AIR
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review

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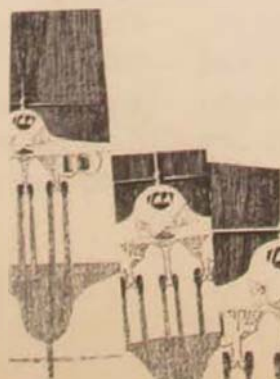
AIR UNIVERSITY review

THE PROFESSIONAL JOURNAL OF THE UNITED STATES AIR FORCE

the cover

In this era of transition the military services have been challenged on a variety of "fronts": the military-industrial complex, the problem of equality of opportunity, antimilitarism at several levels, etc. Also characteristic of the era is a challenge to and shrinking of defense appropriations, necessitating zealous concern for cost and other controls. In "Competitive Prototyping—a Development Strategy" Colonel Delbert H. Strube discusses (and the cover reflects) an acquisitions technique that shows great promise for the near future.

COMPETITIVE PROTOTYPING

A Development Strategy

COLONEL DELBERT H. STRUBE

O NE does not have to be an expert on government contracts these days to realize that the Defense Department's procurement process is undergoing substantial change. Since the advent of the new policies of Deputy Secretary of Defense David C. Packard, a definite framework for future procurement has emerged. Many techniques have been eliminated or de-emphasized; among the casualties and targets are such terms or systems as total package procurement, concurrency, fixed-price contracting for development, centralization of authority and responsibility, reliance on paper studies, elaborate management systems, and cumbersome and redundant procurement regulations. Some of the new or impending systems

PHASE 4 Deployment

PRODUCTION

PHASE 3

PHASE 2 FULL-SCALE DEVELOPMENT

PHASE 1 VALIDATION

PHASE 0 CONCEPT FORMULATION

START

that will receive added emphasis are milestones, increased dependency on prototypes, rules on fixed-price contracts, and simplified program management.

Secretary Packard stated at the opening of the Defense Systems Management School that it was almost impossible to find a major program that was not in trouble. All were behind schedule, although in most cases this was because impossible schedules had been set at the beginning. He indicated that putting better managers in charge would do more to bring about improvement than anything else. He also stated that we must develop ways to improve the management of our development and procurement programs.

Program management is by no means a simple subject. There are, however, a few simple fundamentals. The three essential elements of program management—performance, schedule, cost—are like the three sides of a triangle that can take on an infinite number of shapes: they must be delicately balanced and controlled in each program if the triangle is to be the right shape. Maintaining contract delivery, cost controls, and performance goals with inherent reliability is a tremendous management challenge. It is a subject of great concern at all levels of government. How to accomplish this challenging objective is not well understood by many people actually engaged in the work.
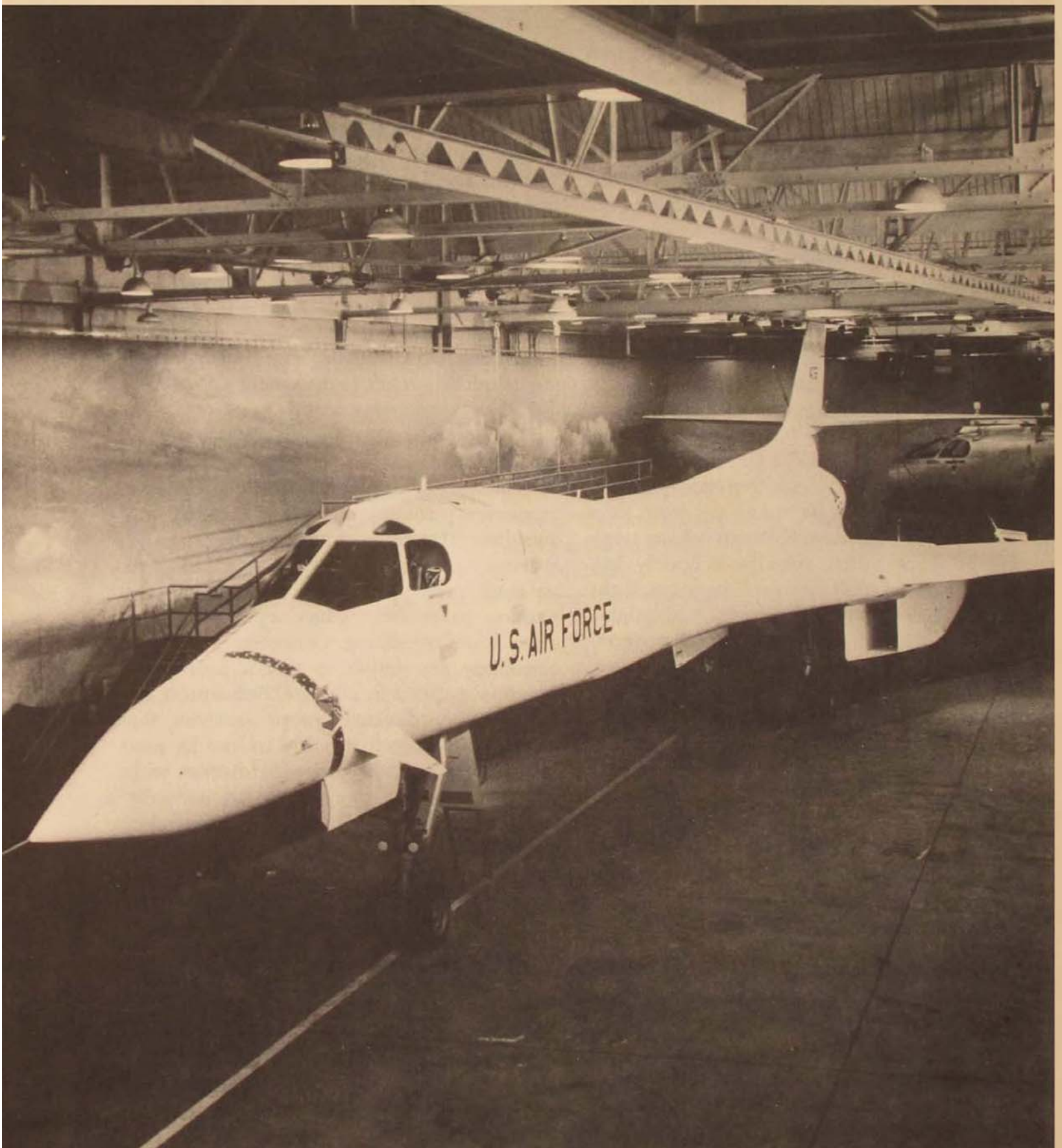
I suppose the main problem is that, in acquiring a major weapon system—or any system, for that matter—there must be a *management* system. And, as with any system, the system itself tends to harden and solidify with age. Then we, for whom the system is supposed to work, too often find that *we* are working for *it*. We become too much the captive and the victim of the system; it leads an existence of its own, and one not always related to the purpose for which it was created.
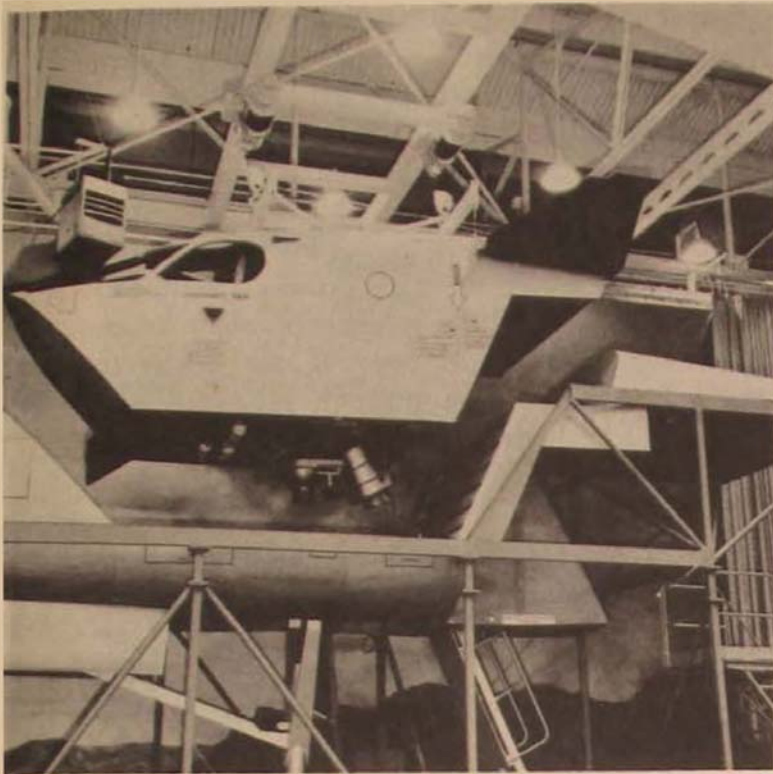
As one who has been associated with government procurement for several years, I am amazed at how much the system had para-lyzed us—at how we couldn't get things done —at how we were being consumed by our own processes in trying to reach our goals.

It was clearly the intent of Mr. Packard's philosophy and instructions to get the military services unshackled from what had become almost an unworkable system. This transformation will not happen overnight, but we are well down the road. However, it takes a long time for the word to spread everywhere and be translated into the desired actions. So the prime need, as I see it, is for wider and more expeditious dissemination and enforcement of policies and for wholesale revision of formal directives, so that our genuine achievements can be a result of the system rather than a deliberate bypassing of it.

During the past decade, the Department of Defense has employed the principles of concurrency (combination of development and production) to manage many "major" acquisitions. More recently, a serial development approach (fly-before-buy) has been adopted as being more conservative of national resources, particularly where operational urgency is not overriding. Concurrency and fly-before-buy are similar in that a conceptual design is specified in advance. Subsequent efforts are then directed toward achieving the specified design so that hardware can be produced in the quantity desired. However, with this approach, the specified design normally has resulted from a collection of paper studies rather than from the results of actual hardware demonstration. Since concurrent development/production programs have normally been conceived and approved in totality (i.e., both development and production), the commitment of national resources has been high and sometimes of severe consequences to a limited military budget. As a result, decisions to conduct advanced development have been based too much on the requirement for approval to procure the complete system and not enough on information provided by the development and testing of prototypes both for
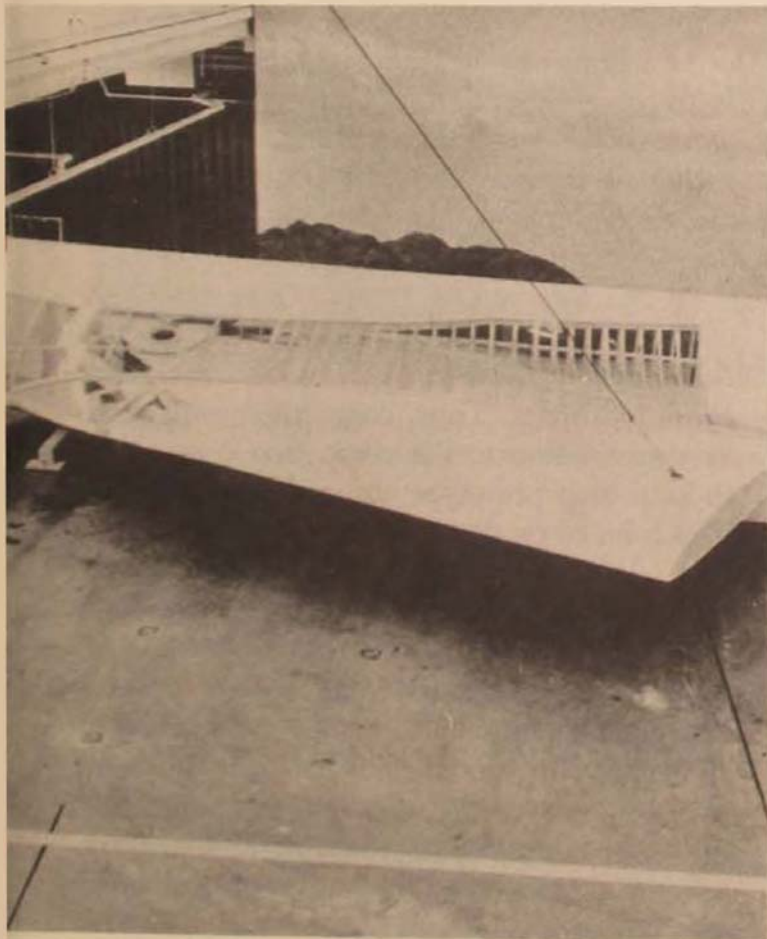
From Paper to Hardware

The full-size B-1 mockup, built by North American Rockwell, weighs 45,000 pounds. It is made primarily of wood, with steel in the supporting structure and wing pivot; in skin sections requiring extreme contouring, aluminum is used. . . . A detachable crew-escape module has a stationary rocket engine to boost it away from the airframe and a gimbaled rocket engine to level it; fins at rear and spoiler at bottom will stabilize the flying lifeboat until a parachute system effects a soft landing on water or land. . . . In a separate mockup, the wing can be pivoted throughout the design swing arc, and the operation is visible through Plexiglas surfaces.

the actual product and for the more important components and subsystems.

Recently, Secretary of the Air Force Robert C. Seamans, Jr., indicated that scientific and technological programs will continue to be essential if we are to maintain an effective Air Force. We must have a strong technological base that will permit us to select the best possible approaches to develop and acquire our new weapon systems. To provide such a base, we must move technological innovations ahead in a way that will achieve step-by-step incremental gains in areas likely to be critical to future Air Force needs. Secretary Packard indicated to the Senate Armed Services Committee that one way to control soaring weapon costs was through emphasizing "prototyping" —the requirement that firms build working models of a proposed weapon system before the nation commits billions of dollars to a questionable product. With such prototypes, a new weapon can be evaluated in terms of what it will in fact do, not what the specifications or the contractors' proposals say it is supposed to do. With this approach, competition that is based on brochuremanship will not be a part of the prototype effort. Instead, the prototype program will provide for competition in real performance of actual hardware, and it will require that competing teams demonstrate the superiority of their product, rather than the superiority of their salesmanship.

The Air Force is currently developing a selective development prototype strategy to bridge the development gap so necessary to acquiring many of our future systems. The purpose of this strategy is to explore fully the advantages of emerging technology, to reduce the risks and uncertainties associated with development, and to provide a variety of hardware options that are readily available for application to military requirements.

One of the major objectives of this concept is to provide hardware for Air Force test and evaluation of preliminary designs and military usefulness to support projected or anticipated military needs. The prototype program will not replace the current development cycle but will assist in reducing the cost and technical risks during this vital and necessary phase. It will complement current exploratory and advanced development efforts that are more directly associated with technical solutions for ongoing and proposed programs. It will also assure an adequate base of demonstrated hardware for alternate choices that will be based upon actual experience with hardware, rather than on paper studies and analyses. A prototype could encompass advanced development and in some instances would contribute to preproduction engineering.
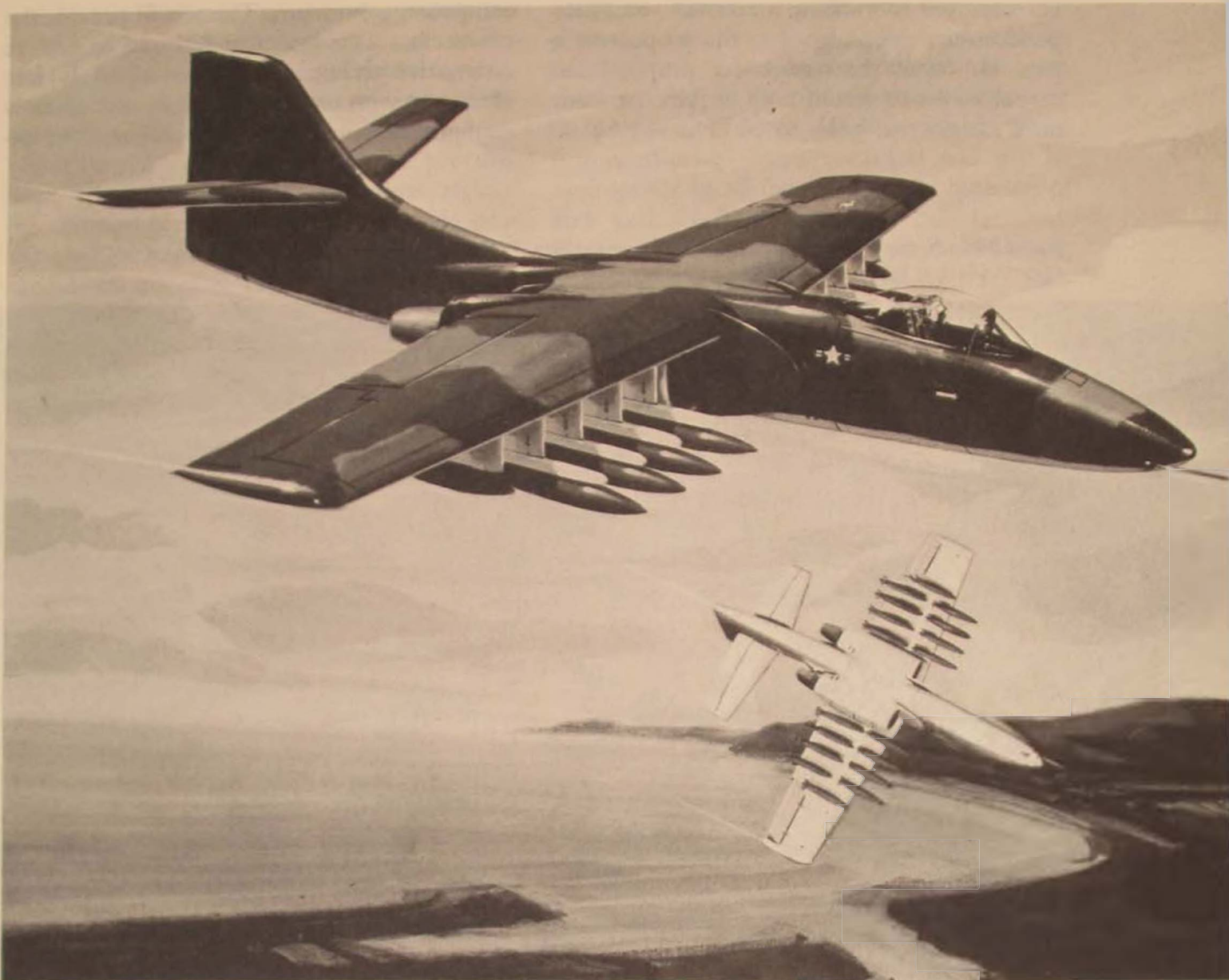
Through employment of the prototype development strategy, the Air Force will be able to identify previously unrecognized problems and resolve recognized uncertainties that may, if undetected, precipitate major changes in the performance, cost, or schedule of a weapon system. The function of a competitive prototype strategy is to increase confidence in operational performance, cost realism, and attainable production schedules. These more accurate and realistic estimates are intended to establish a basis for determining whether or not a system should proceed into full-scale development and eventually production.

Prototyping can be used as a valuable tool for identifying technology that is too new for direct application to a system. Through the use of advanced prototypes, we can develop technical confidence before committing a system to full-scale development. Flyable prototypes should be considered for advancing the technology leading to short takeoff and landing (STOL) transports, lightweight fighters, and remotely piloted vehicles. If the initial prototypes prove successful, the concept can be expanded to other development areas. Thus, hardware will improve our ability to correlate expectation through predicted outcome by reducing the major uncertainty associated with the technical, cost, and schedule aspects of a weapon system. Prototype validation provides a means by which technical risk can be identified, trade-off analysis made, and the recommended solutions tested. The experience gained by the competing contractors during the prototype phase can improve their ability to estimate more accurately the actual development/production costs and propose more realistically a low-risk production schedule.

The prototype concept can restore an element of competition by having rival companies build competing prototypes. The competing prototypes would be compared before the winner was awarded a development/production contract. Such a "fly-off" will be held next fall between rival models of the A-X close-air-support aircraft being built for the Air Force by Northrop Corporation and Fairchild Industries. Thus, competition will serve as a motivation to the competing contractors to keep their prototype cost as low as possible. This is based on the assumption that the prototype selected will, for the most part, closely resemble the actual production model. Although a prototype is built with the expectation of change and to discover what changes are necessary, changes should usually be limited to achieving the objectives of the original design.

Among the key features or characteristics of the competitive prototype program will be new or renewed emphasis on (1) simplified and streamlined management and procure-

Northrop Corporation's prototype (artist's rendition), being built under development contract, is to compete in a "fly-off" for engineering/production contract for the Air Force A–X.

ment approaches, (2) minimal documentation and reporting, and (3) performance measurement and evaluation.

In a competitive prototype strategy, the Air Force contemplates the award of two development contracts to competing contractors. The competing contractors would be informed that only one would be selected to accomplish full-scale engineering development and pro-duction. Also, the final selection would be based, primarily, upon the success of the demonstration of the engineering test vehicles that were developed by each competing contractor.

Competitive prototyping can be conducted at the system or critical subsystem level. A "prototype," by definition, may be contracted for at various points within the development spectrum. Whether or not a prototype should

be employed to validate a concept would depend on the risk assigned to the proposed system. However, the request for proposal and model contract should only require performance ranges and goals to be achieved by the competing contractors. This would provide the contractors with sufficient latitude to explore alternative technical solutions relatively free of close government supervision and of early configuration management baseline. The re-

Fairchild Industries' prototype for the A–X competition. While prototype-building aims to keep the cost as low as possible, the prototype must closely resemble the production model.

quirement for government documentation should be limited to that which is essential to the prototype manager for initial source selection and for evaluation of the prototype dem-. onstration.
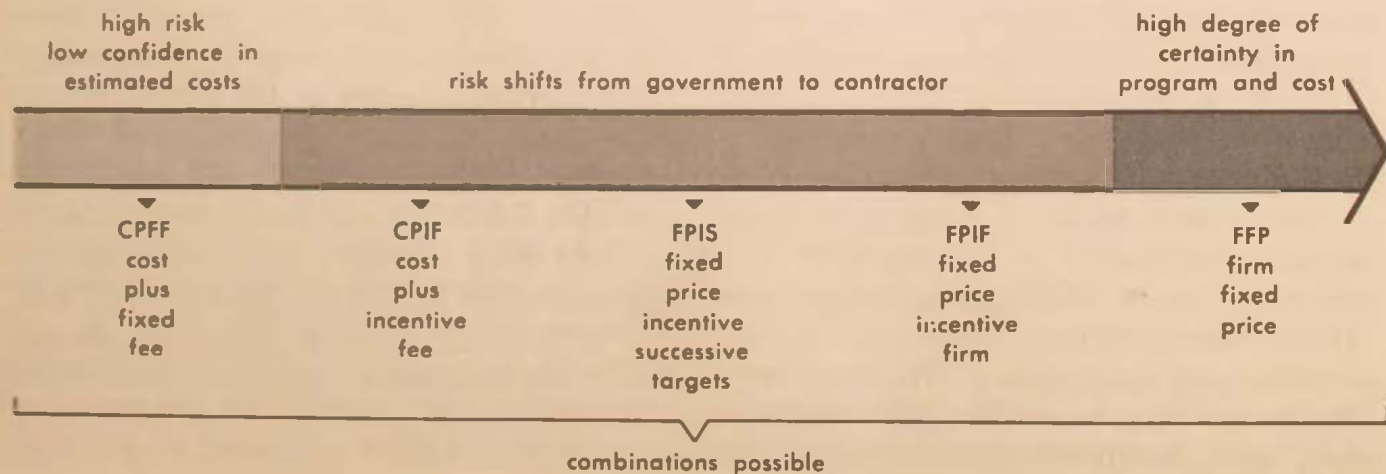
For prototype development, the procurement approach should be structured around the concept of flexible and supportable procedures. A basic premise is that prototype candidates will enter the procurement process at different thresholds in the development spectrum, thus requiring varying procurement and contractual approaches to satisfy each individual prototype need. Prototype managers should not be constrained or limited to a single procurement approach but, rather, should be provided with maximum flexibility to acquire prototype within the legal limits established by statute or directives. Since a prototype may be contracted for at various points within the development spectrum, the statement of work may be either broad or quite specific. Award may be based on competitive proposals for a specific design, on "design goals," or on a contractor's "best effort."

Many contracts presently specified in the Armed Services Procurement Regulation (ASPR) or various combinations thereof are appropriate for a selected prototype procure-ment, i.e., firm-fixed price, cost sharing, cost-plus-award-fee, and cost-plus-fixed-fee. In developing or selecting the contract type, one *must* proceed on the premise that a limited or fixed amount of funds will be available. Since firm-fixed-price (FFP) contracts will not be appropriate in all instances, a combination of cost and fixed-price features can be used. However, if the combination contract is used, it should incorporate the cost contract concept. The only exception to this approach would be that the government's cost share should be fixed. This type of contract incorporates the concept of "best effort," broad specification "design goals." It would recognize that the contractor may not achieve the design goals in the contract, but it would require the delivery of completed hardware. An appropriate label for this kind of contract would be "Cost/Government Share Fixed" (C/GSF).

As indicated, the type of contract selected will depend on a combination of the risk involved and the government's objectives. For example, the FFP contract should be used only where there is a reasonable basis for firm pricing and where technical risks are minimal. An FFP may be particularly appropriate for parallel prototype contracts where follow-on devel-

A contract may combine various cost and fixed-price features to meet particular needs.

high risk low confidence in estimated costs	risk shifts from government to contractor			high degree of certainty in program and cost
CPFF cost plus fixed fee	CPIF cost plus incentive fee	FPIS fixed price incentive successive targets	FPIF fixed price incentive firm	FFP firm fixed price

combinations possible

opment/production is contemplated.

Where a single source is involved, an award fee provision could be used with any of the recommended types of contracts. The purpose for using this provision is to provide additional positive motivation to entice the contractor to do a better job for the level of dollars expended. Thus, the condition present in each procurement must be carefully examined to determine the most appropriate type of contract to use.

The management system selected for prototyping must not impose constraints that are applicable to systems under full-scale development. The management system must be structured so that contractors know the government is ready to accept and evaluate new ideas. Also, the system must be flexible, to enable responsibility and authority between government and industry, on any given program, to vary from total government engagement to disengagement.

No single management procedure should be prescribed for prototyping. The management system selected should recognize the degree of risk associated with each specific technological challenge, and the contractor should share the penalties that might be incurred in accepting the challenge. Thus, the government's management approach must be able to adjust to the particular circumstances of the program. It must impart the government's confidence in the contractor, recognize the degree of risk involved, and utilize the contractor's existing internal management control system. Also, the government's internal decision-making process must be attuned to the contractor's to assure that new ideas have not grown old by the time they are identified and pursued.

Contractors should be encouraged to use simple, straightforward management techniques to control their efforts. Elaborate and formal documentation should not act as a constraint on the program. Maximum use of the contractor's formulated data should be used by the government to satisfy management and reporting requirements. Significant information must be easily retrievable by the contractor. Since the objective of prototyping is to acquire maximum technical knowledge and data at minimum cost, it is essential to limit the number of government and industry personnel involved in a prototype project. Therefore, the management system should be less formal and more personal, to foster mutual trust, expedite decision-making, and eliminate elaborate management information and control systems.

The government's prototype manager must be delegated the authority and responsibility to manage his program. Minimum documentation and reporting should be the hallmark of the selected management system. However, management and program information must be readily available to facilitate the concept advocated when required by the government. The major benefits from the application of the proposed adaptive management approach will be derived through the adjusted role that is assured by the government in its relationship with industry. This will be accomplished by providing an interface at the prototype program manager level.

To insure that this restructured management system will be effective, no one standard organizational structure or level for all prototype programs is recommended. The potential number, scope, and type of prototype efforts vary so much that organizational flexibility is as important as management adaptability. To facilitate this relationship, the government should consider placement of the program management function at the prototype contractor's facility. This will maintain the organizational balance between the government and the contractor and at the same time accommodate the concept of less documentation, enhance decision-making, and thus should reduce overall prototype cost.

In keeping with the adaptive management philosophy, source selection for prototype procurements should be conducted in a simple,

straightforward manner and administrative time reduced to a minimum. To accomplish this objective, a modified evaluation technique should be employed. The evaluation team should consist of five to ten people who are recognized authorities in the areas of technology to be exploited by the prototype effort. Consideration should be given to the use of recognized experts within industry to participate during source selection. The evaluation should be subjective in nature, with emphasis on broadening the technological base and exploiting new ideas rather than on low-risk approaches to satisfy a specific operational requirement. Thus, elaborate scoring techniques will be unnecessary, and the process should be completed in five to ten days. The final evaluation report, in narrative form, should set forth the evaluation results of the proposals and will be the only formal documentation required to support the selection of the source or sources.

Test plans should be developed that are suitable for evaluation of the prototype fabricated. For example, preliminary design reviews and critical design reviews should be eliminated and personal surveillance substituted to accomplish this objective. This approach will insure that the concept of allowing the contractor design freedom is achieved. Through frequent contact (SPO collocated at contractor's facility), Air Force personnel will be able to check progress and provide the necessary on-the-spot assistance when appropriate.

The rigid test and evaluation procedures that the Air Force currently exercises over contractor testing must be significantly modified. Stringent controls must be eliminated in order to achieve the objective of maximum contractor flexibility. The Air Force must participate with the contractor in developing the test plan, but daily tests and test procedures should be scheduled and controlled by the contractor. Thus, the contractor would be free

to institute further investigation of test results which he considers necessary. Based upon his own technical judgment, he could eliminate certain tests he determines are not required.

Government control over the contractor's selection of test facilities should be eliminated. To conserve resources, the contractor should maximize the use of his own facilities to accomplish the required tests. If additional test facilities are required, the most economical method should be used to select and accomplish this objective.

Since the objective of the prototype is to establish and evaluate the actual performance capabilities of the system, test and evaluation are of paramount importance. However, where goals have been substituted for requirements and the contractor has been given design freedom to achieve the goals, the classical test approach is inappropriate. Nevertheless, the Air Force and the contractor must agree on a test plan that will satisfy the individual needs for information that can only be obtained by testing. Thus, maximum reliance will be placed on contractor-generated test data to evaluate a system undergoing test. This concept is compatible with the prototype management concept of allowing the contractor to manage his own resources and keep the cost of the individual program to a minimum.

In summary, through the application of this recommended prototype development strategy, the Air Force can move ahead to select areas of technology that offer potential to improve significantly the current method used to develop and acquire our weapon systems. This will result, in part, from providing a variety of hardware options that, if exercised, could achieve a more realistic basis for the timing, selection, management, and acquisition of new systems needed continually to modernize the Air Force.

Hq United States Air Force

PREPARING FOR A GENERATION OF PEACE

Colonel Alonzo J. Walter, Jr.

A Strategic Concept
Responsive to a
Presidential Mandate

A GENERATION of peace is one of the goals established by President Nixon. This goal is attainable, but it will require the deterrence of war in the face of a variety of formidable challenges and crises. As long ago as 1790, President George Washington said, "To be prepared for war is one of the most effectual means of preserving peace." It follows that if we are to attain our goal of peace, we must exercise a great deal of prudence to insure that we are properly prepared for whatever kind of war might eventuate.

a realistic view of modern war

The impact of modern technology on warfare has created a situation in which international conflicts between major powers possessing the ability to destroy each other's society can never be resolved to the satisfaction of either by unrestrained use of weapons of mass destruction. The frequently stated but seldom adequately defined goal, to "seek to emerge from conflict in a position of relative advantage" in the event of general war, demands that we examine the validity of the term "relative advantage." While it is entirely likely that all-out nuclear war between today's superpowers would terminate with one or the other in a dominant postwar posture vis-à-vis the other, the damage received by each might well be far out of proportion to the issues causing the war. Moreover, they both might become second-rate powers relative to major uninvolved nations. In today's world, the minimization of the amount of military force used and the avoidance of escalation to high levels of violence should be a major objective, even in conflicts involving the use of strategic forces. This objective is recognized in the President's Foreign Policy Report of 25 February 1971:

We must insure that we have the forces and procedures that provide us with the alternatives appropriate to the nature and level of the provocation. This means having the plans and command-and-control capabilities necessary to enable us to select and carry out the appropriate response without necessarily having to resort to mass destruction.

In retrospect it is clear that World War I and World War II, the most horrendous examples of mass destruction in recent times, should have been resolved by other means; but there were only two generally recognized alternatives: mobilization (for major warfighting) or acquiescence. Additionally, by today's standards, there were comparatively few incentives to seek resolution by other means. The protagonists in each case could reasonably expect that, win or lose, their societal structure would emerge intact and that, given sufficient time, mobilization and war-fighting on a grand scale might produce victory.

The development of modern strategic weaponry, with its associated command, control, and communications equipment, has provided much of the imperative and the means to avoid uncontrolled escalation. In other times, the Korean and Vietnamese Wars might have triggered World War III; but they did not. The United States and the Soviet Union possessed strong incentives and the sophisticated communications needed to signal their resolve to accommodate their respective national interests in these conflicts, involving nonnuclear allied powers, without resort to all-out war.

Regrettably, the fact that these wars were not terminated with greater dispatch (and a commensurate reduction in human suffering), indeed, that they were not entirely deterred, speaks ill of our capability to deter war at all

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levels. Much can be done and is being done to improve this capability on the level of purely conventional warfare, involving improvements to conventional military capabilities; but there has long been a widespread aversion to serious discussion of the problems of controlling conflict at the strategic nuclear level. It involves "thinking the unthinkable" for many who postulate that *any* employment of nuclear weapons guarantees escalation to general war. Given rational national leaders on both sides, such escalation is not at all certain. Nuclear warfare cannot be considered an "on-off" or "all-or-nothing" proposition any more than conventional warfare.

deterrence and war-fighting

Frequently, within the strategic community, there is undue emphasis on deterrence, which tends to obscure the requirement for controlling conflicts if deterrence fails. Likewise, there is a view sometimes expressed that acquisition of strategic capabilities to engage in controlled conflict is an invitation to employ those capabilities and reflects a clearly jingoistic attitude. The deficiency in these views is that they recognize only the two factors, peace and full-scale general war, ignoring the possibility that deterrence may fail, at least partially, and strategic conflict may occur. Our strategic posture should be designed with this possibility in mind and configured so that any such failure does not lead inevitably to large-scale strategic warfare. It would appear that, should deterrence fail, to be unable to cope successfully (in political as well as military terms) with provocations at any given level would mean a choice between escalation to full-scale general war and acceptance of failure.

For a nation committed to peace, such as the United States, to threaten extreme retaliation as a panacea deterrent is neither consistent nor credible. To be credible, a deterrent must be usable and consistent with the objective sought and the threat to be countered.

Thus, there is a direct relation between an effective deterrent force and an effective war-fighting force. The task outlined by the President demands the attention and understanding not only of the military but of the political leadership as well. Political and military leaders instrumental in the national decision-making process must join together in a new era of shared strategic responsibility.

the new political-military strategic team

It has become clear that the potential side effects of the use of force are too important for a political leader to define his goals in purely military terms, or allow his military leaders thus to define them for him, and then direct his military establishment to achieve these goals *as best they can*. The need to avoid uncontrolled escalation to all-out nuclear war carries with it a need to worry about the use of too much force as well as too little—about the collateral or undesired effects of the use of force as well as the primary or desired effects. This implies a need for types of military capabilities to give the national leader the force he needs, to do the job he needs done, at the time he needs it.

Instead of providing a limited choice of military options designed to achieve well-defined and specified military objectives, forces and plans must be designed to permit appropriate options for strategic force use to be put together at the time the need for use develops. The capability for executing a massive last-ditch punitive war is still required as a means of insuring the unacceptability of general nuclear war. This will represent a minimum measure of U.S. capabilities (always safely exceeded) which guarantees that an aggressor faces a risk of massive societal damage over which he has no control other than self-restraint.

For deterrence of warfare below the all-out level, forces must *also* meet other standards:

   • Forces must be configured to ac-

count for all the plausible scenarios of war initiation.

• Forces must offer forms of military power that can be used by political and military decision-makers for rational national aims in war. This means a high degree of discrimination, control, and flexibility in strategic operations. Forces must be able to engage in a considerable variety of specialized limited actions without sinking below a minimum measure of capability to initiate all-out war (as defined by national leadership).

• Forces must be able to retain their integrity during periods of active hostilities at various levels of conflict.

• Forces must ensure that, whatever actions are taken, there will always be sufficient power remaining to support national objectives in the postwar environment.

While nothing has been said in this discussion to indicate that it is necessary to match Soviet strategic force improvements in numbers or types of systems, there is an obvious requirement that the capabilities inherent in our forces be clearly comparable in politically relevant terms. This will ensure that provocations at any level of nuclear war can be met by effective yet carefully controlled responses on our side. In this sense, but only in very broad terms, are our requirements influenced by Soviet decisions, for we may choose to emphasize quality and diversity to offset some Soviet numerical advantages.

In this regard, initial Strategic Arms Limitation Talks (SALT) agreements are more likely to be quantitative than qualitative in nature, because quantitative limitations are apt to be easier to negotiate as well as to verify than are qualitative limitations.

when deterrence fails

An almost unlimited variety of circumstances can be postulated to describe hypothetical events that might lead to a first use of nuclear weapons on a limited scale. Some of these scenarios will seem more credible than others, and ultimately the credibility of each may depend upon absolutely unpredictable motivational forces and unforeseen personalities. For these reasons it seems pointless to dwell on detailed scenarios in this discussion. Instead, let us assume that at some time in the future—in response to circumstances which now may seem incredible but which at the time will appear perfectly rational*—either the U.S. or the Soviet Union elects to launch a clearly limited nuclear attack with limited goals. Perhaps the target is a naval task force on the high seas or in a foreign port, a ground force, or a remote military installation in the opponent's homeland. The attack may be intended to display strong resolve or to achieve a local military objective that could not be accomplished with conventional weapons. In any event it would be clear to all that a major nuclear attack on the homeland was *not* imminent.

Rational thought should provide leaders of both sides with at least three guidelines: (1) In no case does either side appear likely to gain by escalation to the all-out level. (2) An adversary unable to respond to the limited use of nuclear weapons in a clearly limited way must either do nothing or risk all-out war. (3) Once committed to the limited use of nuclear weapons, national aims will be served to the extent that the attacks are discriminate, carefully controlled, and appropriate to the circumstances.

For limited strategic use of nuclear weapons to be practical, enemy targets must be located precisely, successfully attacked with minimum collateral damage, and the results made known to the President in the shortest possible

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* Significantly, many major military events since 1941 were generally considered unlikely before they occurred:

—German invasion of Soviet Union, 1941
—Japanese attack on Pearl Harbor, 1941
—North Korean invasion of South Korea, 1950
—Bay of Pigs invasion, 1961
—Cuban Missile Crisis, 1962
—U.S. operations in Cambodia, 1970.

time. A known U.S. capability and intent to employ its forces in this manner, if necessary, is a powerful deterrent to encroachment. If deterrence should fail, the President has usable options clearly preferable to massive attack. In this regard, it might be legitimately asked, "Why could we not deter equally as well by relying upon retaliation in a relatively gross, unsophisticated manner but still well below the all-out level?" We might, of course, and it might be effective; but if deterrence should fail, the President would not possess the degree of control or the discriminative capabilities required to apply force in a manner that would achieve our goals while controlling the level of conflict.

today's capabilities—the Triad

For the past decade, U.S. strategic policy has been to maintain significant retaliatory capability in each of three distinct forms: land-based missiles, strategic bombers, and sea-based missiles. The rationale supporting this policy is quite straightforward: In the face of manifold uncertainties—about the future capabilities and intentions of the enemy, about the ways in which war could come about and proceed, about the actual performance of our weapons in combat situations, about the tasks we may in the future assign to our forces—there is security in diversity. The Triad provides that diversity.

By their very nature, large weapon systems display certain weaknesses and vulnerabilities. The enemy will surely strive to discover and exploit these. He may be inhibited or even prevented from exploiting these weaknesses by the compensating strengths that other systems offer. This is generally well understood in the context of the massive, all-out exchange—the "assured destruction" view of strategic conflict.

It is important to appraise the Triad in the context of a more flexible and crisis-responsive U.S. strategy. Here we find the virtues of di-versity even more dramatically highlighted.

Bombers are able to attack hardened as well as soft military targets because of the great accuracy possible with modern aircraft-delivered weapons. Bombers are also able to provide a conventional option against strategic threat targets. Bomber crews are able to assess the damage inflicted by their strikes or by strikes of other forces. They are able to communicate this assessment in near real time; given improved communications, they could transmit in real time. A continuous two-way communication capability will permit in-flight retargeting, thereby increasing their inherent flexibility. In time of crisis, bombers can be deployed in a variety of ways. Such deployment flexibility can be used to transmit strong political signals to an opponent without requiring the actual or overtly threatened use of force.

Bombers, of course, have a relatively long flight time, require refueling to reach distant targets, and must fight through heavy defenses. Therefore, if a time-urgent arrival were required or if the desired targets were at great distances, bombers might not be suitable. On the other hand, if the option included limited pre-emptive strikes against peripheral targets, then bombers would probably be the preferred weapon system because of the surprise tactics possible. Since in limited operations targets are likely to be chosen for different reasons, a good deal of flexibility in target selection is likely to exist.

Sea-based strategic forces provide a significant retaliatory capability against soft, time-urgent targets, but at present they have limited utility for limited operations. Accuracy limitations mean higher expectations that collateral damage would result. Military leaders have also noted communications difficulties with our sea-based missile force. Accuracies could be improved but at a high cost. Submarines, of course, are vulnerable when they are in port or can be destroyed at sea.

The current U.S. land-based missile force

is usable against a wide range of military targets, from soft to those of limited hardness. It has particular utility because, if pretargeted, it can be used when a time-urgent response is needed. Communications to launch sites are reliable and continuous, provided, in part, by redundant systems. The long range of ICBM's allows their use against remote targets with high assurance of penetration. If needed, ICBM's can be targeted against strategic defenses. Accuracy is better than that of SLBM's, being roughly comparable to bomber accuracy. ICBM's provide less flexibility than bombers in yield selection, and collateral damage would probably be higher than with bombers. However, isolated targets with low adjacent population levels can be selected without regard to bomber defenses. Presently there is no real-time damage assessment capability for ICBM strikes. With their present kill probabilities, U.S. ICBM's would probably not be used in limited strikes against very hard military targets such as nuclear storage sites, dams, or hardened missile launch control facilities. With the accuracies and yields now available, several missiles would be required to achieve the desired damage expectancy against a hard target, and several warheads impacting in the target area would have the potential of increasing collateral damage.

In summarizing present capabilities and limitations while viewing the possible forms of strategic war as broader than an all-out exchange, one becomes aware of subtle vulnerabilities that might otherwise be obscured. For example, a protracted strategic crisis might give the Soviets an opportunity to compromise our sea-based missile force through slow, covert attrition at sea or limited attacks on ports. Command and control centers could be degraded, and communications could be disrupted. Thus the reliability of the submerged forces could be subjected to sudden doubt in the midst of a crisis demanding the highest confidence in them. Attacks on missile submarines in port and on the port facilities,

while having no immediate effect on the forces then at sea, could cause significant degradation in the capabilities of the system over time.

In strategic nuclear conflict short of all-out exchanges, the emphasis in operations would be on discrimination, flexibility, and control. For such operations, bombers are generally preferable to missiles because of precision delivery, reconnaissance, and communications capabilities, their ability to be recalled and redirected, and their recyclability. Land-based missiles are preferable to sea-based forces because of greater accuracy and more reliable command and control qualities.

As we have seen, the paramount objective of strategic reappraisal today is to make strategic power more responsive to the tasks of deterrence and war-fighting in a more challenging environment than in the past. Subject to the limitations of existing weapon systems and command, control, and communications capabilities, the Triad can provide some options for limited employment of nuclear weapons.

a force for tomorrow

It has been shown that today's strategic forces, configured as they are for deterrence of all-out war, possess inherent characteristics which also provide a degree of flexibility for deterrence of limited provocations. It is not at all clear that these forces can remain effective indefinitely or that they can now be fully exploited in times of crisis to provide the most effective range of options.

There is an opportunity at this time for the U.S. to make all-out nuclear war an even more remote possibility, yet simultaneously provide capabilities for viable options across a broad range of crisis situations. The course of action herein proposed focuses on two significant requirements. The first involves improvements to U.S. strategic weapons to insure their continued survival and effectiveness at varying levels of conflict. The second

requirement is to enhance dramatically the information-gathering, command, control, and communications available to our national decision-makers, to permit them to realize the full potential of the resources at their disposal. Not all the improvements of our strategic weapons will require new programs. Some are under way already and must be continued.

Our land-based ICBM force can remain effective if we harden and defend existing ICBM silos, strive continuously for missile warhead accuracy improvements, and attain the ability to retarget rapidly in response to changing strategic requirements.

The B-52 bomber force is approaching the end of its cost-effective life span. A new manned bomber is needed if the great flexibility of the manned bomber is to be available in the future (the B-1 is under development, of course). Survivability of the bomber can be improved by incorporation of improved penetration aids and dispersal basing.

More subtle, but no less important, are capabilities for information gathering and processing, command, control, and communications of unprecedented utility. Indeed, they are so broad in scope that the term "Posture Management" seems more appropriate to describe the iterative process needed for the discriminate use of forces. Posture Management will provide the capability for national leadership to direct and employ U.S. strategic forces in a variety of world situations, from precrisis through crisis and hostilities (if any) to termination. This will be realized through the ability to collect and respond to situational information, to perform real-time or near real-time evaluation and decision-making, and to exercise rapid, precise application of strategic forces. The essentials of this concept involve: (1) the rapid collection of heretofore unavailable situational data; (2) the processing of these data into useful information; (3) the display of this information and other processed data so as to permit decision-makers to assess and select an appropriate option or

options; (4) the reliable communications needed to convey their decisions; (5) forces with improved capabilities needed to carry out the decisions promptly and effectively; and (6) a realistic assessment of mission results, which is then fed back into the process at point (1). The concept is thus a "closed loop" process: each succeeding decision is made possible by a constantly updated and appropriately presented résumé of the situation as it unfolds.

Implementation of a total concept such as this can be accomplished by use of a building-block approach, producing incremental improvements in total strategic force effectiveness. First emphasis should be placed upon qualitative improvements in existing capabilities, with subsequent development of entirely new ones in order to keep pace with the threat as it intensifies. Specific areas requiring attention include: *Tactical warning,* which must be provided to enhance survivability of forces and to provide the earliest possible decision-making opportunity. Advanced satellite and improved ground-based detection systems can provide rapid warning of incoming attacks, whether by ICBM, FOBS, SLBM, or manned bomber.

Decision-making and flexible force execution are enhanced if decision-makers can determine rapidly the scope and destination of incoming attacks and the effectiveness of our own retaliatory attacks. *Attack assessment* techniques employ many of the same sensor systems used to provide tactical warning and incorporate the precision assessments provided by the manned bomber.

Those systems used to detect and evaluate incoming and outgoing attacks must employ positive, continuous, and survivable *communications* to report to surviving and effective *command and control* centers. Key elements are dedicated satellite communications systems and improved mobile command and control facilities capable of processing and retransmitting detection, force status, retarget-

ing, and force execution data. Crosstalk between command and control systems serving the President and the major commands concerned with strategic force operations will contribute to survivability through redundancy.

Our force for tomorrow must contain a mix of land-based ICBM's, strategic aircraft, and sea-based missiles, all improved for and tied together by a comprehensive and survivable "Posture Management" system. This force can provide our national leadership with the means of responding to nuclear crisis situations in a reasonable and controlled manner.

an alternative to "all or nothing"

U.S. capabilities for limited strategic conflict cannot guarantee a favorable outcome to serious confrontations. They *can* increase confidence that, when a peaceful resolution can-

not be achieved and when U.S. resolve remains high, a mechanism other than the threat of massive nuclear exchange is available to induce further mutual bargaining. Realization of the full potential of these capabilities requires a high degree of political and military cooperation.
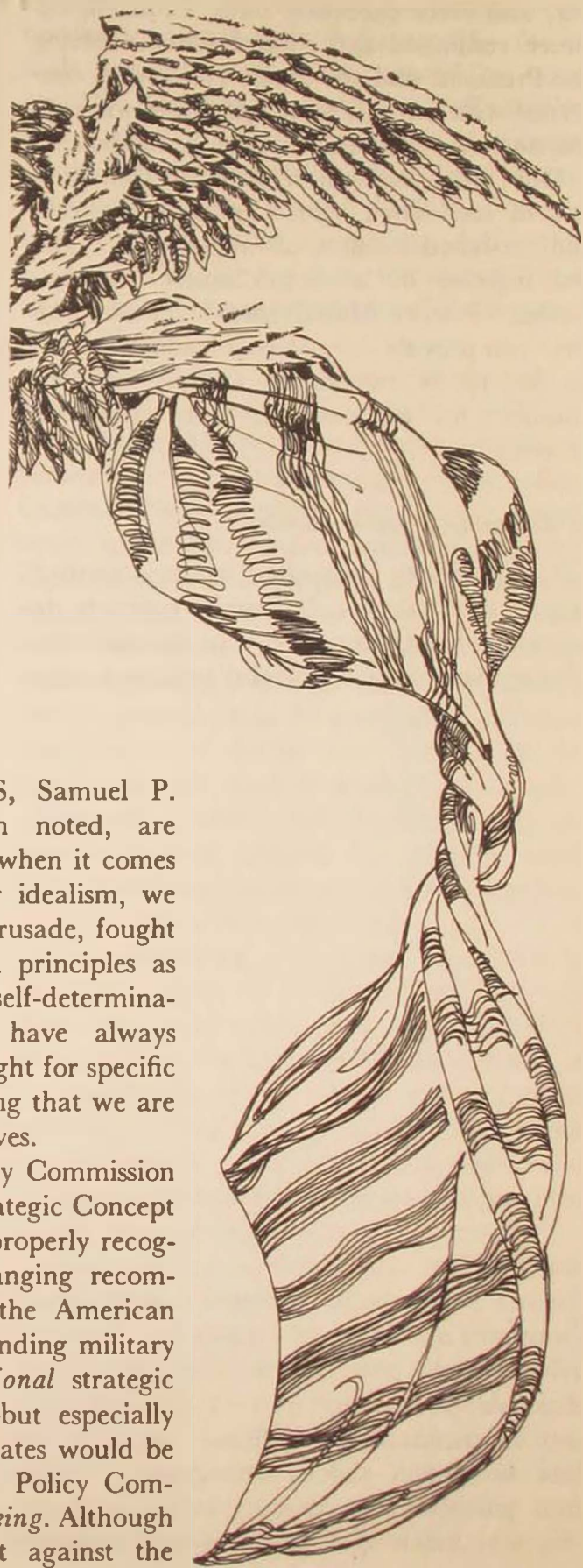
Acquisition of such capabilities will not be cheap, either in terms of monetary costs or institutional readjustments necessary to completely exploit the capabilities. The alternative may be all-out nuclear war. The goal is a generation of peace.

Homestead Air Force Base, Florida

ANTIMILITARISM IN AMERICA

HERMAN S. WOLK

AMERICANS, Samuel P. Huntington noted, are extremists when it comes to war. With our idealism, we like war to be a crusade, fought for such universal principles as democracy and self-determination. Americans have always found it hard to fight for specific national security goals, part of the difficulty being that we are notoriously poor at articulating precise objectives.

In 1948, when President Truman's Air Policy Commission under Thomas K. Finletter called for a New Strategic Concept based on the strategic nuclear air deterrent, it properly recognized the revolutionary character of its far-ranging recommendation. The Finletter Commission asked the American people to scrap their traditional bias against standing military forces in favor of building a mighty, *professional* strategic deterrent which would convince any nation—but especially the Soviet Union—that to attack the United States would be an act of national suicide. The President's Air Policy Commission called for a strategic nuclear air arm *in-being*. Although the Finletter Commission's proposal was cast against the

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budding confrontations of the cold war and while it was not asking for mass conscription, it was nevertheless recommending a complete reversal of the historic American position against elite armies.[1]

This tradition itself was not without its paradoxes. The most obvious is that the United States was born in revolution and violence. While not neglecting the manifest political, philosophical, and social ideas of the American Revolution, this nation owed its birth to the "embattled farmers" who knew how to use guns. The American militiaman of the Revolutionary period was as fine a weaponeer and marksman as could be found anywhere. It was the militia—an armed populace—which won the day.

Then General Washington's army of Continentals dissolved. "Standing armies in time of peace," the Congress noted in 1784, "are inconsistent with the principles of republican governments." The founders held an understandable aversion to standing armies because of sharp class distinctions between officers and men. Regularly constituted forces were not militia—such forces smacked of aristocracy. After all, wasn't that what the Revolution was all about? The framers of the Constitution preferred a militia comprised of a cross-section of citizens which reflected the ideas of the community at large. Although the world of the framers is gone and we have come to accept a standing army as a necessity, many of our people have always been uncomfortable with large numbers of citizens in uniform. But westward, the frontier required policing; forts had to be built and manned. The new nation could not ignore defense. "National defense," said John Adams, "is one of the cardinal duties of a statesman."[2]

How, then, did the founders settle the problem of military power? The answer was a compromise. Fearful of standing armies, the national government was empowered to maintain them; but the states controlled militias, and the people could bear arms. The President was Commander-in-Chief, but the first duty of Congress was to "provide for the common defense and general welfare of the United States." The fact was that the colonists preserved the antimilitary prejudice of their mother country. But in the Constitution the founders managed to structure a neat balance between checking the power of the constituted military and providing for an effective defense. The framers knew what they were about and stated it in clear, even elegant, words.

Thus Americans, for powerful historical reasons, have preserved a temper suspicious of a large standing military establishment. "Throughout our history," Eric Sevareid observed, "we have adored our soldiery when we needed them, disliked them when the need has passed."[3] Consequently, it has long been the practice in this nation to isolate the military within society as long as it was not needed to fight our wars. Only the two World Wars have evoked recent strong popular support.

The War of 1812, our second war with Great Britain, has been called by some distinguished American historians the most unpopular war ever waged by this country. There was much opposition to it in the New England states and New York. Even in the South and West support for the war waned. Thomas Jefferson felt that Canada could be taken without really a fight. That turned out not to be the case.

The war with Mexico marked the first time in American history that the President informed Congress that a war was in progress prior to a declaration of war having been made. Dissent was vigorous and it cut across party lines, with critics and supporters in both the Whig and Democratic parties. The dissenters deplored the war's cost and charged that important domestic priorities were being ignored. Similarly, during the Spanish-American conflict dissent was aroused at home, and the subsequent war against the Philippine insurrectionists loosed a great deal of vituperation.

ALTHOUGH these earlier American wars occurred in the context of specific historical situations, the parallels with the Vietnam war are obvious. They indicate—as General Earle Wheeler, former Chairman of the Joint Chiefs of Staff, pointed out—that a prolonged war on foreign soil is bound to release disagreement at home.

After World War II, we proceeded to tear apart the military machine that had won the war. The great historical significance of the late 1940s and the 1950s lay in the acceptance by the American people of a substantial and permanent military establishment. This acquiescence evolved with the onset of the cold war and—most important—the realization that the nation faced a clear danger to its existence. The atomic age transformed the traditional American attitude and lent crucial impetus to passage of the National Security Act of 1947, which created the National Military Establishment and an independent U.S. Air Force. Urging support of this landmark legislation, President Harry S. Truman emphasized that we could no longer abide anything less than a first-rate military organization to deal with the evolving confrontations of the cold war. At the same time he stressed "air parity," the importance of an autonomous Air Force in the new national military organization.[4]

With formation of the North Atlantic Treaty Organization in 1949, the United States committed itself in advance of a European war to the side on which it would fight. It was the first time this nation had done so since the ill-fated "permanent" alliance with France in 1778. As former Secretary of State Dean Acheson said, this assumption of responsibility was truly a revolution in American foreign policy. Even before becoming Secretary of the Air Force, Stuart Symington declared, "Isolation is history."[5] It is this transformation—a legacy of the immediate post-World War II period and the 1950s— which is now under attack. Today's isolationist movement (and antimilitarism is an important part of it) owes much to the turbulence of the 1960s, a decade much different from the 1950s.

What was it about the 1960s? The first answer has to be Vietnam. It is not the only answer. In the 1950s we built a nuclear deterrent force because of an obvious threat to the homeland, the threat of the delivery of nuclear bombs by long-range aircraft and intercontinental missiles. Maintaining the deterrent did not require drafting large numbers of our citizens for standing armies and did not involve intervention on foreign soil. Insofar as possible, it remained unobtrusive— and yet it succeeded in preventing a general nuclear war.

With Vietnam, we altered what had been the unobtrusive character of our forces. We violated the American tradition of intervening with ground forces only when the danger to our homeland was clear and present. Of course, there was Korea. But Korea was widely interpreted in this country as an exception: We would not let it happen again. "If we have another one," Walt Rostow told a Congressional committee in 1956, "it is going to be big. . . . The impression is quite widespread around the world that the United States has interpreted the meaning of the Korean War in the sense that it wants no more of limited hostilities."[6] This view was popular among the American citizenry *and was even more strongly held in the military.* When he took office, President Eisenhower expressed his determination that we would not again be sucked into a land war on the Asian mainland. And Secretary of State John Foster Dulles declared that our *prolonged* and substantial support of regimes overseas worked eventually to the detriment of the United States and the client nation. This was the view in the backlash of the Korean War. It did not prevail into the 1960s.

The Kennedy administration changed America's national security policy. Determined

to jam the "nuclear genie back in the bottle," President Kennedy directed that emphasis be placed on limited-war and counterinsurgency forces. Kennedy's ideas owed a great deal to General Maxwell Taylor, whom he had brought out of retirement.

As it applied to Vietnam, the flexible response concept was never really thought out, as is now admitted by several former high civilian Defense officials under Kennedy and Johnson. It called for more "options," more conventional power. But what did this mean? How would flexible response support America's foreign policy? Where could it effectively be applied? For what purposes? Was gradual escalation inherent in it? In the early 1960s, the euphoria enveloping the strategists in Washington prompted one journal to remark that they were so busy "being strategical that almost no one is being historical. There are so many movers and shakers that there is hardly any room for thinkers."[7] What we were to learn at immense cost was that the North Vietnamese were not plugged into flexible response and were not about to play the game of options on our terms. Wars never conform to classroom scenarios even if the strategists happen to be somewhere in the White House.

Thus, the irony of Vietnam (in general and as it applies to antimilitarism) is that the military is not responsible for our involvement there. Charles Moskos, head of the Department of Sociology at Northwestern University, observed in a recent study that this responsibility lies heavily with those he calls the "civilian militarists," i.e., the civilian advisers to Presidents Kennedy and Johnson. In addition to Taylor, those involved in structuring the American policy for Vietnam included Secretary of Defense Robert S. McNamara; McGeorge Bundy, Special Assistant for National Security Affairs under Kennedy and Johnson; Secretary of State Dean Rusk; Walt W. Rostow, Bundy's successor under Mr. Johnson; and Abe Fortas, longtime friend

and adviser to Johnson (and later, for a brief spell, an Associate Justice of the U.S. Supreme Court), who frequently counseled him on Vietnam and whose role may have been much more important than generally recognized.

Of course, none of these officials foresaw the way the war finally developed. None of them anticipated the savage divisiveness at home. Some Americans felt that, although we were correct in helping the South Vietnamese, the Johnson administration had held U.S. military power in check and had allowed the conflict to drag on. By 1968 the crucial point was that many Americans with differing opinions on the origin and management of the war seemed to feel that it had already continued for too long. Perhaps they agreed with the judgment of *The Reporter* magazine:

> From our repeated experience with limited wars, one bitter lesson must be derived; they are not likely to be advantageous to us, or to the people we have undertaken to defend, when their duration turns out to be too prolonged.[8]

Besides Vietnam, there are other currents feeding the disenchantment with the military establishment. The late distinguished American historian Richard Hofstadter pointed out that we are living in a remarkably secular culture in which the institutional bonds that previously held society together have come apart.[9] One of our oldest institutions, the military, has felt the assault of this increasing secularization. While the cult of our times emphasizes the individual's "doing his own thing," the military ethic stresses the supremacy of institution and society. Order and hierarchy are paramount. Today the military ethic seems to be in conflict with societal currents that are especially strong in the United States. The military is most visible and an easy target to assault.

Also, the American's sense of history appears to be vanishing. Our fashion for the present apparently rules out the appreciation of in-

stitution and history. Perhaps the best defense against this, as Daniel Boorstin has observed, is history itself. However, he notes that history becomes more inaccessible as we concentrate on the "now" of things, as we go about tearing ourselves away from roots, from responsibilities handed down, from what we consider un-fashionable—from distinguishing institutional characteristics.[10]

Nevertheless, many citizens—including large numbers critical of our role in Vietnam—understand the need for a strong, dynamic military establishment, one that draws its strength from all sectors of society and from all parts of the country. This philosophy draws its inspiration from the ideas that nourished the American Revolution. We have learned also that the military should not be segregated from the mainstream of society as it was in the 1880s, in the early years of this century, and in the 1920s and 1930s.

The bitter critics of the military see things in black and white. They are the great simpli-fiers. Let the American military not emulate them. The critics, among other things, do not understand the military ethic. They have no appreciation of its value. Nor do they seem to be aware of the substantial nonmilitary contributions made by the defense establish-ment, including significant pioneering in edu-cation, communications, medicine, and other important fields which have contributed much to the well-being of our society. To be sure, some of the criticism directed at the military has validity. And for that let the military accept the blame graciously. There have been mismanagement and errors of judgment. Candor is the best policy.

The professional military, until perhaps quite recently, has not been given to keen perception of contemporary social issues. This point was made by President Eisenhower when he observed that America required a strong military establishment with men of "sufficient breadth of view to recognize and sustain appropriate relationships among the

moral, intellectual, economic and military facets of our strength." Also apropos is the plea made in 1957 by General Thomas D. White, former Air Force Chief of Staff, in a remarkable speech to Air Force members of the National War College and the Industrial College of the Armed Forces when he called for a great deal more creative, farsighted thinking on the part of the military.

Historian Andrew Hacker has called our time "the end of the American era." He believes that Americans can no longer bring themselves to make the personal sacrifices necessary to sustain domestic order or inter-national authority.[11] But our institutions still retain enough fiber and resiliency to pull through. This is especially true of the Ameri-can military. The professional soldier can make a substantial contribution toward find-ing our way back to a larger measure of common trust among ourselves, to that sense of American community that seems to be lacking now.

Central to an American revitalization is a recognition by the civilian leadership that the nation's goals must be clearly drawn and articulated. During most of our history down through the first half of this century (except during war), civilian leaders demonstrated little interest in the formulation of national security policy, that sensitive area where de-fense preparations mesh with foreign policy. The military was left to guess as best it could the direction of American foreign policy. In those days when there was no direct external threat to the nation, disinterest was not fatal.

This is not true any longer. History sug-gests we can no longer rely on crusades fought for apparently universal principles that may not be applicable or even understandable to ourselves or other peoples. But we cannot isolate ourselves; nor can we divest ourselves of military power. Foreign policy objectives cannot be drafted without appraisal of our military capacity. When civilian leaders com-mit us to war, the military has a right to

expect a clear statement of political objectives. Presidents cannot expect successfully to commit American forces to prolonged wars overseas without overwhelming domestic support.

Today, the question of civilian control of the military is irrelevant to an informed discussion of antimilitarism. The real issue is to what extent will the antimilitary campaign affect national policy and the ability of the military to support it. Foreign policy divorced from military power cannot be effective. If one assumes that the major drift of American national security policy will not be toward isolation but rather in the direction of greater selectivity in the commitment of our power, then the need for an effective military establishment becomes readily apparent. Thus, the danger is that antimilitarism might so weaken our military as to make it ineffective to support the nation's chosen policy aims.

There is no magic formula, no panacea, to cure the virus of rampant antimilitarism. Because, as indicated, it is a product of particular circumstances and events (primarily but not exclusively Vietnam), in large measure it will have to run its course. As an institution, the American military can withstand these times. Obviously, changes are required to strengthen its ability to serve the nation.

The American military establishment is sworn to uphold and defend the Constitution. Perhaps Americans should recall that the military principles embodied in the Constitution still maintain a strong hold on us despite almost two centuries of profound technological, political, and social change.

We are living in a complex age far removed from the world of America's framers, and perhaps we feel they have little to teach us. Yet, when it comes to the question of war or peace, we would be well advised to restudy their ideas and the manner in which they expressed them when they founded this Republic.
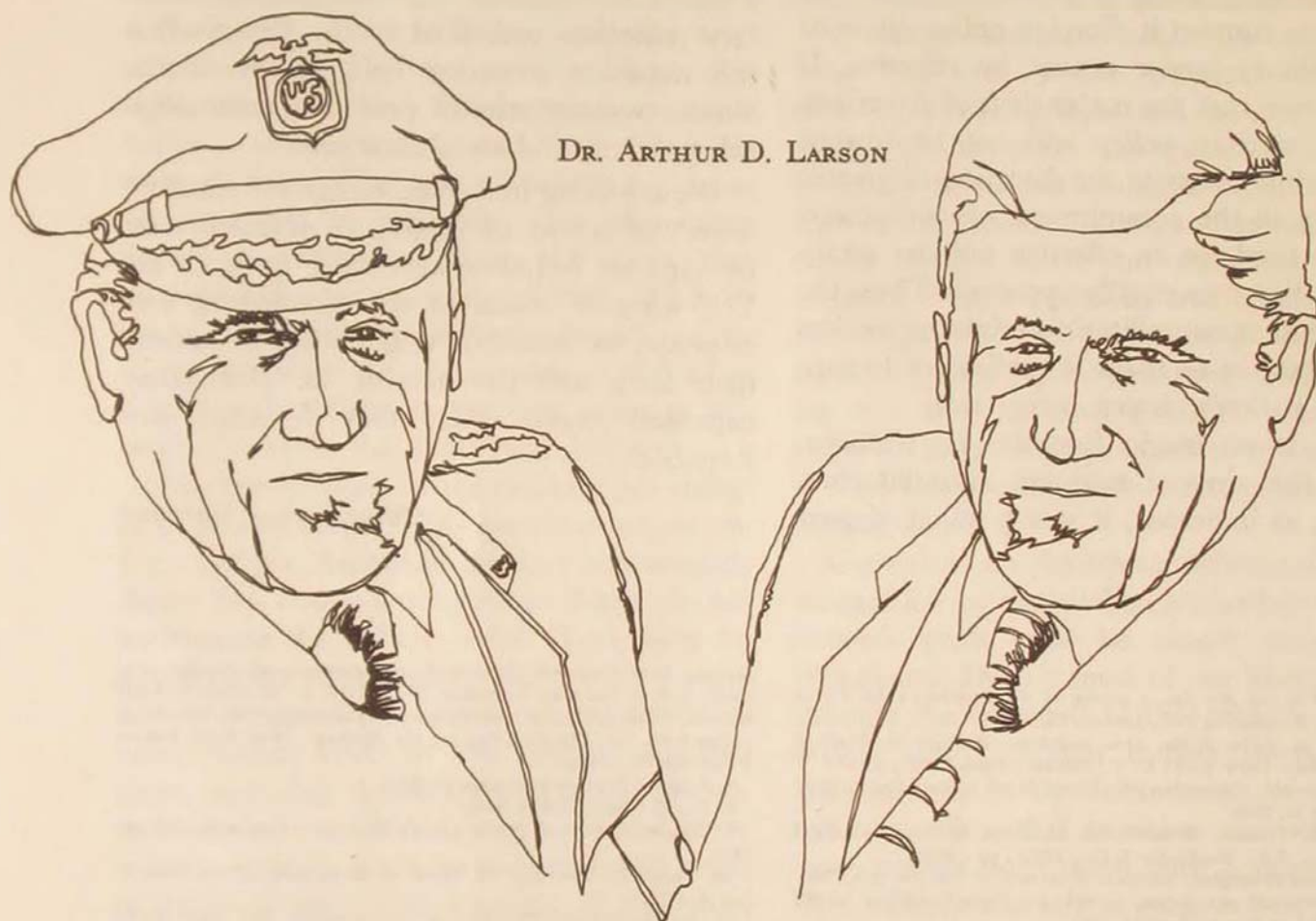
Silver Spring, Maryland

Notes

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THE MILITARY-INDUSTRIAL COMPLEX AND ANTIMILITARISM

The Role of Retired Officer Employment

DR. ARTHUR D. LARSON

WHAT the military-industrial complex is depends, of course, on one's point of view. To some, it is a team of patriotic men in industry and the military who form a bulwark against a worldwide Communist conspiracy. To others, it is a conspiracy of reactionary militaristic officers and greedy arms merchants who, to further their own interests, generate the very threats against which they are supposed to defend the country. And to those who believe that the military and the defense industry are joined neither by superpatriotism nor by a conspiracy, the complex consists of those functional relationships between the two necessary to produce weapons and material for national defense, although they are concerned about any unnecessary extension of these relationships or their abuse for benefit of persons or groups involved.

After President Eisenhower's introduction of the idea in 1962, the second of these interpretations—the military-industrial complex as a conspiracy—received considerable publicity and became an important focal point for the resurgence of traditional antimilitarism that began in the early 1960s.

The purpose here is to review briefly the development of the idea of a self-interested alliance or conspiracy of the military and arms makers, and then present the results of an evaluation of some evidence regarding the employment of retired officers by defense firms which is used to support allegations that such an alliance or conspiracy now exists.

the military-industrial complex as a conspiracy

In his 1962 farewell speech President Eisenhower spoke of the "conjunction of an immense military establishment and a large arms industry" with great political and economic influence that had developed after World War II, and he warned the nation against the "acquisition of unwarranted influence, whether sought or unsought," by this military-industrial complex.[1] Eisenhower's warning and his catchy phrase evoked widespread interest, but few were careful to note his emphasis that the "complex," while unprecedented in American society, had emerged to meet the postwar security needs of the nation and that he had not condemned its existence or influence but only warned against its "grave implications." A popular interpretation was that Eisenhower had pointed to an ongoing alliance or conspiracy of the armed forces and defense industries.[2] This widespread interpretation is explained, at least in part, by the fact that it appeared to many that a President and a military man of enormous public stature had subscribed to a popular but long dormant theme of antimilitarism: that there existed a conspiratorial alliance of arms manufacturers and the military to impose militarism on the country for their own profit

and glory. This idea first appeared in leftist thought in Europe in the nineteenth century. In the United States, the theme of a "munitions lobby" or "merchants of death" was introduced into debates over imperialism and navalism at the turn of the century and was a standard feature of the preparedness controversy before World War I, of the preparedness, disarmament, and navalism debates after the war, and of the Senate munitions investigations of the mid-1930s.[3]

Nothing was heard of the "munitions lobby" theme during World Wars I and II, of course, since every effort was then bent to fostering the cooperation between the armed forces and industry necessary for a successful war effort. While the vast peacetime armaments industry that emerged after World War II and the role of the armed forces in it did not go unnoticed, the theme was not revived again until the mid-1950's. In his book *The Power Elite*, C. Wright Mills saw the interests of the defense firms and the armed forces coming together in an "economic-military alliance," which he traced to their World War II interdependence, an arrangement the advantages of which he alleged both parties recognized and sought to perpetuate even before the end of the war.[4]

An important feature of Mills's economic-military alliance was the movement of members of the military elite—generals and admirals—into high-level corporate positions after retirement. He claimed that these officers were hired not for their business knowledge but "because of whom they know in the military and what they know of its rules and ways" and their consequent ability to secure and expedite—in short, "influence"—armaments contracts. In a more general sense, he saw this easy transfer of the military elite into the corporate world as evidence of the increasing commonality of interests and like-mindedness between the two and of a general movement toward a permanent war economy.

While Mills was the first to use it as part

of a traditional liberal antimilitary critique, the idea that former officers played a vital role in a self-serving alliance of the military and armaments firms did not originate with him. The employment by monopolistic arms firms of officers who were retired, on leave, or at half-pay (and the bribery of those on active duty) had been common in Europe before World War I and was considered a vital part of the nexus between the military and arms firms by antimilitarists.[5] About the same time that Mills's book appeared, the issue of the defense employment of retired officers arose in congressional investigations of defense procurement. In fact, it was this issue, assuming greater importance with congressional investigations, which led to the reintroduction of the traditional "munitions lobby" theme into the political arena two years before President Eisenhower's speech (possibly influencing his thinking on the subject) and which has persisted as an indispensable part of the military-industrial complex debate since then.

the issue of retired officer employment

Prior to World War II officers retiring from the armed forces did not customarily enter business or government. After the war, however, many prominent, high-ranking officers moved into important positions in government, business, and industry. This was generally regarded as a logical step in their public careers, and the organizations which hired these officers were considered fortunate in gaining the services of these outstanding men.[6] While some observers did point out that the movement of large numbers of high-ranking officers into high-level positions in private and public organizations might be contrary to the tradition of civil supremacy, however competent, well-meaning, and above reproach these men were as individuals, the practice met with no strong public or congressional disapproval.[7]

As the members of the original group of prominent World War II officers left government service and were not replaced, the number of retired officers in important government positions declined. The situation in business and industry developed somewhat differently, however. After the Korean War, as the number of officers of all ranks retiring from the large post-World War II armed forces increased, officers with the high ranks but not the prominence of the World War II group, and many officers with lower ranks, began to accept retirement employment in firms with defense contracts.

This development appears first to have been brought to congressional attention in 1955, when Congressman Mollohan inserted into the *Congressional Record* lists of retired generals and admirals employed by the federal government and by the 100 firms with the largest defense contract awards.[8] The issue next arose in Congress in 1956 during an investigation of the profits of military aircraft manufacturers by a special subcommittee of the House Armed Services Committee under Congressman Hébert. While the subcommittee concluded that military aircraft manufacturers as a whole did not make excessive profits, it deplored the manufacturers' practice of hiring retired high-ranking officers at "fabulous salaries," stating that "the presence of retired military personnel on payrolls, fresh from the opposite side of the desk, creates a doubtful atmosphere."[9]

While the issue of defense firms' employing retired officers recurred during the ensuing years, the next major development came in 1959. Defense firm participation (through advertising) in the intense interservice competition over missile systems had drawn the attention of President Eisenhower, who publicly expressed his concern about this practice and about the possibility that political, economic, and other considerations were affecting national security decision-making, particularly in the Congress. While he may not have used

the phrase himself, some commentators and members of Congress began to speak in terms of a "munitions lobby" and "merchants of death," reminiscent of the interwar period. Meanwhile, the Hébert subcommittee was beginning an investigation of favoritism and lack of competitive bidding in the award of defense contracts. As a result of President Eisenhower's comments and public and congressional interest, the subcommittee narrowed the focus of its investigation to the employment of retired military and Department of Defense civilian employees by defense contractors.[10] It held two months of hearings and conducted an elaborate survey of defense firms and their retired-officer employees. While the subcommittee uncovered instances of questionable and undesirable behavior, it found no widespread abuses resulting from the employment by defense firms of retired military officers.[11]

retired officers in the military-industrial conspiracy

The 1956 and 1959 Hébert subcommittee investigations were part of a series conducted by both houses of Congress into defense procurement and contracting which began after World War II and continues today. Fraud, deception, waste, conspiracy, influence peddling, excess profits, contracting policies and procedures, big business monopoly, cost overruns, deficient material, individual weapon system projects, and many other matters have been investigated time and time again in efforts to improve the economy, effectiveness, and sufficiency of defense procurement. An important continuing concern of these investigations during the immediate postwar period was fraud, deception, and influence peddling, and many instances of these, involving both civilians and military personnel, were investigated and exposed. Later there was a shift in many of the investigations in these areas to a more generalized approach in which a class of individuals—officers nearing

retirement with an expectation of finding employment with defense firms after retirement, and officers already retired and employed by defense firms—were alleged to be responsible for inflated costs, concentration of defense business among a few firms, excess profits, and other undesirable general conditions in defense procurement.

The introduction of the "munitions lobby" idea into the 1959 controversy constituted another step in the generalization process, which culminated in the interpretation placed by many on President Eisenhower's warning about the military-industrial complex. From this even more generalized viewpoint, retired or about-to-retire officers are seen as using their positions with defense firms or the armed forces to serve not merely their own personal interests but also those of a reactionary, warmongering, self-serving alliance of the military and arms manufacturers.

The evidence used in the 1956, 1959, and other investigations concerning the number of higher-ranking retired officers employed by the 100 top defense firms established only that defense firms do make a practice of employing retired officers. But it was held that the practice placed about-to-retire officers in a position to be influenced and placed retired officers in defense firms in a position to exert influence and that they necessarily responded to and exerted influence. But while individual cases of impropriety and wrongdoing were uncovered in these investigations, no general pattern of influence peddling, favoritism, or wrongdoing was demonstrated, and certainly nothing emerged to support the idea that about-to-retire or retired officers were a vital nexus in an alliance or conspiracy of the military and the armaments industry.

If the issue has proven so unproductive in getting at the root of diseconomies and inefficiencies in defense procurement, why have critics in and out of Congress persisted in pursuing it? At least three reasons can be suggested. An obvious one is that, although

no evidence of widespread abuse resulting from the employment of retired officers by defense firms has been found, the practice does pose the possibility of grave problems and must be carefully watched. Perhaps another reason, suggested during the 1959 Hébert investigations, is that Congress, stung by the insinuation of President Eisenhower and others that nonmilitary—political and economic—considerations were influencing its national security decision-making, struck back by this means at the executive branch and the Department of Defense.[12]

But a third and important reason for the persistence of the issue of defense firms' employing retired officers is that it provides the evidence of a link between the armed forces and arms firms, outside the regular and authorized relationships of defense procurement, which can be cited to support allegations regarding collusion between them. Without this element of collusion, the idea of an alliance or conspiracy between the military and industry loses much of its force. In other words, the issue persists in part because it is essential to the vitality of the military-industrial complex idea as a focal point and energizer of the current wave of antimilitarism.[13]

evaluating the evidence

Since there is no direct evidence of collusion, what support does the evidence give to the allegations of collusion which are so necessary to the plausibility of the conspiracy interpretation of the military-industrial complex? The evidence consists of data on the number of higher-ranking retired officers employed by the 100 top defense contractors in various years, gathered by three surveys: one conducted by the Department of Defense in 1959 at the request of Senator Douglas, in the course of hearings on contract renegotiation by the Senate Finance Committee; another conducted by the Hébert subcommittee during

its 1959 investigation, as already noted; and a third undertaken by the Department of Defense in 1969 at the request of Senator Proxmire, during his investigations of weapon systems procurement. In what follows, the results of an analysis and evaluation of the 1959 Douglas survey and the 1969 Proxmire survey are presented.[14]

The 1959 Douglas list includes the names of 769 individuals alleged to be retired regular officers with the rank of colonel and Navy captain and above, employed at the end of July 1959 by 79 of the 100 firms with the largest defense prime contract awards for fiscal year 1958. The 1969 Proxmire list includes the names of 2131 individuals who were counted as retired regular officers with these ranks employed at the beginning of February 1959 by 91 of the 100 firms with the largest defense prime contract awards for FY 1968.

Verification of the name and other information regarding each listed individual against official service retirement rosters revealed that substantial numbers on both lists were not in fact retired regular officers of the rank of colonel or Navy captain and above. Of the 769 individuals included on the 1959 list, only 541 appeared on the retired officer rosters (including 488 with regular commissions and 53 with reserve commissions). Of the 2131 individuals on the 1969 list, only 1688 could be identified in these rosters (including 1487 with regular commissions and 201 with reserve commissions). A few individuals on both lists could not be positively identified and may have been on the retirement rosters.

While it is not possible to know the accuracy with which this refined information from the Douglas and Proxmire lists reflects the scope and character of defense industry employment of retired officers generally, one can reasonably assume that it presents a fair picture of the situation prevailing among the most important defense firms in 1959 and 1969. The table shows the ranks and services of the retired officer employees (ROE's) on the two refined

	1959 list			1969 list		
	generals	colonels	service totals	generals	colonels	service totals
Air Force	41	63	104	60	715	775
	39.4%	60.6%	19.2%	7.7%	92.3%	45.9%
Army	43	107	150	33	282	315
	28.7%	71.3%	27.7%	10.5%	89.5%	18.7%
Marines	20	17	37	20	61	81
	54.1%	45.9%	6.8%	24.7%	75.3%	4.8%
Navy	130	120	250	77	440	517
	52.0%	48.0%	46.2%	14.9%	85.1%	30.6%
rank totals	234	307	541	190	1,498	1,688
	43.2%	56.8%	100%	11.3%	88.7%	100%

lists.[15] While the figures speak for themselves, certain changes between 1959 and 1969 may be noted. The number of ROE's from all the services increased substantially between 1959 and 1969, the greatest increase being in those from the Air Force. The proportion of ROE's with the rank of colonel and Navy captain increased significantly for all the services between 1959 and 1969, while the proportion with the rank of general and admiral declined.

A comparison of the figures in this table with information on all officer retirees of comparable ranks from the four services reveals little similarity between the 1959 and 1969 groups or in the changes that occurred in the two groups between 1959 and 1969.[16] The total increase in ROE's from 1959 to 1969 was 211%, while the total increase in retired officers of comparable ranks was 97.4%. However, the 541 ROE's in 1959 constituted only 2.8% of all retirees of comparable ranks in that year, and the 1688 ROE's in 1969 only 4.5% of all retirees of comparable ranks in that year. Thus, while the movement of retired officers into defense firms increased significantly between 1959 and 1969, defense firm employment is not a haven for retired officers, since only a small proportion of all officer retirees is involved.

With respect to type of commission, the vast majority of officers on both lists—90.2% in 1959 and 88.1% in 1969—had held regular commissions. With regard to length of employment, the table shows the percentage of officers who retired within five, ten, and fifteen years of the date of the list on which they appeared. These figures suggest that retired officers do not work for defense firms very long

1959 list			1969 list		
5 years before	10 years before	15 years before	5 years before	10 years before	15 years before
62.7%	86.9%	99.3%	53.7%	91.1%	98.7%

after retirement, even though most of them retired with from two to twenty years remaining before the usual civilian retirement age of 65. This is supported by the fact that while the same 39 firms employed 75% of the ROE's on the 1959 list and about 80% of the ROE's on the 1969 list, only 65 of the retired officers employed by these 39 firms in 1959 were still with them in 1969.

Information on the positions held by retired officers was available only for the 1969 list, and in rather sketchy form. The following is clear, however: only a few—60, or 3.6%—of the 1969 ROE's held top management positions

as members of a board of directors, president, or vice-president. The remainder of the ROE's occupied middle management technical and supervisory positions of various types. Other surveys support this by showing that the pay levels of retired officers employed in both defense and nondefense firms are usually rather modest.[17]

In summary, then, this evaluation of the Douglas and Proxmire lists shows that the number of retired officers employed by the top defense firms was substantially less than these lists indicate; and that those officers on the lists who were employed by defense firms occupied relatively unimportant positions, remained with the firms for relatively brief periods, and constituted only a small proportion of all retired officers of comparable ranks. It does not appear from this evidence, then, that the defense firm employment of retired officers plays a major role in any collusion between the military and the armaments industry.

Two other considerations should be taken into account. First, while it is impossible to know the exact circumstances under which retired officers get their jobs with defense firms, it is unlikely that they do so because such jobs are easy to get, pay well, and are not too demanding, or as part of a deal to influence contracting decisions or perpetuate the military-industrial complex. It is a major assumption of the military retirement system that most of the great number of officers retiring from the services will be able to find civilian jobs. At retirement, most of these officers are in their middle forties and have as many as

twenty working years remaining before the usual civilian retirement age. At the same time, their retirement pay is insufficient to maintain their active-duty standard of living, particularly if they have the heavy family expenses common in the middle years. The typical retired officer therefore does not have a choice about working after retirement; he must compete for a job from among a limited number of opportunities with civilians and other retirees.

Second, not all ROE's are in positions, before or after retirement, from which they could significantly influence defense decisions; and of those who are, the vast majority would not —for reasons of professional ethics, personal morality, or law—engage in improper behavior. In fact, as noted earlier, while a few individual instances have been brought to light, no evidence of widespread impropriety or wrongdoing has ever been produced.

In the light of the results of an evaluation of the facts about the practice of retired officers working for defense firms over a ten-year period, the circumstances imposed on retired officers by the military retirement system, and the lack of evidence of a general pattern of impropriety or wrongdoing on their part, the assertions that the practice constitutes proof of collusion between the military and the defense industry are baseless. And without this insinuation of collusion, the conspiracy interpretation of the military-industrial complex idea loses much of its force as a mainstay of the current wave of antimilitarism.[18]

Racine, Wisconsin

Notes

1. *New York Times*, January 18, 1961, p. 1. Jerry Greene, "Munitions: A Way of Life," *Nation*, March 4, 1961, pp. 187–89.

2. Fred J. Cook, "Juggernaut: The Warfare State," *Nation*, October 28, 1961, pp. 277–337. Also see his *Warfare State* (Macmillan, 1962), pp. 63–67, for a statement of the self-interested alliance or conspiracy interpretation of the military-industrial complex idea.

3. Arthur A. Ekirch, Jr., *The Civilian and the Military* (Oxford University Press, 1956), p. 152, *passim*. John E. Wiltz, *In Search of Peace: The Senate Munitions Inquiry, 1934–36* (Louisiana State University Press, 1963).

4. C. Wright Mills, *The Power Elite* (Oxford University Press, 1956), pp. 211–16.

5. Alfred Vagts, *A History of Militarism, Civilian and Military* (Meridian Books, 1959), pp. 365–71.

6. "The Military Businessman," *Fortune*, Vol. 46, September 1952, pp. 128–30 + ; "Generals—Then and Now," *New York Times Magazine*, March 7, 1954, pp. 78–79 + ; "Business Taps Generals and Admirals for Top Jobs," *U.S. News and World Report*, April 27, 1956, pp. 55–56. For an early scholarly study of the retirement careers of military officers, see Leonard Reissman, "Life Careers, Power and the Professions: The Retired Army General," *American Sociological Review*, Vol. 21, April 1956, pp. 215–21.

7. Hanson W. Baldwin, "The Military Move In," *Harpers*, Vol. 195, December 1947, pp. 481–89.

8. *Congressional Record*, 84th Congress, 1st Sess., Cl, July 1955, pp. 10630–32.

9. *New York Times*, January 5, 1956, p. 46; February 25, 1956, p. 28; March 10, 1956, p. 34; July 23, 1956, p. 23.

10. *New York Times*, June 4, 1959, p. 1; June 5, 1959, p. 1; June 18, 1959, p. 12.

11. U.S., Congress, House, Subcommittee for Special Investigations of the Committee on Armed Services, *Hearings and Report, Employment of Retired Military and Civilian Personnel by Defense Industries*, 86th Cong., 1st Sess., 1959 and 1960.

12. Hanson W. Baldwin, "Spotlight on Ex-Officers," *New York Times*, July 7, 1959, p. 24.

13. Every discussion of the military-industrial complex idea includes as evidence the data on the defense firm employment of retired officers. See, for example, Cook, *The Warfare State, op. cit.*, pp. 188–91; Tristram Coffin, *The Passion of the Hawks: Militarism in Modern America* (Macmillan, 1964), pp. 171–73; Julius Duscha, *Arms, Money, and Politics* (Washburn, 1964), pp. 73–75; William Proxmire, *Report from Wasteland: America's Military-Industrial Complex* (Praeger, 1970), pp. 151–76. Another indispensable ingredient of the conspiracy or alliance interpretation of the military-industrial complex idea is the evidence of the distribution of defense firms and defense contracts among states and Congressional districts, which can be used to support allegations regarding improper relationships between Congress, the military, and defense firms.

14. The results of the 1959 Douglas survey and the 1969 Proxmire survey were published in the *Congressional Record*. The information from the 1959 Hébert survey appeared in the report of the cited investigation. See U.S., *Congressional Record*, 86th Cong., 1st Sess., CV, June 17, 1959, pp. 11040–45; and *Ibid.*, 91st Cong., 1st Sess., CXV, March 24, 1969, pp. 53072–81. I am grateful to Miss Patricia Ellis for her assistance in the analysis of these surveys.

15. "General" includes brigadier, major, lieutenant, and full general, and "admiral" includes rear, vice, and full admiral. In the tables, generals and admirals are included under "generals," and colonels and Navy captains under "colonels."

16. Data on officer retirements were made available through the courtesy of the Director for Information Operations, Assistant Secretary of Defense (Systems Policy and Information), Department of Defense. Included are all officers from the four services receiving retired pay as of June 30, 1959, and June 30, 1968.

17. Albert D. Biderman, "The Retired Military" in Roger W. Little, *A Survey of Military Institutions* (Chicago: Inter-University Seminar on Armed Forces and Society, Inc., 1969), Vol. II, pp. 518–74.

18. Under the FY 1970 military weapons authorization act (PL 91–121), higher-ranking officers and civilians employed by defense firms after retirement must register with the Department of Defense beginning in 1970 if they were involved during a period immediately preceding retirement in procurement, negotiation, or approval regarding materials and services for weapons, or if they served as a representative to a defense contractor; and the Secretary of Defense must annually report such registrations to the Congress. The first report was made in January 1972. *New York Times*, January 8, 1972, p. 13.

MAC'S ROLE IN DEEP FREEZE

Edward J. Belz

A NEW 10,000-foot runway is constructed every year for the Military Airlift Command's annual participation in Operation Deep Freeze, which supports United States scientific and other programs in Antarctica.

The old runway—spread atop 95 inches of ice—softens, melts, cracks, and drops into the 900-foot-deep waters of McMurdo Sound during the waning days of the Antarctic austral summer. Nature then begins the rebuilding job in the early days of autumn (March through June), and by the time the severe temperatures and winds of winter subside, the ice at the runway location is of sturdy thickness, capable of accommodating aircraft with gross weight of more than 250,000 pounds.

Ice borings determine the actual thickness and provide the signal for the wheeled aircraft to begin their airlift role

No need to haul concrete to Antarctica—Nature's 95 inches of ice withstands more than 250,000 lbs.

Though the 10,000-foot runway may be rough one day, it's smooth the next, thanks to Navy ground crews.

After the 11,000-mile flight from McGuire, aircrews welcome Mt. Erebus, volcano landmark of McMurdo Sound.

in resupplying the vast scientific operations in the Antarctic.

In anticipation of this signal, planning for the Military Airlift Command's participation in Deep Freeze 72 started in spring 1971. Climaxing this planning and staging—out of Quonset Point Naval Air Station, Rhode Island, for the overseas operation and out of Christchurch, New Zealand, for the flights to the ice—the C-141 Starlifters begin their missions in early October and continue until the McMurdo Sound runway is closed down for the year. The life span of the icy airstrip is determined by the weather; a "hot" summer (with temperatures reaching the high 30s) can cause an early closure, as it did in mid-season last year.

On cue, activity at the Antarctic stations blossoms with the milder weather. A tremendous amount of work—experiments and logistics activities in support of these experiments —must be accomplished during the brief four to five months' respite from Nature's frigid grip. Pressed into service are icebreakers, tankers, cargo ships, helicopters, bulldozers, electronic vans, generators, and many other vehicles and equipment. In comparison with the overall operation, the Military Airlift Command's assigned mission is modest. Yet, from an airlift standpoint, MAC's role is formidable. This year, C-141s were to carry 1700 passengers, with their personal gear, and almost a million pounds of cargo to the ice.

The U.S. Navy, serving as executive agent for the Department of Defense in providing logistic support for the U.S. Antarctic program, has the major role. The U.S. Coast Guard and other government agencies also are involved.

Starting in late September, MAC Starlifter aircrews began

A C-141 Starlifter takes off for the 2117-mile flight back north to Christchurch, New Zealand.

their role in Deep Freeze 72, flying 16 missions from Quonset Point to Christchurch. Three MAC commercial contract flights also were scheduled for the deployment to Christchurch.

From Christchurch, the C-141s fly 40 turnaround resupply missions to the ice on McMurdo Sound. These missions were assigned to the 438th Military Airlift Wing of the 21st Air Force at McGuire AFB, New Jersey. In addition, a 21-man airlift control team from the 438th and a 6-man detachment from the 61st Military Support Wing at Hickam AFB, Hawaii, provide staging, maintenance, and other ground support at Christchurch.

C-141 major maintenance normally is performed at Christchurch. Minor maintenance is provided by aircrew members on the ice. Yet if major maintenance is required, the parts and a maintenance crew may be flown to the ice and the work done there.

The spellbinding sight of the white world becomes a living drama of an estimated 100,000 penguins in their rookery at Cape Adare.

The mission route from the Atlantic Coast to McMurdo Sound covers more than 11,000 miles, including enroute stops at Andrews AFB, Maryland; Travis AFB, California; Hickam AFB, Hawaii; Pago Pago in American Samoa; and Christchurch before the final 2117-nautical-mile flight to the ice. While the overall route is a long one, the real challenge for the aircrews does not really start until the takeoff from New Zealand on the final leg.

Crews are augmented for the flight to the ice because they are on a turnaround mission with time on the ground— or on the ice—just long enough to offload the cargo, refuel and obtain other basic ground support, take on retrograde cargo, and begin the return flight. The crew includes the aircraft commander and two other pilots, two navigators, engineers, and loadmasters. There is only one especially imposed qualification: the aircraft commander must have participated in a previous flight to the ice. If the aircraft commander has not made a previous flight to the ice, then his initial trip to McMurdo is made under the supervision of an ice-qualified flight examiner.

Grid navigation is required for all flights to McMurdo. The navigators usually do a little brushing up on grid navigation during the long flight from Pago Pago to Christchurch. That leg provides sufficient time for them to check out their gyroscopes and compare their grid procedures with the flight data from the C-141's ASN-24 primary computer. Without accurate heading input, the computer cannot produce the desired navigational computations south of 56 degrees. Since McMurdo is 1300 miles south of this point, the accuracy of the navigator's grid procedure is of critical importance.
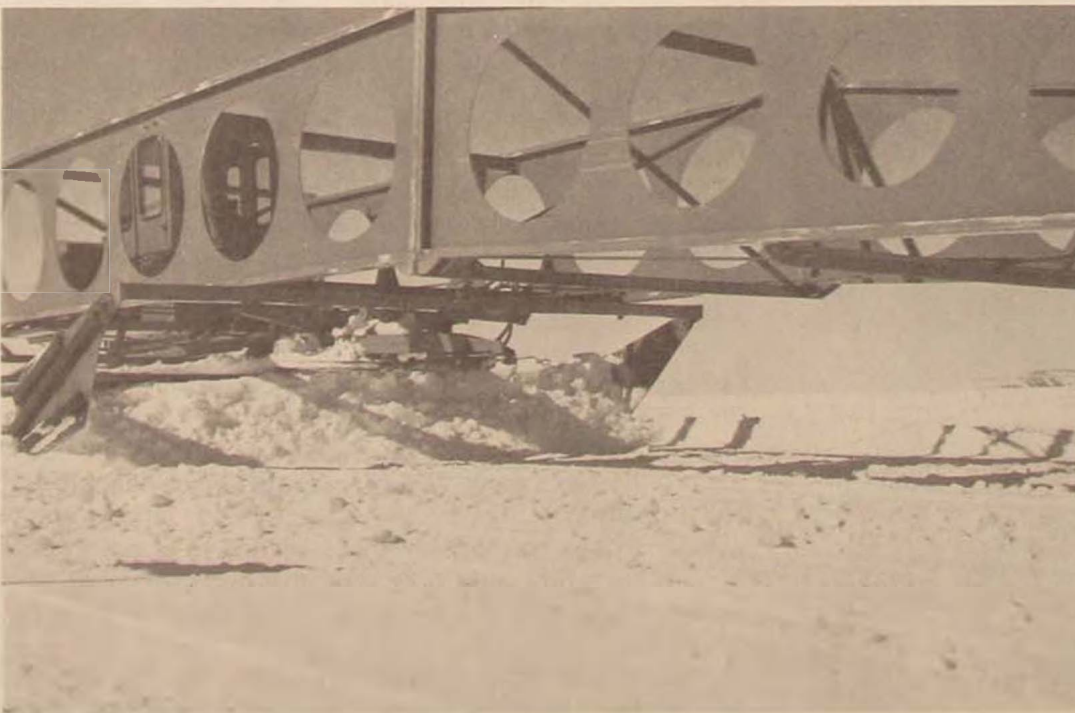
The margin for navigational error is slim, for return to Christchurch is the only alternative to landing on the ice at McMurdo. This fact, plus the Antarctic's extremely unpredictable weather, makes the point of safe return a matter of serious concern. Missions are planned with sufficient fuel to arrive overhead at McMurdo and return to the alternate, which is Christchurch, in the event landing cannot be made.

While the flight is over water all the way from Christchurch to Antarctica, two navigational fixes can be made en route: the first at Campbell Island, which is about one-third of the overall distance out of Christchurch; the second at the Balleny Islands, about 200 miles west of the flight pattern, about midway between the takeoff and landing points. A radar fix can be made on these islands to check the accuracy of the grid procedures. And the last 100 miles of the polar flight is within sight of the shoreline of Victoria Land, Antarctica.

Generally, the C-141 is the only aircraft in the sky above 25,000 feet, and the aircrew can select its own altitude

The navigator takes a fix on the sun during the long overwater flight.

Ice—snow—mountains—glaciers—
the story of Antarctica . . .
Rough ice is scraped away, then
snow is blown onto the runway,
to slow the aircraft landing.

A Navy supply ship rests at anchor in water that was an ice runway only a month earlier.

without worrying too much about hemispheric separation. Normally, however, the Starlifters are flown down to the ice and back at 37,000 feet, staying at that altitude as long as possible to conserve fuel. Descent is almost always initiated VFR within 75 miles of destination.

Aircrews are enthralled by their first sight of Antarctica. One pilot, a veteran of six ice landings and still awed at the thought of the impressive wintry landscape, commented: "Destination on the way down means Antarctica stretched out before you—miles and miles and miles of bleak, lifeless, mountains of snow and ice, glaciers of immense proportions —a spellbinding sight, unlike any other on earth. Unpolluted, clear, and cloudless skies with visibility of 200 miles in every direction. Beautiful, yet desolate. Serene, yet terrifying."

A navigational landmark of immense gratification to the navigator as it looms into view is Mount Erebus, an active volcano that sits at the edge of McMurdo Sound. As the

aircraft arcs around the volcano, the grid north oriented TACAN is picked up on the instrument board. A combination of GCA, TACAN, and the airborne radar computers goes into action to guide the aircraft onto the ice runway.

Pilots freely admit a moment of anxiety as they touch down on the ice, despite repeated assurances from others with experience that there is little difference from regular landings. And it is true, the landings are accomplished without difficulty. The runway, damagingly rough one day and smooth the next, is maintained by efficient Navy ground crews. They continually scrape the rough spots and then "blow" three to four inches of snow back on the 10,000-foot strip. The snow acts as a slowing agent, and full reverse thrust is seldom required to halt the rolling aircraft. In fact, power frequently must be applied to taxi off the runway.

The 10,000-foot runway is more than ample for the landing, the roll, and the taxiing. A very physical incentive favors keeping the aircraft on the runway: at the end of the McMurdo Sound flat is the Ross Ice Shelf, a towering mass of perpetual ice that rises like a wall.

Exact measurements are taken on the thickness of the ice and on the impact and load effects of the aircraft landing and parking on the ice. The immediate parking area of a fully loaded C-141 is depressed a half inch, according to these measurements; the landing impact causes less of a depression because the ice is thicker in that area.

The flight from Christchurch to the ice, the navigation to the far southern reaches of the Pacific Ocean and into the Ross Sea, and the chilling first sight of the vast, almost lifeless continent—all build up to a crescendo for the landing. After these challenges, emotions, and thrills, the return flight to Christchurch is like a bicycle ride in the park on a Sunday afternoon.

Hq Military Airlift Command

MILITARY JUSTICE—
A SYSTEM FOR
THE SEVENTIES

Lieutenant Colonel George D. Schrader

CONDEMNING, faultfinding, and criticizing have become so commonplace in our contemporary society that one often wonders whether there is anything of value in any system, establishment, or organization. Generalities, half truths, hearsay, and isolated incidents provide the basis for much of the criticism.

Such criticism is basically unfair because it alleges fault without supporting facts and does an injustice to the institution being criticized. It is extremely difficult to defend or extol the virtues of any institution against general allegations and charges that are not supported with specific facts. In most such instances, those who defend against the attacks must begin with the premise that the institution being defended is not perfect. But, on the other hand, what man-made system or organization, considered in the social context, is not subject to improvement? As Winston Churchill once stated: "Many forms of government have been tried and will be tried in this world of sin and woe. No one pretends that Democracy is perfect or all-wise. Indeed, it has been said that Democracy is the worst form of government except all those other forms that have been tried from time to time."

A paraphrase of Sir Winston's remarks can apply to the military justice system, also: the military justice system is not perfect or all-wise; it is the worst system of justice until it is compared with all others. Admittedly, our military justice system is not a panacea, but in comparison with civilian criminal systems it is in many respects definitely superior, and it cannot, in general, be characterized as inferior.

The modern military justice system reflects the enlightened thinking of the

United States Congress, which makes the rules that govern the armed forces; the President, who implements congressional legislation; and members of the Department of Defense who administer the military justice system.

The Uniform Code of Military Justice (UCMJ) became effective in 1951. This legislation introduced a revolutionary concept and provided members of the armed forces a system of justice unparalleled in history. Several major changes came with the Military Justice Act of 1968 and the Manual for Courts-Martial (revised) 1969. In the paragraphs that follow, let us consider a few significant aspects of our military justice system and its function within the Department of the Air Force.

Right to Counsel— Self-incrimination

In 1966 the Supreme Court of the United States decided the case of *Miranda* v. *Arizona*, which dealt with the Fifth Amendment to the Constitution and the individual's right to an attorney. That decision praised the warning requirements of Article 31 UCMJ. Article 31, which had been in effect since 1951, has long been held by military appellate courts to be broader in scope than the Fifth Amendment. It requires that a suspect must be advised concerning the nature of the offense being investigated, that he has the right to remain silent, and that any statement which he makes can be used against him in a trial by court-martial. In addition to this warning and in accordance with a Court of Military Appeals decision which expanded the *Miranda* rule, a suspect in the military service must also be advised of his right to hire a civilian attorney and told that, if he desires, a military attorney will be appointed to represent him free of charge. He can consult with his attorney prior to interrogation, require his attorney's presence during interrogation, and terminate the interview at any time. Further, any statement that he

makes must be voluntary and with full understanding of his rights. Thus, unless a suspect is advised of the provisions of Article 31 and his right to legal counsel, any statement that he makes is inadmissible in a trial by court-martial. Article 31 also prohibits the compelling of self-incrimination, and a statement is inadmissible if it is obtained through coercion, unlawful influence, or unlawful inducement.

The applicability of Article 31 is broader in other respects than the advice concerning the right to counsel prescribed by the Supreme Court. The Supreme Court decision relates to "custodial interrogations," but Article 31 is applicable, regardless of custodial status. Unlike most civilian systems, the protective warning requirements of Article 31 extend to the execution of handwriting samples, speaking for purposes of voice identification, and any physical acts equating to the making of a statement performed in response to questioning. Therefore, the protection afforded military personnel under Article 31 is broader than the protection provided by the Fifth Amendment to the Constitution of the United States against self-incrimination for civilians.

The Air Force judge advocate, appointed free of charge to represent a suspect at an interrogation, is a commissioned officer. He is a graduate of an accredited law school and a member of the bar of a federal court or the highest court of a state. Under current procedures, The Judge Advocate General of the Air Force may also certify him as competent to perform duties as a defense counsel for courts-martial. This is normally accomplished upon his successful completion of the Air Force Judge Advocate Staff Officer Course, a six-week resident course for military lawyers. Unless he is certified, he is not eligible to serve as chief counsel before general or special courts-martial.

A member of the Air Force brought to trial has the right to an appointed military attorney with these qualifications. He also has the right

to request other judge advocates to act as individual counsel on his behalf, and he may hire a civilian attorney at his own expense. He also has the right to appointed military counsel or retained civilian counsel at each appellate level. In addition, the record of trial is prepared and provided at no expense to either the accused or his appellate counsel. These rights far exceed those normally afforded civilians.

Search and Seizure

For many years the Fourth Amendment was not considered applicable to the armed forces. However, the Court of Military Appeals has, by judicial decision, extended the substantive rights contained therein to military personnel. Hence, a member of the armed forces is protected against unreasonable searches. The Court of Military Appeals has placed great importance on the rights of an individual as guaranteed by the Fourth Amendment and on the protection embodied therein as determined by the Supreme Court.

In the armed forces a commander may authorize a search of the area over which he has authority, but in so doing he must have *probable cause*. This means that the person who authorizes a search must have reasonable grounds for believing that an individual possesses criminal goods or that such goods are located on the premises to be searched. The touchstone in this instance is the belief or knowledge of the commander authorizing the search. He must apply the same standards as those applied by a magistrate in the civilian community. The commander's authority to authorize a search is frequently criticized on the basis that he cannot act as a neutral and detached magistrate in performing this judicial function. However, judicial review of the factual basis for authorization to search is a major deterrent to the abuse of this authority. In addition, Air Force Form 1176, "Authority to Search and Seize," requires the commander to set forth certain prescribed information, such as the premises to be searched and the specific property to be seized. If the trial court or appellate authorities determine that the commander did not have probable cause, they will exclude the evidence or reverse a conviction.

It has been proposed that military judges should be granted the sole authority to authorize a search. However, the limited number of available military judges presents problems in implementing such a procedure. In view of the requirements for probable cause, judicial review, and use of AF Form 1176, the military system could be brought fully within the procedural aspects of the Fourth Amendment with only minor additions, such as affidavits from those requesting authority to search.

Pretrial Investigation

Although the Fifth Amendment specifically exempts the armed forces from the requirement of a grand jury indictment, Article 32 ucmj specifies that charges cannot be referred to a general court-martial without an impartial pretrial investigation. This investigation is conducted by an officer, often an attorney, usually appointed by a base commander. Actually, it is a discovery proceeding, wherein the accused is represented by appointed or requested military counsel, or he may hire civilian counsel at his own expense. He has the opportunity to examine all the government's evidence, cross-examine government witnesses, call witnesses, submit evidence, testify, raise objections, and submit motions.

The investigating officer makes recommendations concerning the disposition of the charges. The staff judge advocate of the commander authorized to convene general courts-martial reviews the investigation and recommendations. The commander may not refer a case to trial unless he finds that the charges allege offenses and that trial is warranted by evidence indicated in the report of investigation. A copy of the complete investigation and

the advice of the staff judge advocate are provided to the accused. The pretrial investigation and all correspondence pertaining thereto are also attached to the record of trial.

In contrast, civilian grand jury proceedings are generally secret: the accused is not present, he is not represented by counsel, and he cannot confront witnesses against him. Furthermore, there is no uniformity in the grand jury system. Some states do not use the system at all, and others make only limited use of it.

Thus, we can conclude that the accused in the military service is the beneficiary of a superior system when individual rights are involved with regard to legal representation, self-incrimination, and pretrial investigation. Even in the area of search and seizure, where Fourth Amendment considerations are not fully applicable to the serviceman, he is afforded protection virtually equal to that guaranteed his civilian counterpart.

Independent Judiciary

Another development worthy of comment is the establishment of the Air Force Trial Judiciary Division, which has its counterparts in the other services. Congress provided the basis for this organization in the Military Justice Act of 1968. In keeping with this legislation, The Judge Advocate General of the Air Force designates certain officers, in the rank of colonel and lieutenant colonel, to serve in judicial circuits throughout the world and preside as military judges on general and special courts-martial. Members of the Air Force Trial Judiciary have the same qualifications as do counsel, perform only judicial duties, and function under the sole supervision of The Judge Advocate General or his designee. Hence, they are completely removed from the control of field commanders.

These officers perform functions very much like those of any trial judge of a federal or state court. There are some exceptions, however. For example, they do not have authority

under the All Writs Act to issue writs. They do not have authority to sentence, except in cases where the accused requests trial by judge alone, in which case the accused must first be advised as to who will be his judge. In 1970 approximately 45 percent of the general courts-martial in the Air Force were tried by judge alone, an obvious reflection of the faith Air Force personnel undergoing trial have in the independent judiciary.

In addition to the limited number of judges in the Air Force Trial Judiciary, The Judge Advocate General also certifies qualified judge advocates to serve as military judge for special courts-martial. It is Air Force policy that either a member of the Trial Judiciary or another judge advocate certified as a military judge preside at all Air Force special courts-martial.

Within the framework of current legislation, the Air Force is developing and testing in the southeastern United States a program that provides for judicial districts as subdivisions of the established circuits. A judge advocate will serve in each district as judge for special courts-martial and as the pretrial investigator for general courts-martial. Also each circuit will have a trial counsel (prosecutor) and defense counsel who may act as chief counsel in trials within the circuit. The trial counsel will act as chief counsel in all trials by general courts-martial. The defense counsel will act as chief counsel in all trials by general courts-martial and when requested by the accused in special courts-martial. These officers will have no duties other than those of counsel, judge, or investigating officer, and they will be responsible only to The Judge Advocate General of the Air Force or his designee.

This program, with a target date for worldwide implementation in fall 1972, has two major goals. First, it will remove both the judge and counsel from the control of the field commander and, therefore, eliminate the possibility of so-called command influence. Second, it will provide both the accused person and the

government with more capable and experienced counsel. For an accused Air Force member, this means that he has the right to be represented by local counsel at his own base, by district defense counsel, by other military counsel if requested and reasonably available, and by a civilian attorney at his own expense. Upon request, additional military counsel will be appointed to represent him in appellate proceedings before the Court of Military Review and the Court of Military Appeals. These judge advocates specialize in appellate court proceedings. No other judicial system can equal the right to free legal representation that is afforded a member of the Air Force.

Appellate Proceedings

The UCMJ requires Courts of Military Review to review cases in which the approved sentence affects a general officer, extends to death, or includes dismissal, dishonorable discharge, bad conduct discharge, or confinement in excess of one year. In the Air Force, the Court of Military Review is presently a six-man appellate court, composed of judge advocates in the rank of colonel or lieutenant colonel. This court makes decisions as to both law and fact, but otherwise it is similar to an intermediate court of appeals in the federal or state system.

Since the Court of Military Appeals considers appeals from all the services, it is the Supreme Court of the military system. It is composed of three civilians, appointed by the President with the advice and consent of the Senate, for terms of 15 years. This court has vast powers to grant writs for appropriate relief, and it reviews all cases in which the sentence affects a general officer or extends to death. It also reviews all cases which the Judge Advocates General in all the services send to it for review and cases which it agrees to review based on petition by the accused. Cases certified to the court by a Judge Advocate General may concern a decision of a

Court of Military Review favoring either the government or the accused. The Court of Military Appeals can affirm or reverse decisions of the Court of Military Review, set aside findings or sentence, order rehearings, or dismiss charges.

In addition to the authority of the Judge Advocates General to grant new trials, Congress has authorized them to review any record of trial that has not been reviewed by a Court of Military Review. This authority extends to vacating or modifying any court decision in whole or in part based on newly discovered evidence, fraud on the court, lack of jurisdiction, or error prejudicial to the substantial rights of the accused. Therefore, each accused in the armed forces may apply for a judicial review of his conviction at a level above the command taking final action on the record of trial. This judicial review does not deprive the accused of his right to petition the Secretary of the service concerned for correction or removal of injustices through administrative proceedings.

It is doubtful that any civilian criminal system provides the broad scope of appellate processes available to members of the U.S. armed forces. Furthermore, these judicial reviews are provided at no expense to the accused, and appointed counsel protects his rights at each stage of the proceedings.

Deferred Confinement

Another innovation resulting from the Military Justice Act of 1968 is the provision for deferred confinement. Under the Uniform Code of Military Justice, any period of confinement included in a sentence begins from the date it is adjudged by the court-martial. The deferred confinement provision authorizes an accused to make application to a specified commander for postponement of his confinement. If deferment is granted, the accused is not required to post financial bond. Although courts-martial sentences are ex-

pressly excluded from the Federal Bail Reform Act of 1966, this provision for deferred confinement is an adequate substitute uniquely applicable to the military services. Extension of the authority to defer confinement to the military judges and the Judge Advocates General of the respective services would perhaps increase the value of this new provision.

IN CONSIDERING these concepts of military justice, one must also note that the constant connecting links are the procedural protections and rights to counsel to which military personnel are entitled. In these areas, an accused member of the military service is afforded more rights at each stage of the pretrial, trial, and post-trial proceedings than in civilian life, and he has a far greater opportunity for review of his case, regardless of how minor his infraction may be.

Much of the criticism of the military justice system is directed at the integrity of the system. Unfortunately, some faultfinders with misguided zeal downgrade it without making any corresponding recommendation for improvement. Like all nonmechanical systems, the military justice system is no better than the people who are charged with the responsibility for its operation; like any institution, it is only as sound as the character of the people who administer it.

To state that loyal, dedicated judge advocates, commanders, and civilian attorneys in this system lack integrity is a very serious charge. The military justice system depends on the performance of people in positions of trust. These people are charged with the responsibility of maintaining a professional legal system of high standards within the framework and society in which it was designed to function.

The Military Justice Act of 1968 became effective only in August 1969. Perhaps some suggestions for change are deserving of congressional consideration, but there is much that can be and is being accomplished within the framework of existing legislation. Therefore, it seems prudent to allow the system to mature fully without the enactment of further changes at this time.

Military justice is truly a dynamic area of the law, developing within the concepts of American jurisprudence in keeping with congressional legislation and decisions of the Supreme Court of the United States and the Court of Military Appeals. One need only trace the Supreme Court's interpretation of the Fourteenth Amendment to discover that the law, both procedural and substantive, is not static but ever changing in an extremely complex and interdependent society.

The late Justice Hugo Black once said: "Under our constitutional system, courts stand against any winds that blow, as havens of refuge for those who might suffer because they are helpless, weak, outnumbered or because they are nonconforming victims of prejudice and public excitement." Have military courts and the military justice system met this test? The answer by any standard must be yes. The military justice system has not merely met the test; it holds a position of pre-eminence in protecting the rights of the individual.

AU Institute for Professional Development

Military Affairs Abroad

TURKEY'S PROFESSIONAL MILITARY EDUCATION

LIEUTENANT COLONEL HAROLD A. SUSSKIND

Turkish Army War College, Istanbul

DIVIDED by the Bosporus, Istanbul is the only city of the world that is located on two continents, Europe and Asia. European Istanbul, which embraces both sides of an inlet of the Bosporus called the Golden Horn, is built on seven hills somewhat like Rome.

Constantinople, as Istanbul was known at the turn of the century, was two distinct cities. To the north of the Golden Horn rose Pera, once the city of the Christians; to the south of it was Stambul, the city of the Moslems. To drive across the harbor by way of the Galata Bridge was to pass from one world, from one period of history, to another.

Whether by design or accident, it is fitting that Turkey's highest military schools, the Turkish Combined War Colleges, are entrenched high on a hill in the northern section of this strategi-

cally situated city—the crossroads of East and West.

The War College was founded in 1848 by Sultan Abdulmecit I, for the purpose of raising the standards of the Ottoman Imperial Army. Today, it can count among its graduates four presidents, eighteen prime ministers, and 120 high government officials, including Mustafa Kemal Atatürk, founder of the Turkish Republic.

During the early 1800s the Turkish military, realizing the need to establish a source of professional general staff officers, directed its efforts toward raising the standards of instruction at the Ottoman Imperial Military Academy. In 1848 the efforts finally bore fruit as students graduating from the Military Academy with distinguished records were admitted to the new War College for further training and study. The goal of the college was to prepare graduating academy students for command positions and to train them as staff officers and engineers.

The college was moved to its present location, at Yildiz, Istanbul, in 1908 and put under direct command and supervision of the Turkish General Staff.

From 1908 until 1922 the college periodically ceased operation as the wars of that period required all military efforts. However, during this time many changes in the curriculum and student selection programs were made. The competitive entrance examination system was adopted.

In 1927 the college was renamed the Combined War Colleges Command. In 1930 the Navy War College was founded, seven years later the Air War College was founded, and both became a part of the command.

In 1955 officers graduating from the service war colleges were enrolled in the Joint Staff College, which in 1964 was renamed Armed Forces College. The Armed Forces College was deactivated in March 1971, and its courses were added to the curriculum of the service war colleges.

The Nuclear, Biological and Chemical Warfare School in Cankiri was deactivated in 1966 and re-established at the Combined War Colleges Command.

THE Combined War Colleges Command is a high-level academic and research institution of the Turkish General Staff. Its major duties may be summarized as

—training officers as managers for staff and command positions in the armed forces

—training managers and administrators for high-level national security services of the state

—undertaking professional research and formulating draft proposals on issues deemed important by the Turkish General Staff

—designing and conducting courses on subjects deemed necessary by the Turkish General Staff.

At present 192 students are enrolled in the four war colleges. The National Security College has 23 (6 generals, 3 colonels, and 14 civil servants); Army War College, 104; Navy War College, 30; and Air War College, 35.

The National Defense College, founded as part of the War Colleges Command in 1952–53 and renamed National Security College in 1964, is the highest military school in the command. Classes are for colonels, sometimes generals and high-ranking civilian officials. Besides some basic subjects, the course includes lectures on national issues (primarily national power and related issues) and international topics, including research on national strategy.

The Armed Forces College was a combined school for Army, Navy, and Air Force officers, and only graduates from service colleges were eligible to attend. Duration of the school was nine months. The course emphasized strategy, tactics, and staff duties at the Turkish General Staff and theater-of-operations level, military culture, and social sciences.

The service colleges (Army, Navy, and Air) have two-year education programs. Attendees are generally captains or new majors, who

graduate to become staff officers. Emphasis is placed on tactics and staff duties at the armed forces command level, on military culture (military geography, history of war), and on social sciences (law, economics, and political history).

To supplement the regular courses, an active guest lecturer program provides for a sizable number of international officers and key civilians to address the colleges each year. The lectures are attended by all the students of the school. Nineteen officers of the United States military services have made presentations during the past two years, with ten more planned for the 1971–72 academic year.

Since its beginning in 1848, the Army War College has graduated 3076 students, while the Navy and Air War Colleges have turned out 281 and 398 respectively, for an overall command total of 3755. Afghanistan, Iran, Pakistan, Nationalist China, United States, and Libya have sent 105 students to the various colleges during this period.

Study tours in foreign countries are also planned every year. However, due to the shortage of funds, many have had to be canceled. During the 1969–70 school year only the students of the National Security College were able to go on a visit to England. During the academic year 1970–71 the commanders and instructors assigned to the colleges visited the German War Colleges in Hamburg. A similar trip was made to Great Britain in October 1971.
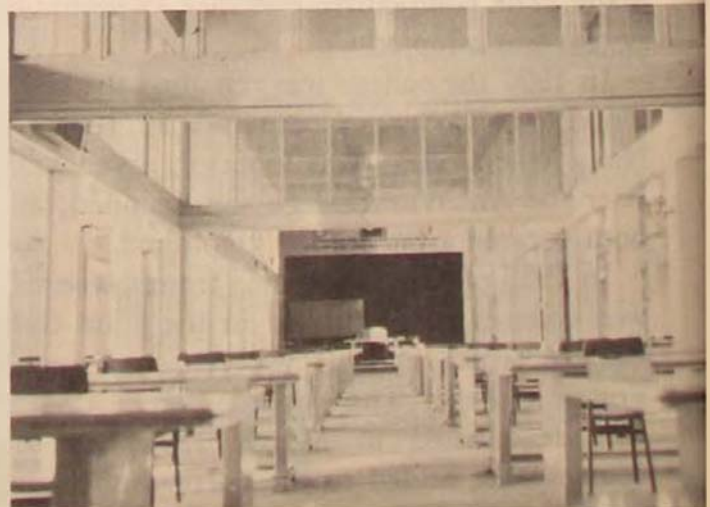
General Dogan Ozgocmen, Commandant of the Combined War Colleges Command until August 30, 1971, commented on the success of the college structure:

The educational and the training system of the colleges is generally satisfactory. However, we are at present in the process of making some improvements in the educational system.

New subjects and courses—on the level of those taught in similar high-level academic institutions—are being introduced to equip the staff officers with the necessary knowledge and tools to deal with the problems of our age.

During the days of the Ottoman Empire, the Headquarters Building (left) was known as the Great Mabeyn of the Yildiz Palace. . . . The War Games Auditorium (below) doubles as lecture auditorium for guest speakers.

Since many of the instructors at the War Colleges Command have attended American military colleges after their graduation from the Turkish war colleges, it is entirely possible that some of the subjects taught in U.S. military command colleges could find their way into the curriculum of the Turkish schools.

Perhaps it is of some significance that 167 Turkish officers have attended the USAF Air University at Maxwell Air Force Base, Alabama. Just as interesting is that seven of the ten international officers who lectured at the Turkish colleges during 1970–71 were USAF officers, speaking on such topics as "Tactical Air Operations in Southeast Asia," "Combat Support in Southeast Asia," "Military Problems in NATO," "Operations Analysis," "Close Air Combat Support," and "Air Defense of the Southern Region."

Perhaps this emphasis on air power (tactics, strategy, logistics) stems from the fact that eastern Turkey shares a 200-mile direct frontier with the Soviet Union, which in NATO occurs in only one other place, the extreme

northern part of Norway. The southeastern part of Turkey borders on Syria and Iraq for over 500 miles.

One of the main difficulties in the defense of eastern and southeastern Turkey is the substantial numerical superiority of the Soviet Air Force, which could be brought to bear to support a land battle; this would be especially true if the Soviets were joined by the combined Syrian and Iraqi Air Forces, which together almost equal the entire Turkish Air Force and include over 100 MIG-21s.

Problems like these are looked into daily as part of the program of the Air War College.

Lieutenant General Fred M. Dean, USAF, Commander AIRSOUTH, in his guest lecture on air defense emphasized the importance of an effective and integrated air defense system, especially in NATO's Southern Region, where Warsaw Pact nations boast a numerical air superiority of four to one.

Addressing over 250 members of the school, Dean pointed out that in peacetime the air defense system must not only preserve the in-

Brigadier General Vecdi Ozgul, former Assistant Chief of Staff for Operations, Allied Air Forces Southern Europe (AIRSOUTH), discusses an operations problem with the Turkish member of his staff.

Lieutenant General (now General) Dogan Ozgocmen, Commandant, Turkish War Colleges Command (left), introduces Lieutenant General Fred M. Dean, USAF, Commander AIRSOUTH, to commanders of the War Colleges.

tegrity of airspace but must also demonstrate the capability to react effectively to any aggression:

> In the event of hostilities, we could expect a penetrating force of over 1000 aircraft in the first day of any attack. . . . All of these aircraft, which are modern first line, would be met by our much smaller defending force that is only half as modernized.

Lieutenant General Joseph H. Moore, USAF, then Commander, Sixth Allied Tactical Air Force (NATO), speaking to the college on close air support, said:

> For delivery of the full spectrum of conventional ordnance necessary in our new air operations concept, as well as the nuclear weapons, great flexibility is required. Commanders must be able to employ their forces in various roles and types of missions. Our air power is limited in numbers; therefore, our aircrews must be exceptionally well trained and proficient. Our equipment and ordnance must be utilized effectively; every round and every bomb must count. None can be wasted.

Major General Tahsin Sahinkaya, Commander of the Turkish Air War College until August 30, 1971, is a product of the U.S. fly-ing training programs. He entered pilot training at San Antonio, Texas, in April 1944 and received his wings as a fighter pilot a year later. General Sahinkaya commented on the curriculum:

> The academic program of the Air War College is generally satisfactory. However, we are considering certain improvements in our program. We are planning to include Operations Research as a new course in our curriculum. Furthermore, we want to expand the scope of courses such as statistics, military management, and human relations which are already in our program.

Turkish War College graduates are in evidence in NATO assignments. Headed by Brigadier General Cemal Kahraman, Assistant Chief of Staff for Operations, 11 of the 21 Turkish Air Force officers assigned to NATO's Allied Air Forces Southern Europe are graduates of the Air War College and Armed Forces College.

With the spirit of Atatürk prevalent throughout the school, excellent leadership, and skilled instructors, the future for the Turkish War Colleges Command looks bright.

Hq Allied Air Forces Southern Europe

Air Force Review

AWACS TO BRIDGE THE TECHNOLOGICAL GAP

Captain Harry A. Pearce

MILITARY radar technology was dramatically introduced to the world in 1941 when the British effectively used it to win control of the English sky in the Battle of Britain. After World War II, radar saw a variety of military uses in nearly every part of the world, and in the fifties we developed elaborate ground-based radar systems to provide early warning and command and control for both strategic defensive and tactical employment.

These ground-based systems have inherent limitations. Because of their fixed locations they are range limited and are vulnerable targets. Probably a more important limitation of ground-based systems is their inability to detect low-flying aircraft beyond a short distance because of radar's horizon limitation resulting from the curvature of the earth.

The Air Force developed an Airborne Early Warning and Control (AEW&C) system to extend the range of the ground-based systems and to improve their low-altitude coverage capability. The AEW&C system operates relatively well over water, but it is ineffective over land because of its inability to distinguish actual radar target returns from the clutter generated by the radar beam striking the ground and causing multiple returns. Thus, the inherent limitations of the ground systems, plus the inability of the AEW&C to reject clutter, have created a technological gap that could be exploited by an enemy either in attacking a strategic defensive system or in trying to gain air superiority in a tactical theater.

The Air Force is currently building a system designed to close this technological gap and provide new capability for Air Force use in the total spectrum of operation from peacetime to war. This system, called the Airborne Warning and Control System (AWACS), will provide a flexible, highly mobile command, control, and surveillance system for both the Aerospace Defense Command (ADC) and Tactical Air Command (TAC). AWACS is being built by the Boeing Company under the direc-
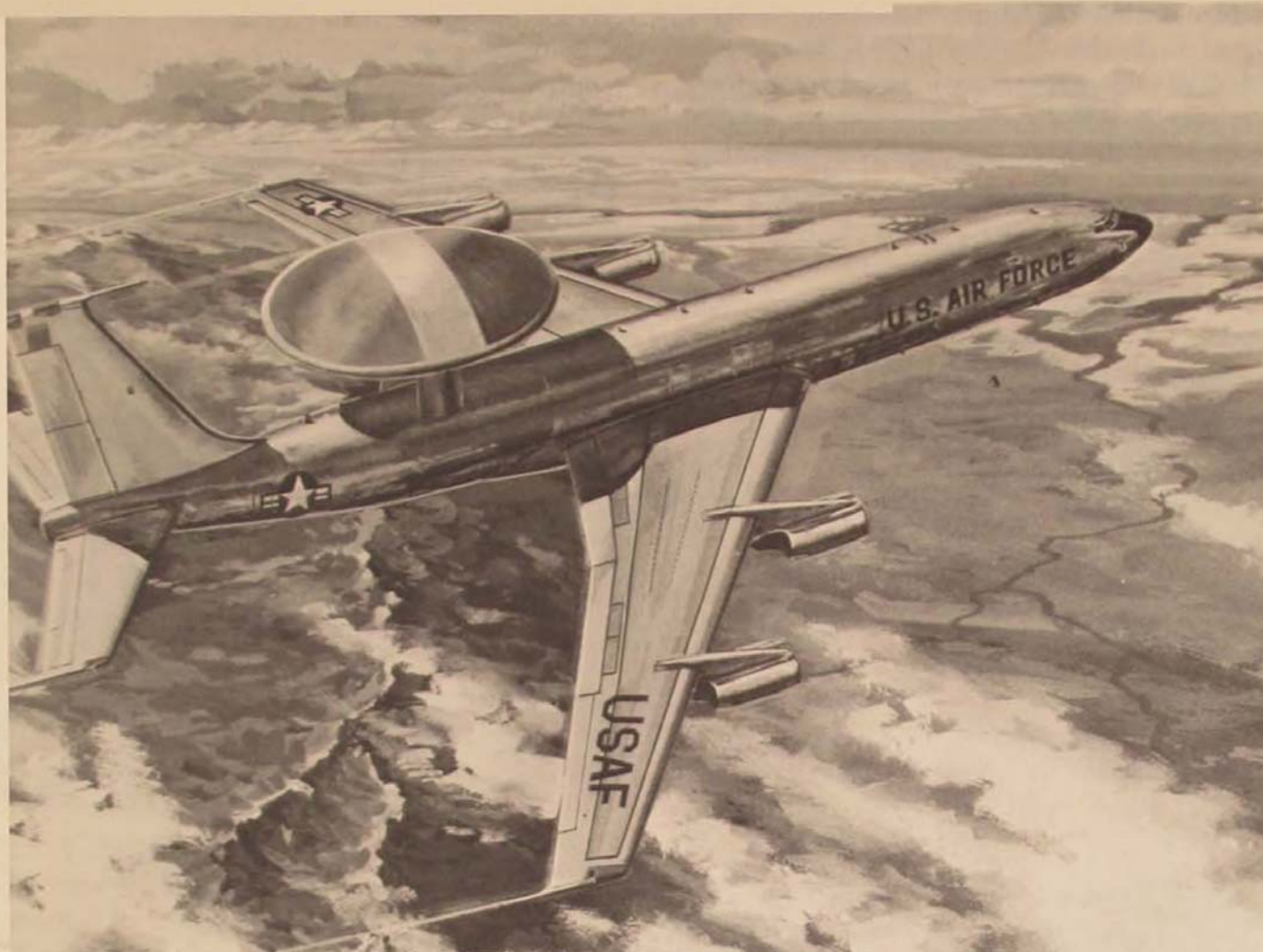
tion of the Electronic Systems Division, Air Force Systems Command, Hanscom Field, Massachusetts.

Proponents of the AWACS system have realized the value of this type of technology since ADC first stated a requirement for AWACS in 1963. In 1966, TAC, realizing the possible tactical applications of the system, along with ADC stated a joint requirement for AWACS. Efforts to define the system continued until contract definition ended on 8 July 1970, when Secretary of the Air Force Robert C. Seamans, Jr., announced that Boeing would be the prime contractor for a production option of 42 AWACS. The cost of the program was set at approximately $2.5 billion, and the contract represented a "fly-before-buy" contracting procedure. This procedure is tied firmly to technical milestones.

The AWACS contract is divided into three consecutive phases: Brassboard, which is currently under way; design, development, test, and evaluation (DDT&E); and production. Brassboard is a program planned to demonstrate the capability of detecting targets over land through full-scale flight testing. Another Brassboard objective is to select, based on test results, the most successful radar of the two prime radar contractors (Hughes and Westinghouse) to continue in the AWACS program. DDT&E, which is structured to prove the total AWACS system in the operational environment, will not begin until after the Brassboard phase proves that long-distance overland radar detection is feasible. Full AWACS production will not begin until the system has demonstrated this operational capability in DDT&E.

the need for AWACS

AWACS is being developed primarily to fulfill two vital military requirements, those of strategic air defense and tactical command and control. It can also be useful in nonmilitary peacetime uses. There has been no great technological advance in radar since the 1950s,

The Airborne Early Warning and Control System (AWACS) aircraft, the E3A, will consist of a Boeing 707–320B, powered by eight General Electric TF–34 engines. The elliptical, 30-foot rotodome will house a three-dimensional S-band pulse recurrence frequency Doppler radar.

when the basic threat was high-altitude subsonic bombers. While the preponderant threat to the North American continent presently is the missile, the bomber threat has not diminished; rather, current bomber systems have even greater capability to make low-level penetrations and launch standoff air-to-surface missiles. Our present air defenses, with their limited overland radar coverage, have minimal capability against these tactics. These limitations add up to a military deficiency that could be exploited by an enemy planner in any level of war from small bomber "harassment"

or "blackmail" raids, designed to embarrass or force decisions by our national authority, to all-out attack designed to insure a favorable balance of power in case of nuclear war.

To correct this deficiency and at the same time reduce the total expenditures for air defense, the decision to develop and procure the AWACS was formally made by the Secretary of Defense in November 1967, when he approved modernization of our air defense forces to include AWACS, over-the-horizon backscatter radar, and an improved interceptor. The decision to modernize air defense

was confirmed by Deputy Secretary of Defense David C. Packard in April 1971. The importance of this modernized air defense force was emphasized by Secretary Seamans when he spoke of the need for these complementary (but not interdependent) systems in testimony before the Senate Armed Services Committee:

> For an effective air defense, we must be able to detect and destroy a major portion of the approaching bombers. But our present detection radars are ground-based and vulner-

In its tactical role (illustrated in artist's conception), AWACS will have an all-altitude command, control, and surveillance capability, directing management of forces and positive control of weapon systems as well as close air support, interdiction, and reconnaissance.

able to enemy missile attack. They might be eliminated before the bombers arrived, and our interceptors would be left blind. Also, our present ground-based system has a very poor low altitude capability.

Both the vulnerability and lack of adequate low altitude detection can be solved by Over-the-Horizon (OTH) radar and an Airborne Warning and Control System (AWACS). CONUS OTH radar will provide long-range bomber detection which will allow AWACS to reach combat positions from ground alert. AWACS will provide precise intercept direction which will not be interrupted, as OTH would be, by nuclear explosions. While airborne, AWACS will not be vulnerable to ballistic missile attack. In addition, its radar will be above the surface looking down, able to spot intruders at any altitude. AWACS is our first priority need for air defense.

The net result of modernization will be a flexible and highly survivable air defense command and control system with long-range radar coverage at all altitudes over all terrain.

The second requirement is for the AWACS command and control in a tactical environment. Experience in Southeast Asia has shown that the effective employment of tactical forces is seriously reduced by the lack of an integrated airborne command and control capability which can react to enemy forces operating at low altitude over any terrain and identify and control our own aircraft.

The AWACS is to provide tactical air forces with quick-reaction surveillance, command and control, for gaining and maintaining air superiority in a tactical theater. The AWACS aircraft will provide an extension of the ground surveillance and control system during sustained air operations such as counter-air, interdiction, close air support, reconnaissance, and airlift.

The flexibility of the AWACS system will permit its employment at any level of military action, ranging from show of force through general war, with a capability to serve as an Airborne Command Post, Tactical Air Control Center, Airborne Direct Air Support Center, and Airborne Control and Reporting Center. AWACS not only will afford a wartime capability but can react to peacetime emergencies needing relief or mercy missions.

In peacetime, AWACS can quickly respond to emergency or civil disasters on a worldwide deployment basis and provide vital surveillance and communications over an entire area. It has the ability to manage air traffic and direct relief and rescue operations. A graphic example of where AWACS could have been used in this role was the recent earthquake in Peru, where a number of relief aircraft, in weather and without navigational assistance, were lost in the mountains. An AWACS aircraft could be used to provide the surveillance necessary to avoid this type of disaster in the future. Thus, AWACS is being developed to provide the increased flexibility and responsiveness required to react throughout the spectrum of operations from peacetime through total war.

characteristics and features of AWACS

Development of AWACS is unique in the Air Force since it combines a proven commercial air vehicle (AF designation E3A) with a complete mission avionics package (AF designation 411L System). The airframe will be a Boeing 707-320B, modified to accommodate eight General Electric TF-34 engines and an elliptically shaped rotodome, 30 feet in diameter by six feet thick, mounted on the fuselage to house a three-dimensional radar antenna.

The TF-34 engines are being developed under the Navy S3A program. The higher performance of the high-bypass ratio engine for takeoff, cruise, and loiter enables optimization of the radome shape for better radar performance. These engines also require less fuel to accomplish a given mission; thus a lighter-gross-weight airplane is possible which could be based at shorter-length fields if the mission dictates.

AWACS is being developed with the capability to operate from a bare base (with only POL support required) for extended periods of time. It will be capable of sustained flight at high speed and extended station loiter time at considerable distance from home base. The interior of the airplane will be modified to accommodate mission avionics and crew of 17.

In addition to a pulse Doppler search radar, the mission avionics package will include the data processing, software system, displays, and communications to enable detection of targets, automatic tracking, identification, and weapons control. The radar technology development can also be traced back to the 1963 ADC requirement. Hughes and Westinghouse were invited by the Air Force to compete for the AWACS contract because of their performance in the Overland Radar Technology (ORT) flight program which the Air Force conducted in 1968. During ORT the Air Force evaluated data from five radar companies that were asked to demonstrate overland detection capability in airborne tests conducted on modified EC-121s.

The Hughes and Westinghouse radars currently being tested have one thing in common: both designs are characterized by the ability to reject severe radar ground clutter or interference caused by weather. The technique used to achieve this is common to both companies. Ground return from immediately below the target is eliminated by airborne moving target indication (MTI); ground returns from elsewhere are suppressed by use of a very low side-lobe antenna. The target signal is further enhanced by narrow-band Doppler filtering to achieve high detection probability. Even in severe clutter conditions, such as mountainous terrain, this technique will allow low-flying targets to be detected.

test program

The AWACS test program is designed to prove the technical capability of the system under operational conditions. Testing will begin in March 1972 with the Brassboard flight test program, which has been called a "physics experiment" since it is designed to demonstrate the radar capability to detect targets over land and in the presence of ground clutter. (The results will also be used to select one of the radar companies for continuation in the program.) To accomplish the experiment, Boeing and the AWACS Systems Program Office (SPO) made a gigantic "laboratory" of a portion of the Pacific Northwest extending from Vancouver, British Columbia, to southern Oregon. During the Brassboard flights the two radar companies will be required to demonstrate radar detection capability over five specific clutter areas, all of which are in this Northwest "laboratory": desert; sea; vegetated farmland; rolling, wooded hills; and bare mountain peaks. To accomplish this, two 707 Brassboard testbed aircraft (one for each radar) will be modified to carry the rotodome, which houses one radar antenna; the testbed aircraft has minimum test gear on board. (Since demonstration of endurance is not a test objective, these aircraft will be configured with four standard 707 engines.) The Brassboard flights will stage from Boeing Field, Seattle.
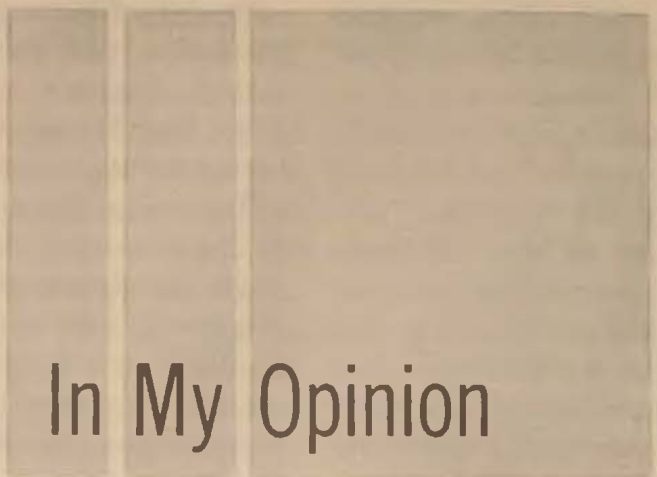
To support the tests, the Air Force will provide F-4, F-106, and B-57 aircraft, staged from McChord AFB, Washington, as targets for the tests. In addition, ADC's 25th Air Division, which has ground-based radar coverage over this Northwest area, will provide SAGE radar tracking (from the 25th Hq at McChord) to determine Brassboard air vehicle and target position. ADC radar controllers from the 25th will also aid in vectoring targets on prescribed headings and altitudes to insure proper positioning during the tests.

If success is achieved in Brassboard, the second phase of the test program, called "Single Thread" demonstration, will be entered. "Single Thread" is designed to demonstrate system integration. One or more

of the components of each of the AWACS avionics package subsystems will be added to the winning Brassboard testbed, enabling it to demonstrate an integrated system for detection, tracking, and control of interceptors against airborne targets. To meet the "fly-before-buy" concept, this "Single Thread" demonstration must be successful to gain release of funds for production. Following this demonstration the Air Force plans to use five prototypes, fully configured AWACS, for final operations and qualification testing. The five test aircraft will be incorporated into the AWACS operational inventory after testing is completed.

Brassboard flight testing is scheduled from 23 March 1972 to 23 July 1972. This will mark a major AWACS milestone, since it will be the first "hardware" to have flown since the system was conceived in 1963. The data collected from Brassboard should provide the Air Force insight as to whether the candidate radars are capable of bridging the technological gap that currently exists in radar systems. Should AWACS be able to close the gap, the potential uses that the system can offer are unlimited throughout the spectrum of military operations.

Hq Aerospace Defense Command

In My Opinion

AIRLIFT—A BALANCED VIEW

Lieutenant Colonel Horace E. Wood, Jr.

IN recent years, mobility has occupied a unique position among the priorities set by military tacticians. In fact, the quest for continually improved mobility has become the driving philosophy behind modern tactical warfare. Within the broad general area of mobility, few subjects have stimulated the imagination and emotions of our planners more than airlift, particularly tactical airlift. The intense interest that now surrounds this function has not occurred without good reason but has developed as a natural and logical outgrowth of the current conflict in Southeast Asia. This interest has been influenced further by a continuing competition for tactical airlift roles and missions as well as periodic proposals that all airlift resources should be consolidated into a single "master" airlift command.

Advocates of airlift consolidation generally have relied on two basic premises to support their proposals for a single force. First, they have fostered the notion that strategic airlift aircraft with special equipment could be operated in a multipurpose role and perform the entire airlift mission. Second, they have advanced the theory that a single organization for airlift would provide improved management of the force. A related consideration involved a proposal which in effect would impinge on the tactical mission by modifying theater aeromedical evacuation responsibilities.

An examination of tactical airlift's background, past performance, and probable future employment may be helpful before we consider the validity of these proposals. A quick backward glance shows that tactical airlift, like many other functions, has experienced its share of change over the years. Priorities and tasks have been reoriented, and tactics and techniques have been improved, but the basic mission has remained unchanged.

Viewed in its simplest terms, this mission is preparation for and participation in theater combat operations. The U.S. use of theater airlift in a combat role received its first tests as early as World War II, when, in 1942, elements of Twelfth Air Force flew from England to Algeria to airdrop troops in support of the North African invasion. The encouraging results led to similar airborne operations in the Italian campaign at Sicily and Salerno and ultimately to the massive Normandy airdrops. Joint airborne operations were not confined to Europe, however. Ten thousand troops from Wingate's Raiders were dropped into Burmese jungles to weaken the Japanese position. These troops were subsequently resupplied by air, giving rise to another important task for theater airlift— logistic support and maintenance of an air line of communication.

The Korean conflict confirmed tactical airlift as a vital instrument of theater warfare. In fact, Korea served to synthesize the many tactical tasks of theater mobility, air line of communication, and aeromedical evacuation. The outstanding potential of tactical airlift as an integral part of the theater combat force in Korea did much to encourage the push for improved aircraft that culminated in our present-day airlift inventory.

In the post-Korea period of the mid-fifties, peacetime tactical airlift (or troop carrier units as they were called in those days) lapsed into a role that concentrated almost exclusively on joint airdrop training with the Army, generally at one of the airborne centers. During the late fifties and early sixties, a shift in emphasis appeared. In addition to joint operations, a major portion of the tactical airlift effort was dedicated to the Composite Air Strike Force (CASF) concept. Still, training was the driving factor, either in support of TAC CASF or Army airborne units and exercises.

Concurrent with the massive buildup of U.S. troops in Vietnam, the seeds of change were sown, and it became apparent that tactical airlift was destined for vastly expanded responsibilities. The most significant of these responsibilities was assumption of the role as primary instrument of mobility for theater combat forces. A second and equally important mission was the requirement for establishing and maintaining an air line of communication to deployed U.S. forces.

In keeping with these responsibilities, many innovations and new tactics emerged for battlefield delivery of personnel and cargo. Assault landing techniques were perfected, and the tactical repertoire was expanded to include such techniques as Ground Proximity Extraction System (GPES), Parachute Low-Altitude Delivery System (PLADS), and Low-Altitude Parachute Extraction System (LAPES). Gradually, as a result of these and similar capabilities, tactical airlift forces became firmly enmeshed in the theater structure as a bona fide combat arm of the joint air-ground effort.

As U.S. involvement in Vietnam continued

to mount, the impact of tactical airlift's contribution to the combat effort became increasingly obvious. Indeed, there is evidence to support the belief that without this capability the Allied effort would have been paralyzed completely or at least stalemated along the coastal areas and around the major cities already possessing large, established airfield facilities.

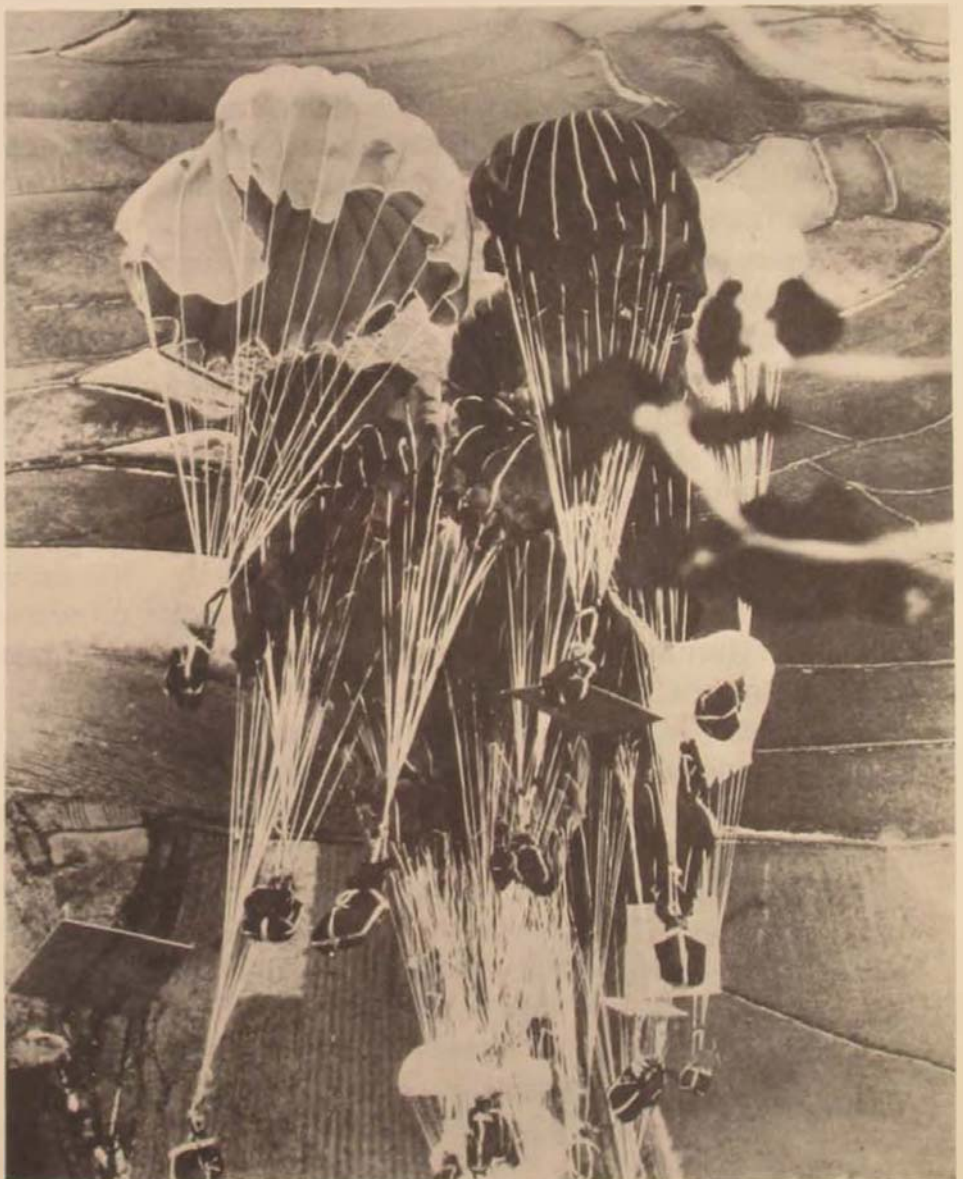Perhaps at this point it would be useful to re-examine a few of the underlying conditions that thrust tactical airlift into its sustaining role. First, the basic topography of the country left very little choice but to make extensive use of the air for purposes of mobility and resupply. The mountains of the central highlands, the paddies of the delta, and the jungle regions posed formidable obstacles to conventional wheeled and motorized traffic. Then and even now, roads into many of these areas consist of little more than well-beaten trails, suitable only for passage by foot or cart. Even

Korean Airlift

Experience in the Korean conflict confirmed the potential of tactical airlift and stimulated the development of more sophisticated airlift techniques and equipment. A South Korean family (left) watches USAF C–46s making a practice paradrop during maneuvers, summer 1952. . . . A Far East Air Forces C-119 (upper right), its nose slightly raised, takes advantage of the pull of gravity to launch its four tons of vital cargo. . . . Forty colored parachutes blossom forth from a C–119 Flying Boxcar, carrying ammunition to front-line United Nations troops in Korea, early 1951.

in the more densely populated districts, road and highway systems were in generally poor repair and unsuitable for sustained military use as surface lines of communication. Almost everywhere seasonal weather, particularly during the monsoon period, transformed existing facilities into quagmires incapable of supporting heavy vehicular traffic.

A second major consideration that demanded broad exploitation of intratheater airlift was the unusual security problem in South Vietnam. Even if acceptable highway systems had been available, it is doubtful that the nature of the guerrilla-type situation would have permitted any appreciable use of surface transportation. Certainly, the number of men required to secure and guard Vietnamese ground transportation arteries would have been prohibitive, principally in diverting an unacceptable portion of resources away from battlefield duty. These conditions left little alternative but tactical airlift as a primary means of resupplying the rapidly increasing number of dispersed bases and outposts. As an example, when the first permanently assigned wing of C-130s arrived in the Philippines as augmentation for the Vietnamese operation, a backlog of approximately 15,000 tons of cargo had accumulated on the marshaling ramps at Saigon's Tan Son Nhut Air Base. This cargo ranged from priority food and ammunition to barbed wire and office furniture. Deposited by a combination of strategic airlift and sealift at the port of Saigon, this flood of material would have encountered a veritable dead end without the availability of a tactical airlift force equipped and trained for highly specialized short-field operations within the battle sector.

Currently, of course, instead of a single port such as Saigon receiving the bulk of combat materiel, several bases and ports are serving as interface points between tactical airlift and strategic air/sealift. The basic principle remains in effect, however: that in most wartime situations, whether of high or low intensity, operational requirements will dictate a point of interface between the two systems.

This question of interface has become somewhat controversial of late, especially with the advent of larger airlift vehicles that possess a limited capability to operate into airfields with runways in the 4000-foot category. The emergence of this capability has been greeted with understandable enthusiasm in many quarters. This has raised the questions of whether it is necessary to maintain two separate airlift systems or would it be better to merge all airlift, both tactical and strategic, under a single-manager concept.

In view of the probable nature and location of future U.S. military confrontations, these proposals deserve particular circumspection, especially regarding the direction our airlift forces should take in order to provide the maximum service for the least cost. An honest appraisal of the future demands likely to be levied on airlift indicates that the maintenance of our two separate and distinct airlift systems, tactical and strategic, appears to offer the greatest versatility and the best potential for getting the airlift job accomplished most effectively.

There are many logical reasons for this. First and most important, the realities of combat demand such an arrangement. Few commanders would consider injecting the new and extremely expensive hardware of our strategic airlift force into areas that might prove nonpermissive. Cost and vulnerability factors obviously must weigh heavily in consideration of whether to operate these aircraft under conditions that would expose them to any appreciable threat from hostile ground or air action. As an illustration, the loss of a multimillion-dollar C-5 performing tactical tasks in a Khe Sanh type of situation would be totally unacceptable from a cost/risk point of view.

Another element bearing on the problem is aircraft size. Even the largest of our present

and programmed "jumbo" series aircraft can be designed for relatively short runway operation, so the problem is not confined simply to the area of takeoff and landing. For example, the constant short-field operations, which may be routinely expected in forward areas, are notoriously severe on aircraft in terms of wear and tear. This problem tends to compound itself and increase proportionately with aircraft size. In addition, once safely on the ground, the aircraft must still maneuver to and from unloading or marshaling zones; and as aircraft size increases, so does the requirement for taxiways, cleared areas to accommodate wing and tail swing, parking areas, etc.

Here we begin to enter an often-overlooked aspect of the total cost-effectiveness picture, that of airfield construction costs. Construction expenditures may logically be expected to increase proportionately with airfield size, with corresponding demands on engineering and construction manpower. Conversely, the more compact tactical airlift aircraft require considerably smaller and thus cheaper fields, with shorter runways and less sophisticated ground support systems. Introduction of TAC's future-generation medium STOL transport (MST), with its short takeoff and landing (STOL) characteristics, will permit reductions in airfield construction costs. In hostile areas, size factors take on added importance. Extremely large aircraft, with visual signatures in the C-5 category, probably will be much more easily detected and hit by enemy ground weapons than smaller tactical craft such as the C-7 or C-130.

Paradoxically, smaller aircraft can also be more advantageous from a load-carrying point of view. Especially in a non-FEBA, limited-war type of engagement, the airlift requirement is usually for rather modest amounts of materiel to be delivered to small, dispersed sites or to outfits on the move. The keynote here is responsiveness, that is, rapid reaction to a stated need for mobility or airlift support. Excessive amounts of cargo in this kind of operation often pose the disadvantages of hobbling mobile units with the storing and transporting of bulk quantities of combat consumables, thereby impairing freedom of maneuver and actually increasing unit vulnerability. By the same token, operating large aircraft at less than the maximum allowable cabin load (ACL) would be a waste of airlift. A similar wasteful condition would exist on the return trip, with more backhaul capability than could be used effectively.

These observations should in no way be interpreted as minimizing the necessity for strategic airlift. There is a vital need for this function, and the present strength of our modernized strategic force should be maintained or increased. The danger lies in putting too many of our airlift apples in one barrel, in what could amount to an operational straightjacket that would degrade flexibility and responsiveness on a tailored-to-need basis. Strategic airlift has certainly validated its position as the primary long-distance air mover. Without this capability, an important part of the lifeline to our overseas forces would be in jeopardy. Likewise, tactical airlift, with its kinship to theater operations, also has proved its worth. There is no need to confuse or minimize the contribution of either to our military effort.

What, then, should be the tack for today's planners to follow in posturing our future airlift forces? Hopefully, consideration of the factors just mentioned will provide some insight into the problem and assist in reaching a logical solution.

As a beginning, we must recognize the requirement for two separate and distinct airlift missions, fundamentally oriented to different operational tasks. The first, a long-range, high-volume system to provide massive airlift capability from the CONUS to secure rear areas in a theater of operations. The second, a system especially structured for extremely rapid intratheater mobility and selective delivery from rear areas directly into

forward areas, either to the ultimate user or to an interface with ground transportation systems.

There has been a tendency in some circles to minimize or oversimplify the latter requirement. This philosophy has survived despite oft-validated guidance from high echelons that a distinction should be maintained between strategic or long-haul airlift and rapid-response tactical airlift. Opposition to the complementary two-system doctrine has stemmed chiefly from elements within the military advocating the centralization of all U.S. airlift resources under single management. This line of thinking entails far-reaching consequences for the concept of balanced theater forces, of which tactical airlift is an integral part. It could also result in a serious degradation of the theater air component commander's ability to provide tactical airlift in accordance with his responsibilities to the joint theater commander.

Centralization certainly has its place. Properly placed and managed, it can contribute substantially toward increased efficiency and improved economy. Improperly placed, with respect to either level or mission, it complicates, confuses, and delays. In this case, centralization of all airlift under a single command is not the answer. Single management of airlift is no more logical than single management of the bullet or the bomb. Management of airlift resources should be based upon the same principles governing any efficient and disciplined military establishment or operation.

To give a specific example, theater air commanders who are responsible for the conduct of air operations within the confines of a particular geographical area should not have to go outside their area for command and control authority over any element necessary for the prosecution of an operation or campaign. Absence of this command authority

inhibits flexibility of the force and degrades responsiveness. This on-the-scene commander, familiar with all aspects of his operation and aware of limitations, is best qualified to decide how an individual component of his command should be employed or how the total force should mesh in common effort. Tactical or theater airlift as an integral part of theater air operations should not be exempted from this mode of operation. To remove from his command any portion of those forces necessary for accomplishment of his mission is an invitation to operational inefficiency and confusion of command authority.

Current Air Force doctrine supports this thesis by pointing out that command arrange· ments should not segment aerospace forces among different controlling interests. Control, and any centralization necessary, must be vested at the proper level of command in order to permit exploitation, timely execution, and coordination of participating forces.

W HY, then, have there been rather persistent efforts to weld all USAF airlift resources into a single massive organization? The arguments deserve examination.

Trends on the domestic front offer a possible explanation behind some of the recent rumblings for consolidation of airlift under a single manager. Civilian airlines view the modernized strategic airlift force as a possible source of potent competition to be reckoned with in a rapidly expanding airlift market. This comes at a particularly inopportune time for the civil carriers, which are already struggling with serious problems generated by rising costs, payment for new equipment, etc. While in no way contributing toward a solution to this dilemma, the absorption of tactical airlift roles and missions into a single airlift organization could then be used to impart more of a "combat character" to strategic airlift, which is a function beyond competi-

tive concern and clearly outside the province of the civil airlines.

Another argument for consolidation is based on nothing more than semantics. This approach holds that tactical airlift, along with the entire USAF airlift mission, should be merged into a single organization simply because it is an *airlift* function. With reasoning like this, one could argue that the management of all fighter operations should be vested in a single fighter command, with reconnaissance, bombing, and other functions similarly organized. This, of course, would completely wreck the concept of a balanced theater force. The same approach contends that a single "super" airlift organization, populated by airlift people, is the only way to deal with airlift problems. Such attitudes appear to disregard the basic principles of sound military management.

Still another argument is that the present system encourages duplication of airlift resources and missions. Duplication does exist. In fact, some duplication and overlap in mission capability is desirable. Excessive duplication is not inherent in the system, however, but in the "players." Probably the best and most recent example may be seen in the introduction of the much publicized C-5 into the Air Force inventory. Many millions of dollars went into the developing and equipping of the C-5 with costly, sophisticated electronic gear for purely tactical tasks such as low-level contour flying, airdrop, and semiprepared airfield operations. This is duplication, expensive duplication. These capabilities may never be used except for demonstrations and exercises. This type of aircraft may never be employed in a combat situation requiring such tactics or equipment. The reason is clear: it is simply too expensive.

Yet, despite the duplication, the expense, and the doctrine, there are those who have continued to press for more and more tactical capability in our strategic airlift force. We have almost reached the point of putting the

cart before the horse in the area of tactical airlift tasks and systems development. What we need at this point is to *balance* our overall airlift capability. The C-5 and C-141 have brought much-needed modernization to our strategic airlift force. We should now apply our efforts toward a comparable modernization of the tactical air fleet. The workhorse of the present tactical force, the C-130, is a product of 1950 technology. The scientific and industrial community is currently well prepared to provide a replacement for this reliable old veteran within a comparatively few years. Aggressive action is needed to insure acquisition of this replacement before another contingency catches us short.

THESE considerations are but a few of the complex factors bearing on an increasingly critical mission. Objectively evaluated, they suggest the direction we should take in our future airlift planning. Specifically, we must continue to plan for and support two separate and distinct but complementary modern airlift systems. Further, it must be recognized that the two systems are basically oriented to essentially different operational demands and require separate command and management structures to extract the maximum potential from each.

A constructive first step, calculated to aid in establishing a more balanced view of the airlift mission, is full recognition and appreciation by the entire military community of the unique contributions of the tactical and strategic airlift forces to our total defense posture. Both systems are specialized; both are essential. There is no need for confusion or competition. There is abundant work for all.

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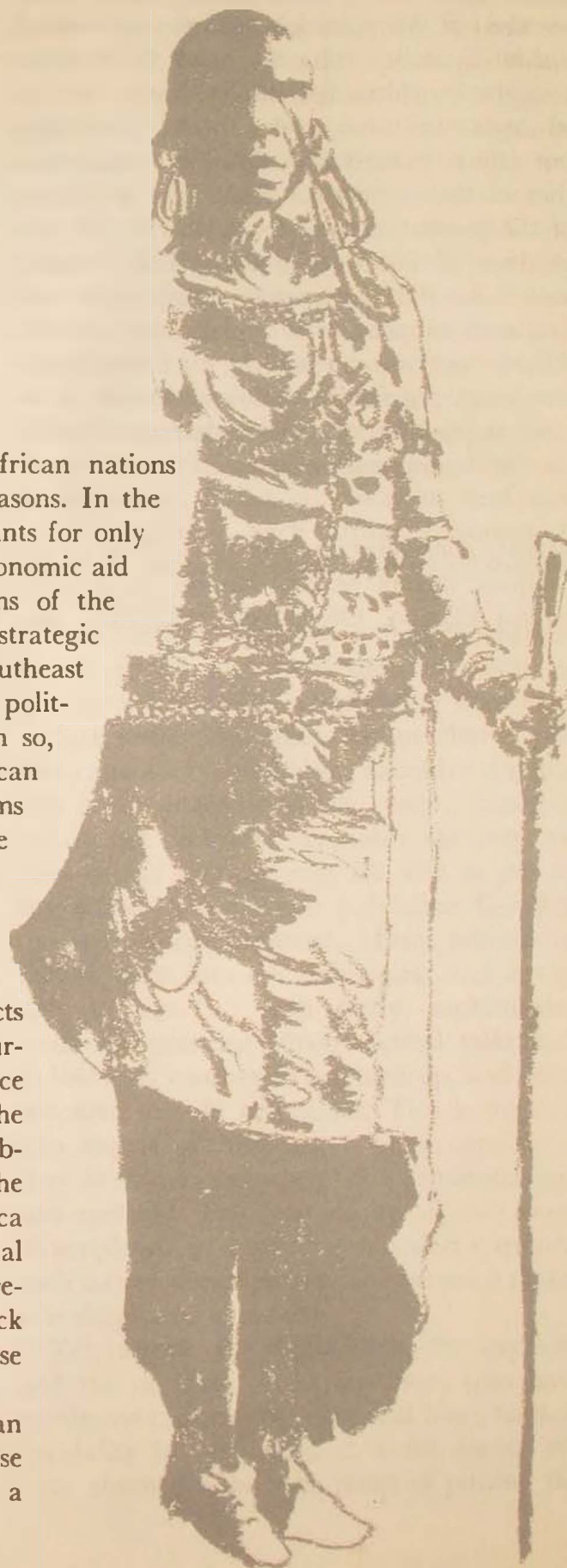
MILITARY ASSISTANCE TO BLACK AFRICA

Blessing or Curse?

Lieutenant Bryant P. Shaw

F OREIGN military assistance to Black African nations receives little attention, and for obvious reasons. In the first place, there isn't much of it. Africa accounts for only about three percent of the total military and economic aid that the United States provides other nations of the world.[1] Second, the continent simply lacks the strategic importance of the Middle East, Europe, Southeast Asia, or Latin America. Finally, our previous political ties to Africa have been minuscule. Even so, the role of U.S. military aid to the Black African nations deserves a special look, for the problems that Africa faces are unique, and the influence of its military structures grows larger each day.

This article will present a very brief general summary of the history and characteristics of the military in Africa and will postulate, on the basis of these generalizations, the effects of military aid. To narrow the perspective further, I shall omit the states of the Maghreb, since these nations have more in common with the Middle East and even Europe than with Sub-Saharan Africa. In addition, the states of the white-dominated countries of southern Africa will be left out, since their military and political structures are obviously *sui generis*. The remainder of the continent, referred to as Black Africa, is south of the Sahara but north of these minority-ruled nations.

The single most striking feature of the African military establishments is their newness. Because of their comparatively recent birth, there is a

distinct lack of African military tradition in the classical Western sense. This is not to suggest that Africa has produced no notable military strategists or warring armies. Notable examples are Chakka, a Zulu chieftain, and Lobengula, head of the Matebele tribe of Rhodesia, as well as the military aspects of traditional Ethiopian culture. Yet Black Africa's military, as they exist today, have no precolonial history, and their function in procuring independence thus contrasts very sharply with the role of Latin American armies, whose revolutionary role in this respect was decisive, or the states of Southeast Asia, whose preparation for independence was prolonged and laborious. The armies of Africa are strictly colonial inventions, stamped with the mark of the West. Indeed, the Sudan was the only Black African nation to achieve independence with anything approaching a substantial, well-trained army. As recipients of the best military resources that England had to offer, the Sudanese were used as a counterforce against the Egyptian north. Yet this is the only instance of a significant military force in any country of Black Africa at the time of independence. This lack of military tradition has meant that African counterparts to Atatürk, Eisenhower, Grant, or Teddy Roosevelt have not yet arisen, the nearest approach to such a counterpart being General Joseph Mobutu, President of Zaire (until recently known as Congo/Kinshasa).

Because the African armies, as they exist today, are colonial creations, they often tend to be viewed as vehicles for neocolonialism rather than symbols of nationalism. This is especially true in the French-speaking parts of Africa, where even today France keeps a finger in the military pie of her former colonies.[2] Chad is a notable example. Chadian-French defense agreements have been quite extensive, and there were about 2500 French Legionnaires in Chad in September 1970 helping to put down the Moslem-led insurgencies in the northern provinces of the country. These troops are being withdrawn slowly, but their overall effect has been to lessen confidence in the movement of President François Tombalbaye. The French, in fact, maintain the most extensive defense agreements of any of the former colonial powers. (In view of French arms sales to the Republic of South Africa, this, of course, seems somewhat paradoxical.)

Besides their relatively recent colonial birth, there is another factor that characterizes the African military establishments: the tendency of many African nations to develop one-party states has rather inhibited the military's freedom of action. These one-party states, such as Tanzania, Kenya, Ghana, and Zambia, envision all elements of their societies, and most notably the army, as committed to the state *and* to the political party that rules the state. This, no doubt, is to ensure that the sole political party of such nations can exert a really tight control over their military establishments, in that the armies are well integrated into the party itself. This has been the situation in Tanzania since the East African army mutinies of 1964. Naturally, such integration is not always successful, and it is no guarantee that the military will not attempt to wrest power from the party under whose thumb it squirms. Ghana is a case in point, for here the army successfully overthrew the Convention People's Party and its leader, Kwame Nkrumah, in February 1966. But the fact is that one-party states do at least attempt to exert control over the military by intensive integration and subordination to the party and therefore to the state.

Guinea, where the army has often been described as a strangely dressed wing of the party, is an excellent example of party control of military forces. At first glance this may seem to contradict the distinctly apolitical and conservative aspects of the military training provided by the academies of Sandhurst and Saint Cyr, where a tradition of nonintervention in the political sphere was stressed. Both

British and French military practices were totally opposed to any intervention in the political realm. Yet the desire of the one-party states to exert tight control over their armies has the same purpose as the conservative and apolitical traditions of the colonial military academies: in both instances the purpose was to keep the military from intervening or overthrowing the ruling power. And even today these same trends can be observed in the African military structures: on one hand, a reluctance on the part of the military to become involved in politics unless the situation becomes intolerable, as happened in Ghana in 1966; on the other hand, a reluctance on the part of the ruling political powers to allow the military too much influence.

A less crucial but still very important

feature of the African military establishments is their size. Black Africa has only one soldier for every 1100 civilians. This compares with 15 per 1000 civilians in the United States, 10 per 1000 in the United Kingdom and the Middle East, and 5 per 1000 in the states of the Maghreb. The problems of disease, tribalism, illiteracy, and serious economic difficulties militate against spending already inadequate resources on military hardware and training. Four independent African nations have decided not to raise armies at all: Botswana, Lesotho, Swaziland, and Gambia will rely on paramilitary elements of their police forces for security. (Geographically or economically overpowered by neighboring states, any army these nations could raise would be useless.)

The relatively small size of the African military also indicates that the main concern of Black Africa is with internal security. (Ghana, under Nkrumah, is again the notable exception.) International warfare or other forms of "foreign adventurism" are unlikely for several reasons.

First of all, the logistical problems involved in intra-African warfare would be nothing short of a nightmare, a result of the varied terrain that characterizes the continent and makes travel and communication difficult, sometimes impossible. One is reminded of the saying, "Suppose they gave a war and nobody came?" More important, however, the Organization of African Unity has declared that the political boundaries, most of which were arbitrarily drawn at the 1885 Berlin Africa Conference, are to remain permanent and inviolate, even though they bear no resemblance to the social or ethnic makeup of the nations concerned.[3] The spectre of "Balkanization" or the split-up of nations along tribal or ethnic lines as with Biafra and Katanga, continues to haunt the African leaders, for once border or tribal war begins, chaos will surely ensue throughout the continent. Hence the reluctance of all but four African

nations (Tanzania, Zambia, Ivory Coast, and Republic of South Africa) to recognize the Biafran secession. Most leaders are simply afraid that the same type of secessionist movements would catch on in their own backyards. Ethiopia and Somalia have indulged in this type of warfare before and are notably reluctant to escalate the struggle. Somali tribesmen, living both in Ethiopia's eastern Ogaden district and in the northern districts of Kenya, are prime examples of the difficulties faced by the African nations in this regard. (There is a danger, though, that large Russian military assistance to Somalia and Sudan, used as a counterweight to considerable U.S. military aid to Ethiopia, could make this area a focal point for the cold war in Africa. Coupled with the Middle East situation, the question then arises as to whether the "Horn" or Somali Peninsula will become a focus for the enlargement of the Arab-Israeli conflict.) Both the size of their armies and the nature of their borders would seem to preclude international warfare between Black African nations, however.

GIVEN these general characteristics of African military structures—their lack of formal military traditions, their colonial birth, their small size and apolitical underpinnings—one might well wonder if the military in Africa is of any consequence at all. Thus, it is striking to note that of Black Africa's 34 nations, eleven are under military rule at the present time: Ghana, Mali, Upper Volta, Togo, Nigeria, Central African Republic, Zaire, Congo/Brazzaville, Burundi, Somalia, and Uganda. Each of these nations has experienced either a civil war or a coup d'état, in some cases more than once. Another six nations—Ethiopia, Sierra Leone, Gabon, Tanzania, Senegal, and Kenya—all have experienced the coups, mutinies, or military interventions which, even if eventually unsuccessful, were serious enough to cause great

alarm. Given this trend in half of Black Africa's nations, one quickly realizes that the significance of the military, despite their shortcomings, is increasing. Indeed, military intervention into the political realm seems to be a contagious business as well as a fast way to power. How can these instances of military intervention be reconciled with the characteristics and limitations of African military establishments previously cited? Why have the military, in spite of their own difficulties, chosen to intervene on so many occasions?

A large part of the answer lies in the manner in which Black Africa achieved independence. When independence finally overtook this part of the continent, it arrived as a huge tidal wave, engulfing the continent and propelling these nations on a massive crest, leaving little time to prepare for nationhood. Twenty-two Black African states were created between 1960 and 1962. This first wave was quickly followed by another, now a wave of euphoria and hope in the destiny of these nations liberated from their former colonial masters. But this very euphoria proved unable to erase decades of economic neglect, social animosities, political inexperience, poverty, illiteracy, and disease, even though for a time it did succeed in gluing together some shaky political experiments. A profound sense of disillusionment settled over Black Africa and the rest of the world, symbolized by the terrible anarchy and butchery of the Katanga secession movement and, more recently, by the Nigerian civil war. (It is significant to note that Africa wreaked this vengeance not against the former colonial powers but on her own people.[4]) In the dissatisfaction with the underripe fruits of independence, this euphoria changed to anger and was directed against the caretakers of the newly independent lands. With the ensuing breakdown of political and civil order in nations such as Zaire, Nigeria, Central African Republic, and Ghana, there was no agency capable of taking power except the military establishment. It was their sincere hope to stabilize the political situation and prevent economic and social chaos.

Given the above characteristics of the African military, plus the tendency to intervene in political life when all else has failed, what are the long-term prospects for military rule in the Black African nations? Is it proper to justify military aid to these nations on the grounds that the military is the only alternative to chaos and confusion? In other words, in the context of Black Africa, is the military an appropriate vehicle for nation-building? These questions, of course, must be answered for each country on a strictly individual basis. Yet, because of the unique situation in Africa, some generalizations can be offered, especially in the light of the political and social difficulties and recent independence of many of Black Africa's nations.

A PRIME reason for believing that the military is a force for modernization in Africa stems from its reputation as the most detribalized institution of the young states. This is no mean compliment on a continent where ethnic pluralism is the single most pressing obstacle to nation-building. Such reasoning sees the military as a type of ministate, encouraging a wider, nationalistic identity among its soldiers and, through them, to its civilians. The military is also viewed as a highly visible nationalist organization, one in which the population can take a certain amount of pride. Above all, it is tangible evidence that a state does indeed exist, and it is the symbol, complete with elite elements and impressive uniforms, of newly won nationhood.[5] For example, in Zaire during a funeral mass for President Kennedy, General Mobutu's elite paratroop unit stood in the center aisle of the church, impressing the Zairian people even more than the Prime Minister, the President, or the Zairian flag.[6]

This view of the military as a symbol of nationhood and a ministate can be over-

worked, however. For example, in the past there has been a decided tendency for the military to recruit preferentially from certain tribes. When Nigeria gained her independence, two-thirds of the officers in the army were Ibo, and the bulk of the enlisted troops came from the Moslem north. This hardly contributes to national identity. In Kenya, the army was drawn principally from the Kamba and Kalenjin tribes, while the Kikuyu were barred from military service altogether during the Mau Mau rebellion. In Ethiopia, the officer corps continues today to be dominated by the Amhara-Tigre elite. And even where tribal integration was successful in the armed forces, as in the *Force Publique* of then Belgian Congo, it still did not preclude the terrible chaos wreaked on that nation immediately after independence. It would seem that the military, of itself, is no *de facto* guarantor of nationhood or example of a supratribal ministate.

Second, even if the African military structures were representative of their populations and viable examples of nationalism, their small size makes them questionable vehicles for fostering national pride and awareness. African armies are the smallest in the world relative to population. Do they really stimulate many people with national awareness? How many can they affect in such a way outside the cities? Indeed, since these armies—particularly their specialized units—are for the most part maintained by outside assistance, the military is just as liable to be considered a vehicle for neocolonialism as a promoter of national consciousness.

Along this same line, the military is often viewed as an effective means of accomplishing civic action projects—building roads, schools, and hospitals. At the same time it teaches its members skills that will be useful after their service is completed and then provides them with enough financial resources to set up small businesses. Here, indeed, it is argued, United States military assistance would con-

tribute to national development. There is strong evidence for such a conclusion. Many of the soldiers of former French West and Equatorial Africa were able to set up small businesses in transportation and supply, utilizing money earned and skills acquired during World War II. The Tanzanian People's Army, perhaps more accurately called a youth corps, is engaged in activity primarily of a civic nature. The Ethiopian Army has improved its image and relations by such projects.

But should military aid to African nations be justified by these achievements? In terms of economics, the use of the military for civic action projects seems questionable. For example, it is nearly six months before recruits are anything more than a liability, and the civic action projects initiated by them could be completed more cheaply by private organizations. Naturally, there are instances when there simply is no other organization to do the job, and civic action programs can provide work for otherwise underemployed armies. But in terms of strict economy, this is not to be desired. Nation-building does not require creating vast armies and waging world wars.

Still, the fact remains that the military structure, embodying as it does a bureaucratic organization, is the closest thing to a model of a ministate. In times of political stress and of disillusionment with the existing regime, the military is looked to as capable—indeed, the only force that *is* capable—of taking over and ruling the country. Hence, the political leaders, well aware of the military's potential in this regard, try intensely hard—sometimes unsuccessfully—to keep a close watch on their armed forces. This is hard fact.

For all their potential for intervention into the political sphere, however, there is little evidence that the military can provide the long-term stability necessary for political development. Since the military is itself vulnerable to the very problems of the regime it replaces, the prospect of countercoup looms large over its collective head. Major General

Gafaar Muhammad al-Nimeiry became president of Sudan in May 1969 by coup. July 1971 saw him likewise ousted by coup, only to return to power three days later—again by coup. In Africa, as elsewhere, coup breeds countercoup; revolution breeds more revolution, not only within a nation but as an example to other parts of the continent as well. The military may indeed be a short-term alternative to political chaos. But it is only that.

If this situation partially explains the rash of coups that have afflicted the African continent, it hardly justifies military assistance there. Military aid to Black Africa simply cannot be sustained on the grounds that it contributes to national development in this context. Tribally oriented military cliques still abound. The growing tradition of one-party states in Africa to control and direct military influence leads more to the formation of "people's armies" and "youth corps" than to highly trained professional soldiers. Finally, the professional armies of Black Africa are too small, too new, and (rightly or wrongly)

too closely associated with neocolonialism to be a force for nation-building.

If the main concern of Black Africa is with overcoming ethnic differences and thus achieving internal security, it would seem more logical to redirect military assistance into alternative programs such as public safety and para-police forces. For example, the United States Agency for International Development (AID) could have the African programs at its Police Academy expanded at the cost of a few largely useless naval vessels, tanks, and aircraft.

The small amount of military assistance provided Black Africa by the United States and other nations cannot, in light of the above facts, contribute significantly to nation-building. Other needs—disease eradication, literacy programs, road construction—are far more crucial. As it stands now, military aid to Black Africa makes no economic sense; it could make the continent an unwilling participant in the arms race and could actually contribute, in the long run, to political instability.

USAF Special Operations School

Notes

1. Ernest W. Lefever, *Spear and Scepter* (Washington: Brookings Institution, 1970), p. 17.
2. Richard Booth, *The Armed Forces of African States, 1970* (London: Institute for Strategic Studies, 1970), pp. 23–24.
3. Charter of the Organization of African Unity, Article III, paragraph 3.

4. Rosalynde Ainslie, *The Press in Africa* (New York: Walker and Co., 1967), pp. 13–14.
5. Peter B. Riddleberger, *Military Roles in Developing Countries: An Inventory of Past Research and Analysis* (Washington: American University Special Operations Research Office), pp. 19–20.
6. Lefever, p. 176 n.

Books and Ideas

THE ATTRACTION
OF TOTALITARIANISM

Lieutenant Colonel Philip M. Flammer

HEINRICH HIMMLER once said that it is "the curse of the great to have to walk over corpses." While the colorless Himmler, whose "life substance," in the words of Joachim Fest, "was so thinly spread that he had to borrow from outside," could hardly be called a great man himself, he spoke true of two of the greatest despots of all time, Hitler and Napoleon. For among the "accomplishments" of these two men easily the most spectacular was the waste of a few million lives in the name of "destiny." "Throughout my life I have sacrificed everything—serenity, self-interest, and happiness—to my destiny" is the way Napoleon put it. To Hitler, "the miracle of our age" was "that you [Germany] have found me, that you have found me among so many millions!"

Napoleon, like Hitler, could rarely speak of glory, destiny, etc., except in the first person singular. "My will is that of the people;" he once said, "my rights are the people's; my honor, my glory, and my happiness cannot be other than the honor, the glory, and the happiness of France."

Consequently, he took scant notice of those doing the real sacrificing, and he entirely hid from himself the fact that his self-interest—"insatiable ambition" were the words two of his marshals used—was to him, at least, synonymous with his destiny. Thus, once the sacrifice to be made had been divorced from the objects to be sacrificed, he could easily "walk over corpses" without a troubled conscience. When some difficulty arose over the crowning of Josephine, for example, he announced, "She will be crowned, even if it costs *me* [emphasis added] 200,000 men." On the other hand, Hitler felt that *his* mission of German expansion and solidarity must be imposed by force. In order to do so, he instilled ruthlessness in his people, a typical example being in his address to the Wehrmacht commanders on August 22, 1939: "Close your hearts to pity. Act brutally. Eighty million people must obtain what is their right. Their existence must be made secure. The strongest man is right. The greatest harshness." Totally devoid of empathy, he once greeted the news that a large number of young officers were being lost in the war with the casual observation, "But that's what the young men are there for!" Indeed, it is quite true that this egomaniac had a "fundamental inability to respect or even to grasp the rights of others and their claim to happiness."

In recent months, two noteworthy books have appeared to set Napoleon and Hitler—along with select members of the latter's entourage—in perspective. The first, entitled *Napoleon*, is a biography by the well-known French author André Castelot, who describes his work as an account "of the most unusual life story of all time."† It may be so. Certainly his book is impressive, both for the remarkable detail on Napoleon's private life

and, even more important, for helping the reader to see the world as, apparently, Napoleon saw it. For example, Castelot devotes a great deal of space to Napoleon's amorous adventures, for he, like Mussolini, had strong desires and was not inclined to patience. The civil code, naval warfare, etc., on the other hand, while items of far-reaching consequence in the long run, receive the same brief attention that Napoleon gave them.

Joachim Fest's *The Face of the Third Reich* is easily one of the best books to appear in the last decade and certainly one of the most informative about the Nazi era.†† His is an analytic approach to the personality and "psychological background" of the Nazi leaders, a courageous venture, for Mr. Fest is entering areas of character, motives, weaknesses, and strengths where conservative historians traditionally fear to tread. Yet such is Fest's knowledge of his subject, including the psychological and political patterns of totalitarianism, that he writes with almost unquestionable authority.

This reviewer, a trained historian, found Fest's daring venture most rewarding. Indeed, in the very areas Fest describes lay the answers to some of the heretofore perplexing dilemmas about the Nazi leaders. Without this perspective, for example, it is almost incomprehensible to the modern member of a political democracy how Himmler, who hated hunting and whose dinner could be ruined by an account of the slaughtering, could sincerely say at one point: "Nature is so marvellously beautiful and every animal has a right to live," only to say at another time, "Whether the other peoples live in comfort or perish of hunger interests me only in so far as we need them as slaves for our culture." He often told the SS that "the Jewish people is to be exterminated"; yet in April 1945,

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† André Castelot, *Napoleon*, trans. Guy Daniels (New York: Harper & Row, 1971, $12.50), 627 pages.

†† Joachim C. Fest, *The Face of the Third Reich: Portraits of the Nazi Leadership*, trans. Michael Bullock (New York: Pantheon Books, 1970, $10.00), xiii and 402 pages.

just before the war ended, he warmly greeted a representative of the World Jewish Congress with the astonishing words, "Welcome to Germany, Herr Masur. It is time you Jews and we National Socialists buried the hatchet."

Fest shows Himmler to have been a utopian idealist rather than the commonly accepted epitome of evil. Substituting politics and race for religion, he was strikingly like the blessed Cardinal Bellarmine, who would not take the lice from his clothes since the unfortunate creatures were doomed never to enjoy theological bliss. (The cardinal apparently saw no contradiction between his kindness to lice and his conscienceless commitment of a few thousand people to the stake for doctrinal unorthodoxy.) Himmler, for one, would have seen little difference between using the inquisition to ensure church unity and using mass genocide to ensure Aryan supremacy.

Two basic themes emerge from Fest and Castelot, neither of which should be surprising to modern man. One is the marriage of ambition with opportunity, with resultant corruption of power. The other is man's striking willingness in times of stress and uncertainty to surrender his personal freedoms for totalitarian security, a theme so powerful that the celebrated Erich Fromm devotes a book to it, aptly entitled *Escape from Freedom*.

Napoleon, as Castelot makes marvelously clear, was governed by an all-consuming, insatiable ambition. At one point he writes, "As early as 1807 Napoleon had admitted that he loved power as a musician loves his violin. He wanted to enjoy that power without limitation; and he wanted to enjoy it alone." In even more brutal words, Fest writes of Hitler, ". . . great as was the influence of outdated nationalist, ideological or missionary motives, it was the purely hegemonic aims that overlay all others. The urge to dominate Europe, and ultimately the world, although backed by ideological and racial arguments, was at bottom nothing more nor less than the desire to exercise sovereignty."

Because he is writing about a single person, Castelot is in the better position to show the ultimate corruption of Napoleon by the power he so ardently desired and exercised. Yet Fest, no less than Castelot, shows how Hitler, like Napoleon, became a despot without realizing it or ever acknowledging it. In neither case is it surprising that the early oaths and promises to the French and German people were inevitably distorted and broken until the destiny of the French Empire and the Third Reich became synonymous with the destiny of the Emperor and the Führer. Napoleon's statement in 1814 that "it may cost me my throne, but I will drag the whole world down in its ruins" closely parallels Hitler's fulminations about the fate of Germany in his last hours under the Reich Chancellery.

The overall corruption naturally carried with it other similarities. The towering rages, the inability to tolerate criticism of any kind, the shifting of blame to others, the win-or-lose-all philosophy—these abetted the gradual escape from reality to illusion. In short, neither appears, in the aggregate, to have been the sort of person one should choose for a hero. For a variety of reasons, fate has been kind to Napoleon. His legend has grown and been embellished until he is safely (and sacredly) enshrined in people's minds and in an impressive tomb in Les Invalides. Hitler, on the other hand, primarily because he carried his nation to the point of complete collapse, left behind, as Fest puts it, "ruins, and nothing else."

To the student of absolutism, the tyrannical behavior of Hitler and Napoleon would be expected. Indeed, their attitudes towards their exalted positions differed little from that of such claimants to ultimate sovereignty as Xerxes or Louis XIV. With Hitler and Napoleon, what is most striking is the difference in the two personalities, which lends credence to the view that such meteoric careers are largely the result of a fortuitous meeting between a unique opportunity and an opportun-

ist's ability to recognize and exploit it.

Napoleon is everywhere recognized as a military genius—no less a personage than Clausewitz called him the "God of War." Hitler, on the other hand, had some understanding of offensive warfare, but his overall "moodiness and lack of self-control introduced a destructive element of unrest into all operations," which, along with "his excessive distrust, disqualified him from any sort of generalship." Napoleon was outgoing, almost an epicurean pagan, who overwhelmed people with his personality. He could easily and selfishly win the sincere affections of the most recalcitrant females. Hitler was a loner of extraordinarily unstable temperament, so inept with women that of the six who were close to him during his career, five attempted or committed suicide. His power lay not in his personality but in his rhetoric (one foreign diplomat confessed that, while listening to his stirring speeches, it had "repeatedly happened" that "for a few minutes he became a convinced National Socialist") and in his skillful use of what he called the "secret doctrine." Under this doctrine, "only the ignorant populace . . . took part in the actual fighting for ideas; it was really the methods by which these ideas were propagated that held the key to power or impotence."

Overall, Napoleon was a man of undoubted genius, not only in respect to organization but also in capacity of intellect. Hitler had only contempt for the intellectual. He was "the hopeless prisoner of his own negative impulses," and he had a "murky, amorphous personality which, with its deformities, dullness and *petit bourgeois* drabness, ensured shattering failure every time he devoted himself seriously to any occupation." Fest would be the last to equate "the obviously inferior features of Hitler's personality with lack of intelligence or actual stupidity." He concludes, however, that "only respect for the dead and the ruins he left behind forbid us to dismiss this life as no more than a nauseating, vulgar

and bloody horror story, which fundamentally is all it amounts to. . . ."

It is this disparity between genius and the commonplace that spotlights one of the lessons of tyranny. Obviously, the appearance and rise of such men stem only partly from personality traits. Opportunity, rising like a mist from the turmoil and insecurity of certain periods, is at least as important. The terrible insecurity resulting from the French Revolution's devouring itself is matched by the early Twentieth Century's "turning away of almost all European powers from reason and realism; the disenchantment with traditional values and ethical standards, accompanied by a lack of will to defend any moral and legal principles whatever; a shortsighted striving for advantage and security as well as, in particular, a susceptibility to illusion. . . ." Under such stress, the German people, in the words of Fest, "surrendered themselves ever more feverishly to the redeemer cult that was systematically developed around the person of the 'Führer.' "

All of which leads one to wonder what Napoleon could have done with the technical aids available to Hitler and what Hitler would have been without them.

The other basic theme, man's propensity for sacrificing his freedom to another human whom he can worship as the ultimate in earthly wisdom and justice, is not directly mentioned by Castelot, although it is very much a part of his book. Fest, on the other hand, takes direct aim at this oft-mentioned weakness and wonders whether "the universal precondition for man's self-renunciation, which is not something fostered only by totalitarian regimes but is joyfully embraced by millions of people of their own free will, is not his lack of intellectual and moral direction, his personal weakness, his blind hunger for the apparent certainties of a universal philosophy."

If this is so (both Fest and Castelot make strong cases for it), the civilian and soldier

the world over have much to learn from the study of those periods of stress and strain wherein the era is ripe for "the man" and *the* man appears to match the era. This is clear when one considers that of the three great revolutions—the French, the Russian, and the American—only the latter fell short of despotism, and that primarily because, unlike the others, it was not really ideologically oriented.

It goes almost without saying that both Castelot and Fest should make fascinating reading to the American soldier. The latter, often a "citizen soldier" in outlook, of necessity finds himself part of an inherently undemocratic organization pledged to protect a democratic one. If he finds himself concerned with problems of loyalty, the era of the French Revolution and Napoleon and the history of the Third Reich offer lessons of great consequence. It was the French Revolution that turned the supreme allegiance of the soldier from his monarch to the state, thus adding to his profession the sterling honor that inherently goes with existing for the protection and well-being of others. Napoleon showed how easily a man of genius could subvert the honor of soldiery to his own ends by convincing a troubled society that his personal advancement was synonymous with the best interests of the empire. Yet even the Emperor could not undo that which had been done, and Louis XVIII, on returning to the throne, had to accept the army as an instrument of the state rather than a personal possession.

Because of the technical aids available to him, Hitler proved a greater despot than Napoleon, and the sell-out of the army to this tyrant is one of the saddest and most remarkable stories in modern history. In theory, the German soldier was pledged to the state, yet that did not prevent him from taking (under pressure) the personal pledge of loyalty to Hitler, who was also using the assumption that the interests of the head of state and the state were synonymous. Unaware or unheeding of the warnings of history, including the statement by Cincinnatus some 2400 years ago that it is invariably fatal for any individual or nation to place its ultimate faith in one man as "the repository of wisdom and justice," the officers and men generally clung tenaciously to their oath to the Führer, even after he had broken his promises a thousand times over and his interests had obviously turned so far against the state as to provide for its ultimate ruin. Thus, the spineless and toady Field Marshal Keitel could see in the 20 July plot of 1944 against Hitler's life "nothing but injured pride, frustrated ambition and office-seeking!" Yet, it was in a similar vein that the great professional officer, former Field Marshal von Rundstedt, when asked at Nuremberg whether he had ever thought of getting rid of Hitler, answered "firmly and unhesitatingly that he was a soldier, not a traitor."

In one of the most impressive chapters in the book, entitled "General von X," Fest gives his view of what was wrong with the German officer corps in general and the famed General Staff in particular. Hitler was to discover, he writes, that "the secret of its [the General Staff's] soul . . . was a humiliation; an opportunism that thought itself crafty, totally devoid of convictions, almost exclusively concerned with self-interest, 'ready for anything.'" As for the German officer corps, ". . . it was not solely the National Socialist party officer who damaged the reputation and prestige of the Army. It was no less the obsequiousness of so many, the total lack of moral courage in so many, that dulled the lustre of undoubtedly real soldierly and professional virtues and did more to dishonour the image of the officer corps than all the reproaches of its bitterest opponents."

Maxwell AFB, Alabama

WARFARE AND SCIENCE

Dr. Woodford A. Heflin

A MEDIUM-SIZED study called *Science, Technology, and Warfare†* was published in 1971. It is worth attention for its insights into the use of science as a means of achieving advantage in warfare. The study has special merit in that it provides historical perspective, achieved through the resourceful mechanism of the history symposium. Indeed, the study is itself the printed "Proceedings of the Third Military History Symposium," held in May 1969 at the U.S. Air Force Academy.[1]

Such proceedings, when well organized about a single topic, normally achieve perspective by the bringing together of early-period and late-period experts. In this environment the topic for discussion is subjected to the scrutiny of the group, which collectively has a broad range of historical knowledge. The first paper can, and often does, deal with the topic in an early period, in which perspective is no great problem simply because the events or facts discussed are already in the distant past and can be viewed with detachment and hindsight. This paper can then lead to considerations of later periods, coming right down to the present.

In the symposium[2] that produced the study *Science, Technology, and Warfare,* the participants all had good credentials. In the first place, they were all experienced, their ages falling between 36 and 62; some had served in the armed forces, either of the United States or of Britain; one of them was a scientist; and the historians among them had specialties that ranged from the early middle ages to the present, with some background capabilities in the classics, medicine, and theology. Their publications attested to their productivity,

covering such subjects as medieval technology, ballistics in the seventeenth century, crossbow tactics and strategy, the Austrian military border in Croatia from 1522 to 1747, the correspondence of Henry Oldenburg (an original member of the British Royal Society), the American Revolution, the siege of Paris in 1870 and 1871, the diplomatic history of the Baghdad railway, the life and times of Henry L. Stimson, the flights to the moon, and much else.[3]

The first session of the Symposium provided broad coverage of the period from 1400 to 1700; the second session did the same for the period from 1700 to 1850; and the third session viewed the twentieth century.

As one would expect and as pointed out by Professor Hall, the interaction between the military and science-technology was decidedly limited in the period 1400 to 1700, although the military adopted some of the available products of invention and craftsmanship, such as cannon, gunpowder, and flintlocks. These products, however, were largely subordinated by military commanders to three other considerations, the first being an emphasis upon proper organization, both for logistical purposes and for battle; the second being an emphasis upon training and skill by individual soldiers in handling weapons and accoutrements, whatever they might be—as with the pike, the stirrup, the horse, the cannon, the cannon carriage, the plug or strap bayonette, the sword, or the musket; and the third being an emphasis upon courage. The object of harangues and maneuvers was to inculcate skills, obedience, and bravery. Science and technology, it was concluded, had little to do with

these. On the other hand, it was shown that science and technology in those days did have some application, particularly in the building of fortifications. It was in this period that Sébastien le Prestre de Vauban (1633–1707) built fortifications in various parts of Europe that were marvels of engineering. He was the architect-engineer who held pre-eminence in accomplishment and demonstrated results flowing from the science of mathematics. Also, science and technology were considered to have made contributions in the field of naval warfare, as in devising improved navigational aids. And perhaps, at the end of the period, some use was being made of ballistic knowledge, although not displacing gun-aiming by trial and error, since cannon and small arms were very idiosyncratic. The age, in fact, was a great one for science; living then were such scientists as Copernicus, Kepler, Harvey, Galileo, and Newton. But these luminaries contributed little to the advancement of weaponry and warfare. It was largely the blacksmith, the foundryman, the tinkerer, and the craftsman who upheld the profession of arms.

The period 1700 to 1850, as pointed out by Professor Bien and others, was also slow in finding military advantage in the gradually growing strength of science and technology. Emphasis in the military was placed upon mathematics, as in the curriculums of the newly established military academies, but this was sometimes done more for training the mind than for applying mathematics to firepower, tactics, strategy, or weapons. The notion was that math, like rhetoric, was good for the slow-witted as well as for the quick-witted. It would make them think more clearly and help them communicate better. Thus, the edging toward science and technology was slow. What edging there was could be detected in the application of geometry and physics to problems in siege warfare, in the improvement of the metallurgy for artillery pieces, and in a growing practice of subjecting equipment to strength and adaptability tests

before use in actual war. Thus, warfare continued to be primarily management, training, tactics, and strategy. Lessons learned were in these fields, as in the American Revolution, which raised doubts about the fusillading maneuver as opposed to aimed targeting.

Although mathematics found its way into artillery bombardment because gunners found it necessary to master inclination tables that spelled out powder charges and corrections for drift and wind, few perceived mathematics as related to advanced technology. It was a clergyman, not a military person, who devised an electric chronograph that measured the speed of projectiles. The Reverend Francis Bashforth achieved this quite late, in 1865.[4] This event is considered by Professor Hall as the beginning of the science of war as distinguished from the art of war.

The twentieth century started off with the traditional built-in commitments to old ways. Participants in the third Symposium, Dr. Brodie for instance, cited experiences in their own lifetimes that showed addiction to the old and familiar, as in encountering the accepted belief by certain training officers that "horses will always be used to tow the field artillery." This as late as 1926! But irreversible things were happening. Air power, electronics, and the new physics were steadily becoming parts of the military establishment. Shortly, as Dr. Kranzberg pointed out, science and technology were at last to become dominant. With World War II, both sides recognized the need to stay ahead technologically. Significantly, victory or defeat turned on technological devices matched with knowledge of how to use them, as with radar in the Battle of Britain. Everywhere, the race was to achieve technological superiority—in aircraft, jet propulsion, rocketry, electronics, and nuclear bombs. The demand for science became institutionalized, and vast amounts of national resources were expended to gain or maintain leadership. This trend did not end with World War II. Operations analysis, established during the war, con-

tinued. The Manhattan Project came to an end, but its properties and functions were carried forward by the Atomic Energy Commission. The Pentagon let huge contracts for research and development, and the individual services were organized so as to take advantage of large investments in scientific research. Just how far these institutionalized efforts came to displace the efforts of individual scientists, however, can be disputed. A vast amount of independent research continues, sponsored by private funds and foundations. Wherever there is a breakthrough, though, the military is organized to take advantage of it.

At the end of the Symposium a word of caution was voiced as to the continued upward trend of interaction between science, technology, and warfare. Dr. John Fisher, Air Force Chief Scientist, pointed out the inevitability of a "bending-over point," with a proportionate decline to be expected in the number of scientists throughout a given nation's total population. This, he said, would ultimately lead to a decoupling of science and technology from the military, and warfare would revert to an art. The time for this to show itself, it was predicted, may not be too far distant, for already there is recognition by

governments of the high costs involved in the higher reaches of scientific research; and competition for the resources of the world has set in, as nations reappraise their priorities. That this decoupling may have already started, however, does not dispel the present need to maintain relative military strength. Dr. Holley touched on this need when he re-emphasized the proposition that doctrine must be kept abreast of the changing times. If research and development continue at a high level, with productive outcomes in new discoveries and inventions, as in the new adaptations of the laser, doctrine must be employed to abstract from technology the optimum measure of advantage. In a way, this is art, not science.

The third Military History Symposium, as reflected in the printed proceedings, thus made an effort to cope with the problem of perspective as historical movement reaches into the contemporary. The Symposium dealt with substantive matters. It resorted to no clairvoyance. Through solid effort and knowledgeable discussion, it brought some understanding to a topic of great interest to men living in the 1970s, especially to a military service related as closely to science and technology as the Air Force is.

Montgomery, Alabama

Notes

1. The first Military History Symposium, held at the U.S. Air Force Academy on 4–5 May 1967, considered the topic "Current Concepts in Military History." Its proceedings were not published. The second in the series was held on 2–3 May 1968 and considered the topic "Command and Commanders in Modern Warfare." Its proceedings were published and are to have a second printing. The third in the series, held on 8–9 May 1969, considered the topic "Science, Technology, and Warfare." The fourth in the series, held on 22–23 October 1970, considered the topic "Soldiers and Statesmen." Its proceedings are soon to be published. The fifth in the series, to be held on 5–6 October 1972, will consider "The Military and Society." Publication of the proceedings has emanated from the Office of Air Force History, Hq USAF, and the USAF Academy. The printer is the Government Printing Office.

2. The word "symposium" originally meant a drinking party, as indicated by the Greek elements of the word. But since such parties were often filled with scintillating conversation and congeniality, the term came to be applied to a kind of formal assembly where brilliant discussion took place.

3. The principal participants in the Symposium were David Duckworth Bien (Ph.D.), of the University of Michigan; Bernard Brodie (Ph.D.), of the Institute for Advanced Study; Eugene M. Emme (Ph.D.), Chief Historian for NASA; John Crocker Fisher (Sc.D.), with the General Electric Company; John Rigby Hale (M.A., Oxon.),

of University College, London; Alfred Rupert Hall (Cambridge Tripos), of the University of London; Irving Brinton Holley, Jr. (Ph.D.), of Duke University; Thomas Parke Hughes (Ph.D.), of Southern Methodist University; Francis X. Kane (Ph.D.), Colonel, USAF; Melvin Kranzberg (Ph.D.), of Case Western Reserve University; Clarence Lasby (Ph.D.), of the University of Texas; Elting Elmore Morison (M.A.), of Yale University; Robert L. Perry (M.A.), of the RAND Corporation; Theodore Ropp (Ph.D.), of Duke University; Gunther Eric Rothenberg (Ph.D.), of the University of New Mexico; John Willard Shy (Ph.D.), of the University of Michigan; Lynn Townsend White, Jr. (Ph.D.), of the University of California at Los Angeles; and John Baptist Wolf (Ph.D.), of the University of Illinois, Chicago Circle.

4. Professor Hall's reference to the Reverend Bashforth is somewhat incidental (page 4 in the Proceedings), but Bashforth did, indeed, represent a clear case of turning to technology to achieve a military purpose. The Crimean War had demonstrated a need for more effective artillery. Bashforth made an analysis and concluded that some means for measuring air resistance and the speed of projectiles lay at the heart of the problem. Although continuing as an active clergyman, he received appointment as a mathematician for an advanced course at Woolwich, which later became the Royal Artillery College. In the period between 1864 and 1880 he resolved many practical artillery problems. Bashforth, born in 1819, lived to be 93 years of age.
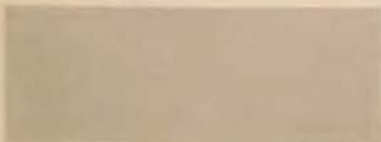
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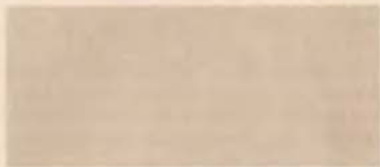
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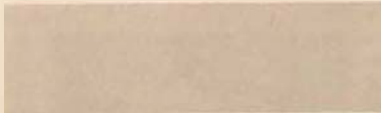
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AWARD

The Air University Review Awards Committee has selected "The Evolution of Air Warfare" by Major General Robert N. Ginsburgh, USAF, and Major Edd D. Wheeler, USAF, as the outstanding article in the March-April 1972 issue of *Air University Review*.

ATTENTION

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