in *Blood and Money* and *Till Death Us Do Part.* His prosecutions of incarcerated Nazis following World War II were a unique and horrendous experience. When he handles the litigation of their war crimes, the reader becomes viscerally involved.

The most painful chapters concern Jaworski's roles as special prosecutor of the Watergate case and on the Warren Commission during the investigation of the murder of President Kennedy. His detailed account of these crimes is the very best I have found. Jaworski is quite clear in his conclusion that Lee Harvey Oswald killed the President and did the act alone. His scorn for Mark Lane and other "assassination vultures" is evident. He deprecates the more recent House Assassination Committee's last-minute finding of the echo tests taken from a two-miles-distant recording, saying, "The panel yielded to what had been the obvious temptation; to produce something dramatic to justify an effort that cost the public $6 million."

As to the Nixon case, he concludes that the former President "is still unwilling, or unable, to face the reality of what he did." And as his own lawyer, "Nixon had a fool for a client. . . . There are tape recordings unrelated to Watergate that have still not become public . . . that will show even more clearly the extent to which Richard Nixon abused his office." This incisive chapter alone makes the book worthwhile.

But there is more, much more, including Jaworski's effort to bring forth all the facts in the Tongsun Park episode in Washington. He is not completely satisfied with the outcome and explains why: the conflict between the Justice Department and Congress was too great to reconcile. This complex case, along with several others, would make excellent resource material in civics, social science, or political science courses.

Confession and Avoidance was also appreciated for personal reasons. Many of the people and places mentioned are familiar to me and I can vouch for the perspective offered, whether the text touches on Houston, Glenn McCarthy, Waco, Baylor University, Dallas, Robert G. Storey of Southern Methodist University, or Representative Jim Wright of Fort Worth—all come into clear and well-defined focus.

The book is a tour de force, a uniquely painful, educational, and entertaining panorama.

Dr. Porter J. Crow
Washington, D C

Uncertain Greatness: Henry Kissinger and American Foreign Policy by Roger Morris. New York: Harper & Row, 1977, 312 pages, $10.95.

Books by and about various members of the Nixon staff abound in the marketplace. Some are good but many are self-serving. Surprisingly, there has been relatively little written about the brightest star of the Nixon team, Secretary of State Henry Kissinger. Roger Morris's book makes no attempt to be either a comprehensive record of American foreign policy during 1969-76 or a conventional biography. Rather, it does succeed in providing a deeper insight into the man and the diplomacy of his time.

That a relatively unknown man should rise to such heights of power so quickly and do so in the apparently paranoid atmosphere of the Nixon White House is surely worthy of much study by all future would-be political actors. The influence commanded by Henry Kissinger was aptly explained by Hugh Sidey, *Life* magazine's senior Washington correspondent: "There has never been anything quite like Henry Kissinger in mythology or in fact—he commanded influence so vast—that he can cause the stock market to dip with a sentence or send prime ministers into fits by remaining silent." (p. 193) In retrospect, it seems as though the bold and sophisticated Secretary of State came to overshadow Nixon and may well have been actually running the country.

Roger Morris, himself a member of Kissinger's National Security Council until he resigned over the Cambodian invasion of 1970, is at his best in describing the policies dealing with Biafra, Vietnam, and Southern Rhodesia. Keen inside observation is also

provided on Chile, China, Pakistan, and Cyprus. The contrast between the administration's brilliant approach to China and its lack of sensitivity for events in Biafra and Chile is revealed in unusual clarity. Kissinger excelled during the shuttle diplomacy of the Middle East, a time that also shows his "ultimate seduction of a consenting press." (p. 262) As Bernard Guertzman of the *New York Times* wrote, "probably no Secretary of State in history has had a closer relationship with the newsmen who cover him." Morris leaves little doubt that Kissinger manipulated the media for the sake of policy. The larger and unanswered question is why the media allowed themselves to be exploited by this Harvard professor? Was it slothfulness, complacency, or was Henry "implacably informative"? William F. Buckley, Jr., stated that, "if in fact he doesn't tell you everything he knows, he never leaves you thinking he hasn't."

Morris describes with clarity how Kissinger and Nixon virtually removed the State Department and the Pentagon from the decision-making process. Government officials were either lied to or wiretapped into neutrality. One is left with the feeling that no part of the government bureaucracy was capable of keeping up with, let alone controlling, this reincarnated Castlereagh.

Throughout this very readable book the author reflects on the corruption, inhumanity, vanity, and lack of sensitivity that seem to have characterized the Nixon administration. However, in the final pages Morris advocates a return of Kissinger to power (kept honest this time), stating that "Enlightenment will demand extraordinary gifts and authority, and for the moment at least, he has both." Considering the soiled doves that have found their way into the Carter administration, one wonders whether Henry Kissinger can be far away?

Dr. Robert H. Terry
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York College of Pennsylvania

Commandos and Politicians: Elite Military Units in Modern Democracies by Eliot A. Cohen. Cambridge, Massachusetts: Harvard University Center for International Affairs, 136 pages, $8.95 cloth, $3.95 paperback.

The word *elite* rubs against our democratic grain. Eliot A. Cohen, a National Science Foundation graduate fellow, examines, in this outgrowth of his Harvard senior honors thesis, the seemingly paradoxical phenomenon of the proliferation of elite military units in the democratic United States, Great Britain, France,

and Israel. He focuses exclusively on the guerrilla, counterguerrilla, and commando units that came into being during and after World War II, giving primary attention to the "interplay of politics and military affairs."

There are three kinds of motivations, he contends, for the creation of these groups. First, they come into being because they are needed to perform some apolitical "military utility" function; this, he holds, is the only valid reason for their creation. Second, they sometimes have their origins in some politician's romantic fantasy. Third, they may have their genesis in the politicization of the military. The latter two lead to expansion and publicity, which undermine both military efficiency and civil-military relations.

Elite military units, Cohen argues, frequently damage sound civil-military relations by rendering havoc within the chain of command, by wooing influential politicians, and by contributing to potentially dangerous misperceptions on the parts of both military and civilian authorities. Additionally, the special forces cause severe problems for democratic armies since they skim off high-caliber manpower and encourage the employment of tactics that are often inappropriate to the regular army; the notoriety they achieve also demoralizes nonelite personnel.

Yet Cohen is optimistic that elite units can be used for militarily defensible purposes. He is confident that the natural inclinations of regular military and civilian defense bureaucracies will tend to keep them in check if only politicians will resist the temptation to manipulate the units for political purposes.

Cohen's study is light and brief. It is a quick read and poses many important questions; but for in-depth analysis, one must look elsewhere.

Stephen D. Bodayla
Assistant Professor of History
Marycrest College, Iowa

The Royal United Services Institute and Brassey's Defense Yearbook, 1978-79. London: Brassey's Publishers, Ltd., 1979, viii + 365 pages, illustrated, $49.50.

This is the fifth year in which this book has been published in its present form. Regular readers will not need to be reminded that Brassey's contains a series of articles on a wide variety of defense matters presented by different authors. It will come as no surprise, then, to relate that the quality of the work this year varies considerably.

The range of subjects covered is enormous. Within the section titled "Strategic Review," we read of the

Yugoslav experiment in all-purpose defense; we read again of the significance of the Horn of Africa; we are treated to a spirited piece on the alliances of the eastern Mediterranean; and we learn a little of the purpose of the civilian air carriers of the Soviets and the East Europeans. This last subject is also touched on in General Peter Blunt's article on "NATO's Logistics."

The series of essays in Part 1 always provides one with ideas. This year there is little new in many of them; but the views of the authors are, for the most part, well expressed and will provide many an instructor in such matters a valuable lesson in the difficult art of precis writing. These essays may well also provide instructors with a ready-made lesson on these specific topics.

Brassey's particular strength, indeed his especial interest, has always been in military hardware; and once again this year there is a tremendously strong section on weapon technology. The authors have tried to bring this material together in a more simple format. They have succeeded—just. Short paragraphs on most of the weapon systems are offered, but (because of their brevity) they may appeal only to the nonexpert. Similarly, the final chapter, with its limited discussion of the current U.S.S.R./U.S. strategic balance, its offering on electronic warfare, and its thoughts on military communications, causes the reader to ponder on the intended audience for such a publication.

Brassey's Defense Yearbook, 1978-79 at $49.50 is expensive. It is not a book for the defense expert. Concern must further be expressed that its price will mean its most valuable section, the section that analyzes the relative strengths and weaknesses of a vast range of weaponry in a clear, simple fashion, will also be unread by the general public. This is indeed a great pity, for there is much to be learned in these 360 pages.

Libraries should buy this book. How popular it will be with the book-buying public is another question; but those who do invest their money will find within these hardback covers not only material discussed earlier but also an invaluable bibliography of defense publications of the last twelve months together with a splendid chronology of defense-related events over the same period.

<div style="text-align: right">Squadron Leader Malcolm Shaw, Royal Air Force
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Rolling Thunder: Understanding Policy and Program Failure by James Clay Thompson. Chapel Hill: University of North Carolina Press, 1980, 197 pages, $14.60 cloth, $6.50 paperback.

Professor James Clay Thompson's *Rolling Thunder* is a case study that attempts to discover what happens to large organizations when they fail to achieve specified goals and asks why the Air Force and the national security apparatus took so long to recognize the failures in the air war against North Vietnam.

Rolling Thunder was the bombing of North Vietnam conducted from April 1965 to November 1968. Thompson correctly concluded that the attacks failed either to prompt the North Vietnamese to seek a negotiated peace or degrade significantly the fighting capabilities of the communist forces in South Vietnam. As an attempt to analyze the institutional shortcomings that led to the continuation of the ill-fated aerial war in the face of mounting evidence of its failure, *Rolling Thunder* provides an excellent starting point for further investigation. However, the book has its flaws.

A chapter on theory seems out of place. While the chapter provides a comprehensive review of organizational theories, it inadequately connects these theories to the institutional failures that prolonged Rolling Thunder. Perhaps such a detailed review of theories would be useful in a more ambitious undertaking, one encompassing the entire Indochina air war.

Professor Thompson concentrated on areas of the government other than the Departments of Defense and the Air Force. He did not exploit military documents, which might have strengthened his arguments by shedding more light on the Air Force's institutional problems. (These documents might be made available through the Freedom of Information Act.) Because not enough attention was paid to the military's shortcomings, the book is incomplete at best and inconsistent at worst.

For instance, in his conclusion, Dr. Thompson wrote, "When Rolling Thunder ended in 1968, the bombing of North Vietnam was not stopped. The United States resumed massive bombing of North Vietnam in December 1972." Professor Thompson seems unaware that when Rolling Thunder ended, the bombing did not stop or even diminish—it merely moved across the Annamite mountains to focus on the infiltration corridors running through Laos. Furthermore, armed reconnaissance sorties continued over North Vietnam, and "protective reaction" strikes were conducted until an Air Force sergeant blew the whistle that initiated the celebrated Lavelle case. Additionally, the author ignored Linebacker I, the bombing of North Vietnam in response to the North Vietnamese spring offensive of 1972. That omission proves significant because Linebacker I, in contrast to Rolling Thunder, was, for a variety of reasons, a success.

Despite its limited scope, *Rolling Thunder* is a valu-

able book. The thesis that organizations have inherent limitations which can lead to significant failures is adequately supported, and Thompson's analysis of those limitations that led to the debacle of Rolling Thunder is correct. As Professor Thompson stated, during Rolling Thunder the Air Force was hurt by the limited flow of information. In an atmosphere where dissent became anathema, the Air Force fooled itself into believing its programs and policies were leading to an unbroken string of victories. It is to be hoped that Professor Thompson and others, in and out of government, will continue to investigate the air war in Indochina. Otherwise, without objective histories and analyses of that war, the Air Force may not learn the lessons that past failures ought to teach.

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Japan As Number One: Lesson for America by Ezra F. Vogel. Cambridge, Massachusetts: Harvard University Press, 1979, 272 pages, $12.50.

Vogel's book will be uncomfortable reading for many, suggesting as it does that we as a nation are falling behind in the world and should look to our Asian neighbors, especially Japan, for clues to our future survival. Vogel analyzes and compares Japan's success in dealing with economic and social problems with the United States; he demonstrates that the Japanese success is due not to culture or tradition but to conscious planning and group effort.

The author is neither an apologist for America nor a propagandist for Japan. He points out the weaknesses in the Japanese system, explaining the aspects of their system that would not be appropriate for America. Finally, he insists, however, that we consider adopting those aspects of the Japanese system that are applicable to our own.

If we in this country are to continue to enjoy the fruits of our labor and if this country is to maintain its (shaky) position of economic and social leadership, we must look for new answers to pressing problems. We must seek new solutions and changes for unresponsive institutions of an era that no longer exists.

Japan As Number One suggests at least one alternative. It is an illuminating and instructive work.

Major Charles Ray, USA
Fort Bragg, North Carolina

The Art of War: Waterloo to Mons by William McElwee. Bloomington: Indiana University Press, 1974, 346 pages, $4.95 paperback.

Unlike those who follow other professions, the "regular soldier" cannot regularly practice his profession.

B. H. Liddell Hart
Why Don't We Learn from History

From a strategic standpoint direct experience such as Vietnam is far too limited to permit a balanced perspective from which a professional soldier can prepare for future warfare. Indirect experience, such as the study of military history, not only offers a greater variety and depth of knowledge (aside from the physical nature of actual combat) but is also invaluable as a mental stimulus and tool for professional development in peacetime. William McElwee's book *The Art of War: Waterloo to Mons* is one of many works that deserves the attention of today's military leaders.

McElwee, a former Sandhurst instructor in modern subjects, begins with an examination of the legacy left by Napoleon, discusses the conduct of warfare between 1859 and World War I, and concludes with an examination of the successes of Moltke and the Prussian General Staff. The Age of Moltke (1855-1914), like the current period, was one in which military developments and achievements were controlled and guided by politicians. Also, this was a long period of general peace (1871-1914). However, then as today, humanity had not found the answer to permanent peace. Situations arose where embittered feelings frustrated all attempts at a rational, peaceful solution that ultimately resulted in the "squalid, meaningless endurance test in the mud of 1914-1918 which all but destroyed a whole generation of men on whom the future of civilization depended. This has to be the ultimate judgment of history on the Age of Moltke." (p. 327)

William McElwee has produced a valued volume, and I recommend it.

Major Robert J. Scauzillo, USAF
Mountain Home AFB, Idaho

Approaches and Theory in International Relations edited by Trevor Taylor. New York: Longman, 1979, 314 pages, $8.95.

World War I provided the impetus for the development of international relations as an academic discipline, a field of study that still finds its justification in the inability of states to prevent war.

This baker's dozen of essays by British scholars reviews the state of the discipline after a half century, nicely outlines the intellectual origins of various approaches, and summarizes the contributions and limitations of each. Separate chapters discuss power

politics, military strategy, decision-making analysis, a systems approach, communications theory, integration theory, peace research, and "peace through law."

Traditionally, international relations has concentrated on the state as the unit of analysis, although many scholars have shifted emphasis to "system" as the focal point for research. Both these approaches are challenged by the Marxist perspective, which is in a category of its own. The longest (and best) chapter on this revolutionary approach deserves close reading, for Marxism denies the primacy of the state, ignoring (at least at the ideological level) the very real potency of nationalism; it rejects the notion of a universal human nature; and it claims that natural human rights and natural law are bogus. By such denial of ideas basic to Western thought, Marxism challenges the usual intellectual approaches to international relations. More important, as a practical matter these ideas have strong influences on the politics of regimes that embrace a Marxist approach—say half of the world's population. The author suggests that the Marxist perspective offers some explanatory advantages in understanding the current phenomena of multinational companies, transnational financial flows, and economic dependency.

Recommended reading, selectively, and a chapter at a time.

Dr. James H. Buck
Air War College
Maxwell AFB, Alabama

Fighter: The True Story of the Battle of Britain by Len Deighton. New York: Knopf, 1978. 261 pages. $12.50.

"But while all bureaucracy is devious, military bureaucracy is conspiratorial." With words like these, novelist Len Deighton presents yet another description of the Battle of Britain, but it is not the history he claims it to be. Such sweeping generalizations (and lesser assertions throughout) are enough to disqualify the work as scholarly history, even were it based on more than the most common printed sources and accompanied by the required documentation. Still, the story is written in an engaging style; most of its interpretations are not far removed from those of the standard histories, and, if the reader likes blow-by-blow descriptions of battles, the work may prove interesting.

The strategies, personalities, technology, and tactics of the great battle are all described in terms the layman can easily understand and accompanied by illustrations which make the story that much easier to follow.

Large claims are made regarding the photographs, and it is true that they go beyond the standard fare and do add something to the book—though a few are clichés that might well have been omitted. Whatever the shortcomings of undocumented assertions, the basic soundness of most of the interpretations and the good writing style, along with the technical quality of the editing and artwork, make *Fighter* a good introductory work for someone just becoming interested in the Battle of Britain.

Lieutenant Colonel David R. Mets, USAF (Ret)
Niceville, Florida

Assault from the Sky: A History of Airborne Warfare by John Weeks. New York: G. P. Putnam's Sons, 1978. 192 pages. $20.00.

Of all the tactical innovations in twentieth-century warfare, none has quite captured the imagination and attention of military men like the airborne assault. The notion of parachuting men and equipment to objectives beyond the enemy's front lines was revolutionary, indeed, and seemed to answer the need to circumvent the mindless trench-warfare tactic of World War I.

This airborne idea was the brainchild of that air power visionary, Brigadier General William "Billy" Mitchell. His idea was nearly tested during World War I, as Mitchell drew up plans to parachute the 1st Infantry Division near Metz, but the Armistice prevented its execution.

World War II saw the full blossoming of air power and its airborne extension. John Weeks's history of airborne warfare draws its focus on the World War II period, when parachutes brought soldiers to battlefields in every battle theater. In fact, early German successes at Eben Emael and in Holland, Norway, and Crete spurred Allied efforts to develop large airborne formations. However, the German operation at Crete, still considered the most successful airborne operation ever conducted, carried with it the seeds of its own demise. There were such heavy personnel and aircraft losses at Crete that never again were General Kurt Student's *Fallschirmjägers* used in large numbers.

Other airborne operations of that period—Africa, Sicily, Normandy, Arnhem—were characterized by high losses, confusion, loss of command and control, and questionable success. Lessons are clear. Since World War II, airborne units have been used sparingly and never in more than regimental size.

Like the airborne concept he traces from its beginnings through airmobile warfare in Vietnam, Weeks's history contains much promise but delivers somewhat less than expected. Trapped by his intention to chart

the history of airborne forces "within the limitations imposed by the space available," the author makes constant disclaimers about the history of this or that campaign being written elsewhere and leaves it to the reader to fill in the gaps. He uses this device to limit further his examination of airborne/airmobile campaigns, much to the overall detriment of his work. One cannot, for example, explore helicopter warfare in Vietnam without examining the French innovations in that direction in Algeria. Weeks would have been better served had he narrowed his focus to World War II exclusively.

In short, this slim but expensive volume, handsomely fleshed out with numerous photographs, takes too many casualties on its way to the objective.

<div align="right">
Lieutenant Colonel John G. Fowler, USA
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The Duel of the Giants: China and Russia in Asia
by Drew Middleton. New York: Charles Scribner's Sons, 1978, 241 pages, $10.95.

Three centuries of Chinese-Russian competition for territory and influence in Asia was the basis of Drew Middleton's recent book on the Sino-Soviet conflict of today. In the first chapters the reader will find credible condensations of more scholarly works on such subjects as Chinese history, a history of Sino-Russian relations, and an update of post World War II Chinese foreign relations.

Written for a general readership, the book initially meanders through this history, cultural comparisons, and current events in an attempt to portray the relationships in what the author calls the "strategic triangle"—the United States, China, and the Soviet Union. Eventually Middleton nails down specific issues and proffers specific conclusions, including the following: the Sino-Soviet conflict may be a more serious threat to world stability than the Soviet threat to West Europe; Chinese military advantage rests only in the amount of manpower and is otherwise outclassed in all other measures of military preparedness; the Soviets will use tactical nuclear weapons against the Chinese; and, finally, a belief that a Russian-Chinese armed clash is highly probable. Middleton seemed to mute his call for concern over this highly probable chance of war. With somber resignation, he intimates that we, the United States, can do little to control the events that lead to this potential world disaster, a Sino-Soviet war.

The one serious flaw of the book resulted not from the author's pen but from the publisher's timing. Mid-

dleton underpinned many of his arguments with the fact that the United States and China did not recognize each other. Four weeks following publication of this book, China and the United States recognized each other, and Middleton's strategic triangle took on very different dimensions. However, this rapidly changing state of Sino-American relations, though dating much of Middleton's analysis, should not dissuade a reader from selecting this book for an introduction to the Sino-Soviet conflict.

<div align="right">
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Domestic Affairs: American Programs and Priorities by James Duffy. New York: Simon and Schuster, 1978, 309 pages, index and notes, $10.95.

Starting with Franklin Roosevelt's 1933 Economic Bill of Rights, James Duffy, assigning priorities and attacking problems that remain unsolved today, measures America's progress in meeting basic social and economic needs. Well written, smooth, articulate, *Domestic Affairs* is intellectual and political drama at its best. There is in its rendering a constant tension of ideas and a style of fine debate, as issues are lifted up and options for solutions examined on the basis of understanding the philosophies expressed by both liberals and conservatives, Democrats and Republicans.

Looking at party politics, Duffy, a lawyer out of Princeton and Harvard, sees a common thread running through all considerations uniting the Republicans on the one hand and the Democrats on the other; and he concludes sharply, "I do not believe that there are necessarily two sides to every question."

Starting with this premise, *Domestic Affairs* shapes out like a report card, but the author goes behind mere marks to higher common denominators. He definitively describes industry as well as work, recreation as well as sustenance, farmers as well as food, education as well as unemployment, energy as well as gas lines. In doing so, he gives solid representation of those politicos who have had the most effect on our lives. Quotations are rich, selections of evidence are meaningful and filled with insight. Focusing on the GI Bill of Rights through the Reserves and National Guard to the current concerns of inflation, revenue sharing, and tax reform, he offers an optimistic yet pragmatic evaluation of today's status and future expectations. Duffy assesses what we can and cannot realistically expect from our national institutions and the people who staff them. He takes a hard look at both

the Presidency and the Congress and finds that the 1970s demonstrated that issues involving a range of programs are approaching intractability. From defense expenditures to education and welfare, there is a multitude of difficult decisions to be made.

Especially helpful at this juncture, when we are looking forward to another national election, his defined standards measure candidates for intelligence, experience, commitment, and judgment. He reminds us that the success of the President and the Congress is going to depend not only on the ability and the will of those who hold office but on what we the voters are willing to demand—or not to demand—of our elected officials.

Domestic Affairs, then, is a splendid test for all of us in these stress-filled times to rise above bigotry, cynicism, and indifference to a higher level of social justice and domestic peace.

Dr. Porter J Crow
Washington, D C

Reaching the Other Side: The Journal of an American Who Stayed to Witness Vietnam's Post-War Transition by Earl S. Martin. New York: Crown Publishers, 1978, 281 pages, $10.95 cloth.

It would be easy to dismiss this book as counter-culture propaganda except that the author is a Mennonite whose principles of "friendly persuasion" go back to the seventeenth century. His beard is a tradition of the "plain folk" of southeastern Pennsylvania and other locations in the United States and Canada. Earl Martin and his wife, who speak fluent Vietnamese, served two long tours in Vietnam, living the simple life of the people as workers for the Mennonite Central Committee, a volunteer agency.

When Americans evacuated from Quang Ngai city in the spring of 1975, Martin sent his family to haven in Saigon and stayed on under the new revolutionary government, hoping to continue his work of helping farmers clear their fields of stray explosives. He was joined by a Japanese Mennonite, "Hiro" Ichikawa. Although the two men had assurances of support from

the new regime, officials eventually "encouraged" them to leave and make their way south to Saigon.

Despite Martin's clumsy striving for suspense and his stagy reconstruction of conversations, the journal gives a vivid account of the first few months of the communist takeover. Martin, who studied political science at Stanford, has an eye for detail and generally keeps his antiwar polemic under control. Inevitably, though, all Americans, except other "volags" (volunteers), are bad, and all Vietnamese especially the revolutionaries, are good. Although Martin is an effective spokesman for the breed of pacifism he espouses, the world is a more complex place than he is willing to admit. Yet the book will be of interest to those who served in Vietnam, especially at village or hamlet level.

Lieutenant Colonel H F. Lippincott
Academic Instructor School
Maxwell AFB, Alabama

The Walking Book by Gerald Donaldson. New York: Holt, Rinehart and Winston, 1979, 180 pages, $5.95.

Jean Jacques Rousseau had to walk before he could think. Henry David Thoreau took daily walks around Walden Pond to maintain a mental equilibrium. Every Air Force person over the age of 35 is now required to walk 1.5 miles at least twice a year to meet aerobics standards.

Primarily for that reason we ordered *The Walking Book* to find for our readers some words of encouragement, facts about the therapeutic effects of a good walk, and perhaps some valuable advice. Along with anecdotes from the past that abound in wit and wisdom, Gerald Donaldson has exceeded our expectations. There is good advice here on locomotion physics, stride, foot care, footwear, and much encouragement. If you grumbled when the Air Force said "walk!" this book is required. If you are ready for some aerobics but not yet jogging, this book will be handy. Finally, if you are one of those who sit by the fire and chuckle at the folks outside in the elements, this book should be read for fun.

T M K

the
contributors

Lawrence J. Korb (Ph D , State University of New York at Albany) is Director of Defense Studies at the American Enterprise Institute, Washington Until this summer he was professor of management at the Naval War College He has been a consultant to the Office of the Secretary of Defense and a naval flight officer He has also served as consultant to the Office of Education, National Security Council, and President Carter's Commission on Government Reorganization. Dr Korb is the author of books and monographs and has published articles in *Perspective, Foreign Policy, History, Naval War College Review, World Affairs, Journal of Political and Military Sociology,* and *American Political Science Review*

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mand and Staff College, Maxwell AFB, Alabama. He will be returning to the University of Alabama on 1 January 1981 as associate professor of political science and Director of International Studies Dr Snow is the author of *Nuclear Strategy in a Dynamic World American Policy in the 1980s* He has published articles in professional and academic journals and is a previous award-winning contributor to the *Review*.

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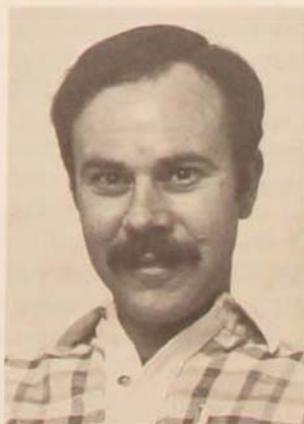
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Major General I. B. Holley, Jr., USAFR (B.A , Amherst, M A , Ph D , Yale) has taught in the Duke University Department of History since 1947 He has been a visiting professor at the National Defense University and serves as mobilization assistant to the Commander, Air University (ATC) After serving in the Army Air Forces during World War II, he taught for two years at the Industrial College of the Armed Forces; he has also been visiting professor, Department of History, U S Military Academy, 1974-75 Professor Holley is chairman of the advisory committee on history to the Secretary of the Air Force. His publications include *Ideas and Weapons* (1953), *Buying Aircraft Air Materiel Procurement for the Army Air Forces* (1963), and articles on military doctrine

John W. Killigrew (M A , Ph D , Indiana University) is professor of history at the State University of New York College at Brockport He is presently planning a trip to China for the

next academic year on a research exchange program at Peking University to study Chinese documents. He is author of *The Impact of the Great Depression on the Army, 1929-1936* (1979) and has published articles on Chinese military history and affairs in *Journal of Asian History* and *Military Affairs*

Theodore Ropp (A.B., Oberlin; M.A., Ph D., Harvard) is professor of history at Duke University, now serving as visiting professor at the University of Singapore and the University of New South Wales until September. Dr. Ropp has also taught at Harvard and at the Naval War College and Army War College. He is author of *War in the Modern World* (1959), coauthor of *Historical Background of the World Today* (1947), and has contributed to *Makers of Modern Strategy* (1943). Dr. Ropp has written previously for the *Review*.

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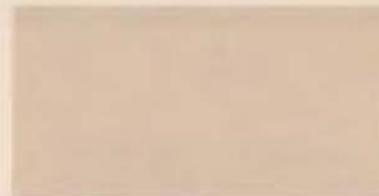
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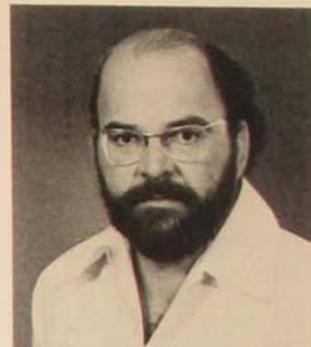
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AWARD

The Air University Review Awards Committee has selected "Challenges and Uncertainty: NATO's Southern Flank" by Dr. James Brown, Associate Professor of Political Science at Southern Methodist University, as the outstanding article in the May-June 1980 issue of the *Review.*

attention

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