



AIR
UNIVERSITY
review

MARCH-APRIL 1977





The Professional Journal of the United States Air Force



**the
editor's
aerie**

Dr. Robert L. Pfaltzgraff, Jr., in our lead article, "Emerging Major Power Relationships," reflects on the shifting great power triangle of the United States, the Soviet Union, and the People's Republic of China. The cover, by Art Editor/Illustrator Bill DePaola, depicts an American eagle warily observing this triangle in a graphic elaboration of an abstract theme.

For the first time in the experience of this editor, the Awards Committee members were unanimous in their first place votes for Major Don Alberts's "A Call from the Wilderness" in the November-December 1976 issue. Aspiring authors who want to gain insight into subject matter that receives a very receptive reading by our editorial panel may want to re-examine that article.

To the 50 percent of Air Force officers who necessarily receive an efficiency rating of three or below, it may be of more than passing interest to learn that the pseudonymous author of "I Am a Three" was recently promoted. You won't find Major Mark Wynn's name on the lieutenant colonel's promotion list, but we have it on good authority that the author who appeared under that nom de plume in the September-October 1976 issue is a living example that "threes" are promotable. Congratulations would seem to be appropriate, but how does one congratulate the anonymous?

In this issue we find ourselves in the slightly embarrassed position of publishing an article by a member of the Air University Review Awards Committee. Wing Commander Peter M. Papworth, Royal Air Force, appears here as the author of "The Integrity of the Warsaw Pact, Part I." We value his judgment and regret that Her Majesty's representative must be temporarily absent from our deliberations.

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ATTENTION

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

WE are at the threshold of an era in which power, military and economic, will be far more diffused than at any earlier time in the twentieth century. In addition to the superpowers and China, the international system of the last quarter of this century will contain a series of regional powers, as well as smaller actors, in possession of destructive capabilities of unprecedented lethality and accuracy, nuclear and nonnuclear. Patterns of interaction among actors, major and lesser powers, will be far more variegated and complex than at any earlier time in the twentieth century. Thus the world of the next generation, the focal point of this analysis of emerging major power relationships, is likely to hold for the United States and its allies even greater danger than the recent past.

As they have been in the past, relations among major powers will be the product of many factors—foreign policy objectives and capabilities, domestic stability or instability and political will, levels of economic and technological development, to mention but the most obvious. It is possible, of course, to postulate a variety of scenarios in the U.S.–Soviet relationship, based on the Soviet Union in an “imperial phase” and the United States in decline, both in relative military power and in political will. The assumption of this analysis, however, is that the United States and the Soviet Union will remain in a condition of general parity in defense capabilities, although the Soviet leadership will continue to strive for overall military superiority and the United States, in the years just ahead, will face major decisions about

both the adequacy of existing levels of defense and the allocation of resources between strategic and general purpose forces. Both superpowers, but especially the Soviet Union, will be engaged in large-scale research and development (R&D) efforts designed to achieve breakthroughs that might prove decisive in altering the existing strategic-military relationship. Among the likely emphases of Soviet R&D will be ballistic missile defense and antisubmarine warfare. The United States and the Soviet Union will remain adversaries, although their relationship will be punctuated by periods of détente, whether for tactical or other reasons.

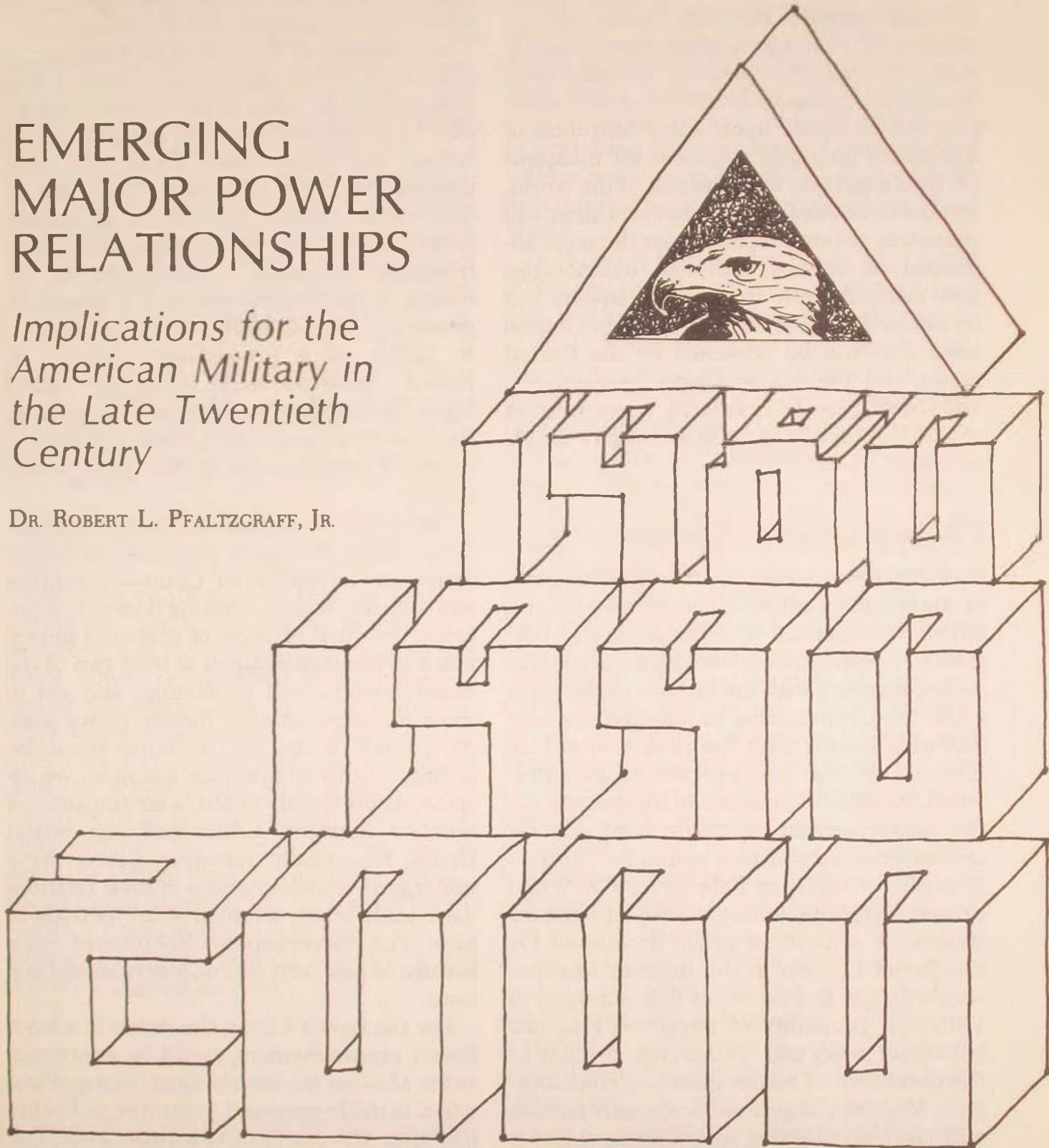
The Soviet Union will be in an “imperial” phase with global interests and a propensity to seek to extract political advantage by virtue of the possession of vast military power. Nevertheless, the Soviet Union will probably face increasing problems internally as a result of the demands of intellectuals, nationalities, and other dissident groups, and externally in its relations with emergent regional actors and even smaller states whose interests diverge from those of Moscow. Formidable economic problems will continue to beset the Soviet Union as a result of the inefficiencies of Soviet economic planning, declining per capita productivity, persistent difficulties in agriculture, including climatic variations and changes, and the continued concentration of Soviet technology and other resources in the defense sector.

In the period ahead the United States, while endeavoring to reconstitute its domestic consensus on foreign policy in support of allies and interests abroad, will make an

EMERGING MAJOR POWER RELATIONSHIPS

*Implications for the
American Military in
the Late Twentieth
Century*

DR. ROBERT L. PFALTZGRAFF, JR.



effort to redress the military imbalance that, in the mid-1970s, appeared to be emerging with the Soviet Union.¹ Nevertheless, the United States will have lost, perhaps irretrievably, many of the major qualitative advantages in strategic nuclear systems that it enjoyed until the present decade, even though U.S. forces, at levels below the strategic, will be based upon the substitution of quality for quantity, firepower for manpower. In comparison with the rest of the world, the United States and the Soviet Union will remain in defense technologies the most advanced of nations, although technologies now available only to the superpowers will be diffused to other states. The technological edge that will be possessed by the United States and the Soviet Union, respectively, will result from their superior concentration of R&D, especially in defense, relative to other states.

U.S.-Soviet-Chinese relationship

Crucially important to the future of the Soviet-American relationship is, of course, the Sino-Soviet conflict. The deepening of tensions between Moscow and Peking in the late sixties, together with the interest of the United States in minimizing its potential for conflict with Peking with the reduction of U.S. interests in the Asian-Pacific region, provided the crucially important ingredients for the Sino-American rapprochement symbolized by President Nixon's visit to the People's Republic of China in February 1972. While several factors (including the Soviet need for large-scale imports of grain) accounted for the Soviet interest in the détente relationship with the United States that emerged in 1972, the possibility of improved relations between Peking and Washington, possibly to the detriment of Soviet interests, contributed to Moscow's eagerness to sign agreements with the United States, including the SALT I. From the American perspective, the Sino-

American relationship became central to U.S. diplomacy with the Soviet Union. The United States sought to evolve both with Peking and Moscow a better relationship than either could maintain with the other.

The essence of the triangular relationship and major power interaction within it was competition by each of the powers to preclude a major improvement in relations between the other two. From the U.S. perspective, if not necessarily from that of Moscow or Peking, a condition of neither friendship nor war was, and remains, vital to triangular diplomacy. A Sino-Soviet war, resulting in the destruction of a Communist power, would in all likelihood leave the Soviet Union in a pre-eminent position in Eurasia. Since the early 1970s, the United States has signaled to Moscow its interest in the preservation of China, whose physical integrity is indispensable to the major power balance.

The problem of assessing future relationships among the major powers—the United States, the Soviet Union, China—is complex and difficult. Widely differing domestic structures, potential changes of profound importance in the leadership of at least two of the major powers, and conflicting, and yet in some instances parallel, foreign policy goals complicate the search for clarity about the future. In this analysis, for example, we assume, as previously noted, a continuation of hostility between China and the Soviet Union. Historically, however, nations have undergone transformations in their relations with each other, even in short periods of time. The *renversement-des-alliances* was a feature of past, and recent, international systems.

For the Soviet Union, the stakes in a Sino-Soviet rapprochement would be enormous, as the Moscow leadership must have realized when it made renewed overtures to Peking just after the death of Chairman Mao. The substitution of collaboration for competition

between the two leading Communist powers would impose perhaps insurmountable burdens on the United States. Even in a world of power diffusion, a decision by Moscow and Peking to act in concert to achieve their respective goals in regions of interest to the United States would have incalculable consequences for American foreign policy. Conceivably, the transformation of Sino-Soviet relations from essentially a zero-sum to a nonzero-sum game is an unlikely contingency. It deserves to be mentioned in an analysis of emerging major power relationships only because of the horrendous consequences it would have for the United States and its allies. They would be heightened if such a rapprochement came at a time of strategic-military imbalance starkly in favor of the Soviet Union. In fact, it may be hypothesized, the incentive for China to repair its rift with Moscow would be increased by a decline in the position of the United States relative to the Soviet Union—if the Chinese leadership concluded that it had more to gain, or less to lose, by an improvement in its relations with Moscow than by continued hostility. Among the assumptions, therefore, that inhere in an analysis of future major power relationships is the preservation of American power in all of its dimensions—military, economic, technological—at such a level as to constitute a form of parity with the Soviet Union, even though Soviet conceptions of nuclear strategy call for patently superior forces adequate not only to deter the United States but also to enable the Soviet Union to prevail in a nuclear exchange—with a fundamental commitment not to a strategy of mutual assured destruction but rather to assured survival.²

*major power interests
at a regional level*

In addition to competition for the development of strategic systems and general pur-

pose forces, the continued superpower adversary relationship will manifest itself at several levels: efforts to increase polycentrism in alliance systems and, in the case of Soviet policy, to promote tendencies toward neutralism in the alliances of the United States; attempts to retard the emergence of new power centers or to gain influence in such states and regions; and a Soviet interest in exploiting the tensions and conflicts that will be endemic in the global system of the next quarter century, especially in the Third World.

In Western Europe and Japan, the United States and the Soviet Union, as in the recent past, will have largely divergent foreign policy goals. Soviet policy has been, and is likely to continue to be, oriented toward efforts to detach the United States from alliance partners and to achieve, especially in Western Europe, a form of neutralization or "finlandization." Political patterns in Western Europe are complex and shifting; there are, for example, contradictory tendencies within the European community and a movement to the left in some countries, especially Italy (and perhaps France) and, for the present at least, toward greater conservatism in other countries (the Federal Republic of Germany, Great Britain, and Sweden). The accession to power of Communist parties in Italy and France would accord with the Soviet interest in neutralization and the weakening of West European links with the United States.³ The continued growth of Warsaw Pact capabilities will confront NATO with a variety of defense problems: threats to the stability of the military balance on the NATO Central Front; uncertainties about sea control, especially in the Mediterranean, where surface navies composed of large ships will become increasingly vulnerable to attack by precision-guided weapons launched from land, submarines, or aircraft; greater nuclear threats to Western Europe posed by new generation Soviet strategic forces such as the

SS-X-20 and the Backfire bomber; and, in sum, a potential for a shift in the overall military balance in Europe toward the Soviet Union.⁴ In itself, this phenomenon might be sufficient to achieve a form of "finlandization"—if Europeans perceived increasingly a political shadow cast by the *possession*, not necessarily the actual use, by the Soviet Union of military power. In the absence of an alliance relationship that continued to commit American military power to NATO, Western Europe would be hostage to Soviet good will in such a changing military balance.

Likewise, Soviet policy in northeast Asia, and especially toward Japan, will diverge from that of the United States. Japan's high vulnerability to disruption in supply of vital raw materials, together with her heavy dependence on overseas markets, will provide the Soviet Union potential leverage against Japan and indeed against Western Europe and other countries and regions vitally dependent on trade. Major increases in Soviet naval deployments in the seas adjacent to Japan and in the Indian Ocean may pose a threat to Japanese commerce. This is not to suggest that the Soviet Union necessarily will take action to interdict Japanese shipping. However, the potential leverage available to the Soviet Union to do so (or to interrupt, or to threaten to interdict, vital shipping from the Persian Gulf to Western Europe) will pose difficult choices for U.S. allies in the event of protracted crises between the United States and the Soviet Union.

Conceivably, the Soviet Union will attempt, as it has in the past, to achieve a normalization of relations with Japan. The prospects for success will be severely limited so long as the Soviet Union refuses to return to Japan territory seized at the end of World War II. Soviet diplomacy, like that of Japan, moreover, will be conditioned by the quadripartite power balance that exists in northeast Asia. Japan will seek to utilize the Sino-Soviet

conflict to minimize potential threats from either China or the Soviet Union. Conceivably, Japan will evolve a somewhat closer relationship with Peking than with Moscow. Japan may be drawn increasingly into trade-technology transfer agreements with both China and the Soviet Union, although neither Moscow nor Peking will wish to have the other's industrial capabilities strengthened so long as they remain in confrontation. Thus, for example, the Chinese leadership apparently viewed with apprehension the possibility that Japan, together with the United States, might make substantial investments in the development of Siberian oil and natural gas.

the emergence of regional superpowers

The alliance issues confronting the United States in its relationships with the Soviet Union are, in some cases, the legacy of the past generation and, in others, new manifestations of a competitive relationship in which the stakes revolve around the world's greatest industrial-technological-economic power centers outside the United States and the Soviet Union. In this respect, if not in military power, Western Europe and Japan represent economic power centers in the emerging international system, although they are highly vulnerable, as we saw in the immediate aftermath of the October 1973 War, to international political and economic forces over which they have little or no control. But the world of the last quarter of this century is likely to contain other emerging power centers that, if not as vast economically as Japan and Western Europe, nevertheless will have impressive capabilities. Within the next generation a series of regional superpowers such as Brazil and Iran will probably have emerged. These regional superpowers will have attained their status in the international system by dint of economic growth based, in some instances, on

resources and on major progress toward industrialization, with technology transfer and investment from the industrialized countries of the West and Japan. The problems of international security will have become far more difficult and complex as a result of the power diffusion within each of the world's regions, as well as the presence of numerous conflict-laden issues. The capacity of the United States and the Soviet Union, respectively, to influence the behavior of regional superpowers will have diminished, even though major regional actors will remain dependent on the United States and the Soviet Union for certain of the most advanced military capabilities.

the diffusion of military power

The rapid growth in the defense capabilities of major regional actors will provide potential threats to superpower interests, and even military forces (for example, naval forces deployed in oceans where regional powers maintain substantial naval power, especially "inshore navies" based on small ships equipped with precision-guided weapons and other advanced capabilities that can threaten superpower forces). There will be a growth in R&D capabilities and weapon production facilities in regional superpowers as technologies and skills are transferred from the most advanced countries.

The continuation, and in some cases the growth, of adversary relationships within regions will create new opportunities for intervention, directly or indirectly, by one or both superpowers. The continued propensity of the Soviet Union to exploit regional problems for unilateral advantage will provide a destabilizing element in some, and perhaps all, regions. The potential for conflict among regional powers and for superpower involvement in regional conflict will increase. Major regional powers will possess or be capable of acquiring nuclear capabilities for the deter-

rence of other powers within their respective regions. In some instances other regional powers (in addition to Britain and France) will have the capability to strike superpowers with nuclear weapons. On balance, the Soviet Union will be more vulnerable than the United States to nuclear attack by smaller nuclear powers, especially in the 1980s, although by the 1990s the United States, too, will have become more vulnerable than in any earlier period to attack by such powers. The relatively greater vulnerability of the Soviet Union to smaller nuclear forces will result both from the geographic proximity of the Soviet Union to other nuclear powers and from the conflict potential of issues dividing the Soviet Union and nations, or groups of nations, on the Eurasian land mass and rimlands. The possibility of the emergence of a series of such regional powers in possession of nuclear forces gives added incentive to the Soviet Union to seek both to neutralize and to achieve major influence in potential power centers. Thus the Soviet Union has sought not only to detach Western Europe and Japan from their respective alliance relationships with the United States but also to prevent the emergence of a unified, militarily strengthened Western Europe.

By the late 1980s such countries as Britain and France are likely to have built new generation strategic forces, based perhaps on technologies such as those embodied in the U.S. cruise missile program; however, the ability of other states to incorporate such advanced cruise missiles (nuclear and conventional, long range and short range) into their weapon inventories will depend in part on the acquisition of highly sophisticated guidance systems now available only to the United States.⁵ It is conceivable that Britain and France will have achieved substantial technological collaboration in the development and production of new generation nuclear weapons and, as part of a broader European-

Atlantic framework, in other types of weapons as well. The availability of relatively inexpensive delivery systems such as the cruise missile will increase the prospects for the emergence of a multinuclear world.

the proliferation of nuclear weapons

Within the next generation many other states will have acquired nuclear weapons. The list of potential nuclear powers in Europe and its periphery includes the Federal Republic of Germany, Spain, Italy, and Yugoslavia and, by the 1990s, Greece and Turkey.

Outside of Europe it is possible to envisage hostile pairs of countries, one or both of which will have acquired within the next generation an atomic weapons capability or will have augmented substantially existing nuclear forces: in the Middle East, Egypt-Israel, Egypt-Libya, Iran-Saudi Arabia, Israel-Iraq, Algeria-Libya; in Asia, Taiwan-People's Republic of China, Philippines-Indonesia, South Korea-North Korea, India-Pakistan; in Africa, Nigeria-South Africa, Zaire-South Africa; and in Latin America, Argentina-Brazil.

In Europe the propensity of states to acquire nuclear weapons will depend on several factors, including the perception of continued credibility of the U.S. nuclear guarantee embodied in the Atlantic Alliance. Outside NATO, the potential exists for the acquisition of nuclear weapons by Yugoslavia. Depending on the course of events in Yugoslavia after the demise of Tito, especially the outcome of whatever succession crisis ensues and the Soviet propensity for intervention, there will be incentive for the development of a nuclear weapons capability by Yugoslavia, although the Soviet Union could be expected to exert pressure to prevent the development of a nuclear force there. The possession of nuclear weapons by states outside Europe, particularly in North

Africa and the Middle East, will lead existing European nuclear powers to retain such capabilities and provide a rationale for the development of a European nuclear force or for the acquisition of atomic capabilities by other European states, especially those on the northern littoral of the Mediterranean. Several Middle East states (for example, Egypt and Libya) will have the potential for developing or acquiring a nuclear capability, part of which could be targeted against Western Europe. Other states in the Middle East-Persian Gulf area are likely to have an atomic force capable of reaching targets in the Soviet Union, notably Israel and Iran.

Whatever the outcome of racial conflicts erupting in South Africa, the region will probably maintain a technological infrastructure capable of developing and manufacturing nuclear weapons. If it survives the formidable challenges it faces, the present South African government will have great incentive to acquire a nuclear weapons capability, perhaps as part of its strategy to ensure survival. A successor black-dominated government, if it were to come to power after a protracted racial conflict, might have within its grasp the capacity for a nuclear force and thus the means to remain for some time to come the strongest military power in sub-Saharan Africa, although economically Nigeria by the 1980s can be expected to register major gains. This latter assumption is dependent on Nigeria's ability to prevent internal fragmentation and to attract needed levels of overseas investment.

In South America, Brazil has embarked on programs to acquire technology for the development of a nuclear weapons capability. The achievement of nuclear status appears to accord with Brazil's aspirations to become the dominant power in Latin America and perhaps eventually assume a major role outside of Latin America. Depending on its success in resolving formidable domestic political and economic problems, Argentina

would possess the technological infrastructure needed for atomic weapons development and production in the next generation.

In Asia, Japan may be deterred from the development of nuclear weapons by the continuation of Sino-Soviet rivalry and by security guarantees extended by the United States. In all likelihood, Japan will have increased, as a percentage of gross national product, its defense spending. Japan's defense interests will encompass the sea lanes through which Japanese commerce must pass as well as control of airspace over and near Japan. Japan will retain a technological infrastructure to permit a future Japanese government to take the decision to "go nuclear." Major changes in Sino-Soviet relations—either the defeat of China by the Soviet Union in a war or a rapprochement between Moscow and Peking—would have unsettling effects on Japanese foreign policy, including the issue of nuclear weapons. Especially if it came at a time when U.S.–Japanese relations were strained, war or rapprochement between Moscow and Peking could produce either a marked growth of neutralism in Japan or impetus toward a major defense build-up. The former is more likely than the latter, if only because of the lead times that would be needed to produce a *credible* Japanese nuclear force.

Similarly, a sharp increase in the Japanese perception of isolation from the United States and of growing threats to economic well-being could lead to rapid shifts in Japan's foreign policy. At the very least, Japan in the next generation can be expected to evince in its foreign policy a greater tendency toward independence from the United States.

Within the next decade, both South Korea and Taiwan will have a greater incentive to develop nuclear weapons and increasingly the necessary technological infrastructure to do so. Especially in South Korea, a nuclear capability, designed for deterrence against attack by North Korea, will become feasible.

Whatever other incentives may exist for the acquisition of an atomic capability by Taiwan, they will include a desire to preserve independence at a time when the capacity or willingness of the United States to provide a defense guarantee for Taiwan will have diminished. The interest in Seoul in the acquisition of an atomic capability will stem, in all likelihood, from similar considerations, notably the withdrawal of U.S. ground forces from the Republic of Korea. Conceivably, a decision by South Korea to develop atomic weapons would give rise to an intensified debate within Japan on the nuclear issue.

regional balances and conflict potential

The effects of the possession of nuclear capabilities on regional power balances and stability are difficult to predict. It is conceivable that hostile pairs of states both of which possess nuclear capabilities will be deterred from taking military action against each other. It is possible, as previously noted, that superpowers will face additional constraints in intervening *directly* in regional conflicts if their territory becomes vulnerable to nuclear attack from a regional atomic power. While regional possessors of nuclear weapons may find that the risks of nuclear devastation exceed the potential gains (in accordance with deterrence theory in bipolar nuclear relationships), the prospects for regional instability may be heightened by other factors, including power imbalances between possessors of nuclear weapons and states that have not acquired them.

In such a multinuclear world, the United States will confront many difficult security problems. The protection of assets of importance to the United States—the territory of allies, vital sea lanes (especially from the Persian Gulf to the North Atlantic and East Asia), and resources that are onshore and offshore—will become more difficult. The difficulty will result not only from the proliferation of

nuclear weapons but also from the acquisition by regional superpowers of a broad range of military capabilities. For this reason, technology transfer and the acquisition of indigenous technological infrastructures, weapons development, and production facilities will be salient characteristics of the emerging international system.

The diffusion of military power characteristic of the global system of the last quarter of this century will have potentially important implications for the conduct of warfare. Here, it is possible to suggest, only in broad terms, some of the likely implications. New technologies will blur the distinction between nuclear and conventional conflict. As nonnuclear weapons become more lethal and accurate and nuclear weapons with extremely low yields, i.e., below 0.1 kiloton, become available, the threshold between the use of nuclear and nonnuclear weapons will be less distinctive.⁶ Such weapons for use in each of the military environments—land, sea, and air—will be more readily available to a wide variety of actors—state and nonstate, larger and smaller. Many of the types of weapons that will be widely available will be easily operable by relatively unskilled persons. Conflict environments, in the air, on the battlefield, and on the oceans will be increasingly inhospitable to manned weapon systems, therefore placing a premium on the conduct of warfare by weapons directed at remote range.

The conflict environment of the future, it has been suggested, will contain a variety of new technologies and actors. In recent years there has been considerable discussion in the literature of international relations about the growing importance of nonstate actors, of which there are many types, from multinational enterprises spanning national economies to organizations employing terror and blackmail to achieve their objectives. The increase in world trade, the continued growth of the economies of many states (if not neces-

sarily all) and the development of a more interdependent global economic system, together with the diffusion of power in a world fraught with conflict potential, provide the setting for a wide variety of nonstate actors. The extent to which such actors, especially those bent on the use of violence to effect revolutionary change, will use sophisticated weapons to achieve their goals cannot be determined with great accuracy. The emergence of such actors, with greater military capabilities, holds the potential for security problems for all states, but especially for highly industrialized societies. Traditional defense concepts may be largely inapplicable to the problems posed by such actors. They may seek redress for grievances against the Soviet Union or against the United States. The Soviet Union as well as the United States may be vulnerable to actors possessing such capabilities. Nonstate actors, not having fixed assets in the form of internationally recognized frontiers and territory, will be less affected by deterrence rationales than state actors have been. If targets of great value to nonstate actors cannot be identified and threatened with unacceptable levels of damage, traditional theories of deterrence cannot be applied. The potential exists, therefore, for conflict and for nuclear blackmail between nonstate actors and regional powers, between nonstate actors and superpowers.

“global issues” of the future

Much has been written in recent years about the issues that supposedly will dominate the foreign policy agenda of the United States and other nations in the next quarter century. It has been suggested that North-South issues will hold greater importance than East-West relationships in the global context. Such argumentation is not new. It has formed a basis for criticism of alleged shortcomings of U.S. foreign policy for at least a generation. But it has become more salient in

recent years as a result of a series of newer (and older) issue areas that include much of the so-called Third World—resources, population, food, trade and investment, and growing dissatisfaction among have-nots, especially in Asia, Africa, and Latin America, with the uneven distribution of wealth among nations.

Dangers in the global system of the next generation will result in large part from issues such as these. For example, there is great potential for conflict arising from demand for scarce resources. We have already witnessed clashes over fishing rights among NATO members and the difficulty of delineating zones for fishing even among members of the European community. It is not difficult to foresee the development of technologies that will make more profitable the extraction of a variety of resources in addition to oil from the seabed. Control of the seas will be of increasing importance to nations or other groups in search of new resources. At the same time, the exploitation of on-shore resources will provide new potential for conflict. Much of the mineral wealth of the world lies within the territory of the major powers. Much, but not all, of the competition for resources *outside* the major powers is likely to focus on the so-called Third World, although there is potential for conflict involving one or more major powers over North Sea–Barents Sea oil, over oil in the East China Sea and the South China Sea, and over fisheries in several parts of the world, to mention only the most obvious. Because oil destined for Japan, Western Europe, and the United States must travel several thousand miles over oceans and through narrow chokepoints, the potential for a variety of forms of disruption is enormous, whether from the Soviet Union itself, from smaller surrogates with in-shore navies, or from other powers not aligned with the Soviet Union yet bent on disruptive action against either suppliers or consumers.

subnational conflict

Furthermore, it may be hypothesized, the international system of the last quarter of this century will contain a large number of states faced with many varieties of revolutionary forces. In some instances they will be based on new, and old, ethnic-linguistic nationalisms seeking independence from, or control of, an existing state. They will include groups whose goal is the destruction of other groups within an existing state. The age of nationalism, far from having run its course, may yet produce new nationalisms that will pose threats to the viability and survival of many states. While the potential for such movements is greatest in the Third World, if only because of the larger number of states and greater endemic political instability, they exist even in certain of the oldest of nation-states in the industrialized West.

Such actors will have available to them weapons of unprecedented destructive potential. One or more contending groups may possess nuclear weapons, either by virtue of control of the apparatus of state authority or by having captured nuclear stockpiles, or even by having had nuclear weapons made available by an outside power (not necessarily the United States or the Soviet Union). With the proliferation of nuclear weapons in a world of growing tendencies toward fragmentation within states, the potential for civil conflict between parties, at least one of which has nuclear weapons, will increase. In subnational wars of the future, decisive engagements are likely to be fought with weapons of unprecedented lethality. It will be less possible to confine civil conflict within state boundaries. The potential for spill-over into neighboring states, and to nonadjacent powers, may be enhanced by at least two factors: the extent to which outside powers, including superpowers, intervene, directly or indirectly; and the increased range and lethality of weapons available to protagonists

in a civil conflict. Whether this factor will serve to deter or restrain would-be superpower intervention is uncertain. It may be hypothesized that the growth in superpower vulnerability to devastation, even on a limited scale, by nuclear or other forces controlled by smaller states, will introduce into superpower behavior greater restraint in support for one or another of the contending groups in an internal, or a regional, conflict. But it may also be hypothesized that the superpowers will be pressed toward *indirect* forms of intervention in support of one side or the other, or both, in the regional and subnational conflicts of the next generation. The Soviet support for Cuban forces in Angola and elsewhere in southern Africa may provide a harbinger of future Soviet utilization of strategies and tactics based on "proxies." In return for various forms of Soviet assistance and support, other states in addition to Castro's Cuba may seek to play a greater role in fomenting and exploiting the revolutionary forces in the world of the late twentieth century, and some at least may be available for Moscow's use by virtue of the existence of parallel interests or as a result of extensive superpower-client state leverage between the Soviet Union and smaller powers.

Even in the generation after World War II, it was not possible to view East-West issues in isolation from those associated with the Third World. Many of the confrontations between the United States and the Soviet Union, or involving forces backed by one or the other superpower, related directly to the Third World: the Korean conflict, the Cuban missile crisis, the successive Middle East wars, the Vietnam war, and the Angolan civil war. The pattern of Soviet behavior has been consistent at least in one respect: the Soviet Union has shown great propensity to seek to exploit, to the disadvantage of the United States and the West, the conflicts that have been endemic to the Third World. This pat-

tern is being repeated today in the Middle East and in southern Africa. We may infer, therefore, that the East-West issues of the future will be, in large part, North-South, or Third World, in nature.

The emergence of a series of new issues does not necessarily preclude the possibility that issues from an earlier period will remain with us. In fact, the dangers posed in the emerging global system for the United States in its relations with the Soviet Union result in large measure from the need to cope effectively with issues that are the legacy of the past, while responding to a series of new challenges. Because the interests of the Soviet Union continue to diverge from those of the United States on many of the problems of the past generation, it is likely that Soviet-American relations on the old and the new issues of the last quarter of this century will be characterized more by competition and conflict than by détente and cooperation. In fact the potential for discord between the Soviet Union and the West may grow as a result of the increasing salience of the so-called global issues.

While Soviet-American collaboration on as many issues as possible represents a desirable objective, the pattern of past Soviet behavior does not furnish great latitude for optimism about the future. If the Soviet leadership has always been the "scavenger of revolution," why should it necessarily see its interests in the remaining years of this century as more in harmony than in conflict with those of the United States and our principal allies? It is far more likely that the Soviet Union, especially in a period when Soviet military power may be at its zenith or at least unprecedented in its relative position to the United States, will seek to benefit from the existence of issues offering potential for conflict at many levels—intranational and regional, between rich nations and poor states, producer and consumer states—with possible effects highly adverse to the economic prospects for the

industrialized, non-Communist world. This has, in fact, been the pattern of Soviet behavior even when the Soviet Union was far less strong than it is in the 1970s.

implications for U.S. security

Several important implications of major power relationships can be adduced from this analysis of the emerging international system of the last quarter of this century. At the abstract level of theory, the deterrence concepts that have been central to U.S. force planning at the strategic level, and applied within a bipolar Soviet-American strategic relationship, will be inadequate, or at least in need of re-examination in a multinuclear world. The diffusion of weapons to other power centers, together with the unprecedented lethality of such capabilities, will decrease the ability to deter conflict, while at the same time enhancing the need for deterrence in light of the calculus of risk versus gain. However, problems of ensuring the adequacy of forces against pre-emption, of determining suitable levels of forces, and even of identifying sources of an attack or targets of value will be rendered more difficult in a multinuclear world. Problems of threshold between conventional and nuclear conflict and between intervention by regional actors in regional conflicts and by superpowers in such conflicts will become more complex. In turn, problems of determining the adequacy of strategic forces against more than one, and possibly many, potential threats will increase for the United States but also for the Soviet Union. With the inaccessibility of nonstate nuclear actors as targets for the strategic forces of nuclear states, there will be greater need for technologies for defense against limited nuclear attack as well as the accidental launch of nuclear weapons, not only by the Soviet Union but also by smaller nuclear powers with less sophisticated command and control systems.

The problems of protecting allies of the United States will be heightened, as noted earlier, both by the diffusion of military power and by the emergence of the Soviet Union as a global military power. Both trends will diminish, but not necessarily eliminate, the efficacy of security guarantees provided by the United States in its alliance systems. The continued presence of U.S. forces stationed in vitally important regions and countries such as Western Europe and South Korea will help to retard the diffusion of military power, especially at the nuclear level, as well as the prospects for "finlandization," especially of Western Europe, by the Soviet Union.

The diffusion of military power, together with the increasing availability of highly accurate and lethal weapons, will have implications of potentially far-reaching magnitude for superpower-client state defense relationships and the protection of superpower interests in the various regions. The problems likely to confront superpowers in direct intervention in regional conflicts have been noted. They result from the greater indigenous capabilities of regional actors in the world of the future and from the possibility that regional powers may have the capacity to inflict destruction at unacceptable levels on the superpowers themselves. Therefore, a premium may be placed on the capacity of superpowers either to preposition military materiel on the territory of allies and clients or to resupply such states rapidly in a conflict environment characterized by the use of advanced weapons. Western Europe and the Middle East are illustrative of such conflict environments.

Elsewhere, especially in a large number of Third World environments, the problems facing superpowers, and especially the United States, in assisting allies and client states will be enormous indeed. In light of Vietnam, such problems need not be belabored here. To the extent that the United States

will need a capability to assist allies in such contingencies, including indirect support for one side in a subnational conflict, a premium will be placed not only on a capacity for the rapid movement of large quantities of materiel but also on the availability of weapons of great accuracy that began to be deployed in the final stages of U.S. military involvement in Vietnam.

The implications of new generation weapon systems widely diffused as well as the emergence of new conflict issues are potentially enormous for the structuring and for the roles and missions of U.S. forces. Several examples are illustrative: the development by regional superpowers and by the global superpowers of naval forces equipped with highly accurate weapons, together with the availability of such weapons for launch against ships from land or air, will increase the vulnerability of large surface navies to attack and destruction. Also, the development of highly accurate antiship cruise missiles with an over-the-horizon attack capability will create problems for surface navies and for the protection of other maritime forces (for example, convoys) in wartime. Especially at chokepoints, navies and merchant vessels will become increasingly vulnerable to attack from land or air. In seas such as the Mediterranean, naval forces will face growing problems from highly accurate weapons launched either from submarines or from land or air.

The use of tactical air power will face increasing constraints in battlefield environments, especially in Western Europe and possibly the Middle East, as a result of the technologies inherent in electronic warfare. It will probably be both feasible and desirable to make more extensive use of remotely controlled capabilities and other highly accurate weapons such as cruise missiles, especially against fixed targets such as airfields, supply depots, and other military installations and against other targets such as tanks,

at an early stage in a future conflict.

Because of the increasing importance of the oceans, both as a source of energy and vital raw materials, and for the transit of rising levels of trade in an interdependent world, the need for capabilities for sea control missions will increase. To these considerations must be added the rise of Soviet naval capabilities, which will enable the Soviet Union to pose a variety of threats to U.S. interests in the years ahead. The emerging technologies noted earlier will alter the roles performed traditionally by the services. For example, sea control and surveillance missions may be undertaken to a greater extent than ever before by long-range aircraft equipped with highly accurate air-to-surface weapons. Submarines or highly mobile, small surface craft may be able to pose major threats to land-based battlefield targets by virtue of highly accurate weapons with nuclear or conventional warheads with ranges of at least several hundreds of miles. Targets on the oceans may be struck most effectively, especially in narrow seas, by weapons deployed on land.

IN SUM, the United States faces, in the emerging international system, a far more complex constellation of forces and actors than in any previous era. We can assume that new actors and older ones such as the Soviet Union will seek to maximize the potential inherent in new weapons technologies and conflict issues for political gain, even though a major goal of U.S. diplomacy has been to search for areas of parallel interest between the United States and the Soviet Union in order to minimize conflict and build a more stable and peaceful world.

The paradox of the emerging system is that the need for more effective structures and mechanisms to reduce the likelihood of conflict will be greater than in any previous era. But at the same time the potential for exploi-

tation of a variety of conflicts for unilateral advantage will be greater than ever. The broad interest of the United States lies, of course, in helping to shape a global system in which the prospects for conflict will be diminished. For this purpose American military power will remain an indispensable ingredient. Whether the Soviet propensity to exploit regional and subnational conflict to achieve unilateral advantage, even under the best of circumstances, can be diminished

is uncertain. Whatever the prospects for reducing such Soviet proclivities, they will be vitally dependent on the continued ability of the United States to maintain at least overall military parity with the Soviet Union together with the political will and the conceptual vision that will be needed to help mold regional power balances and protect vital American interests in a world of greater power diffusion, interdependence, uncertainty, and revolutionary change.

Institute for Foreign Policy Analysis

Notes

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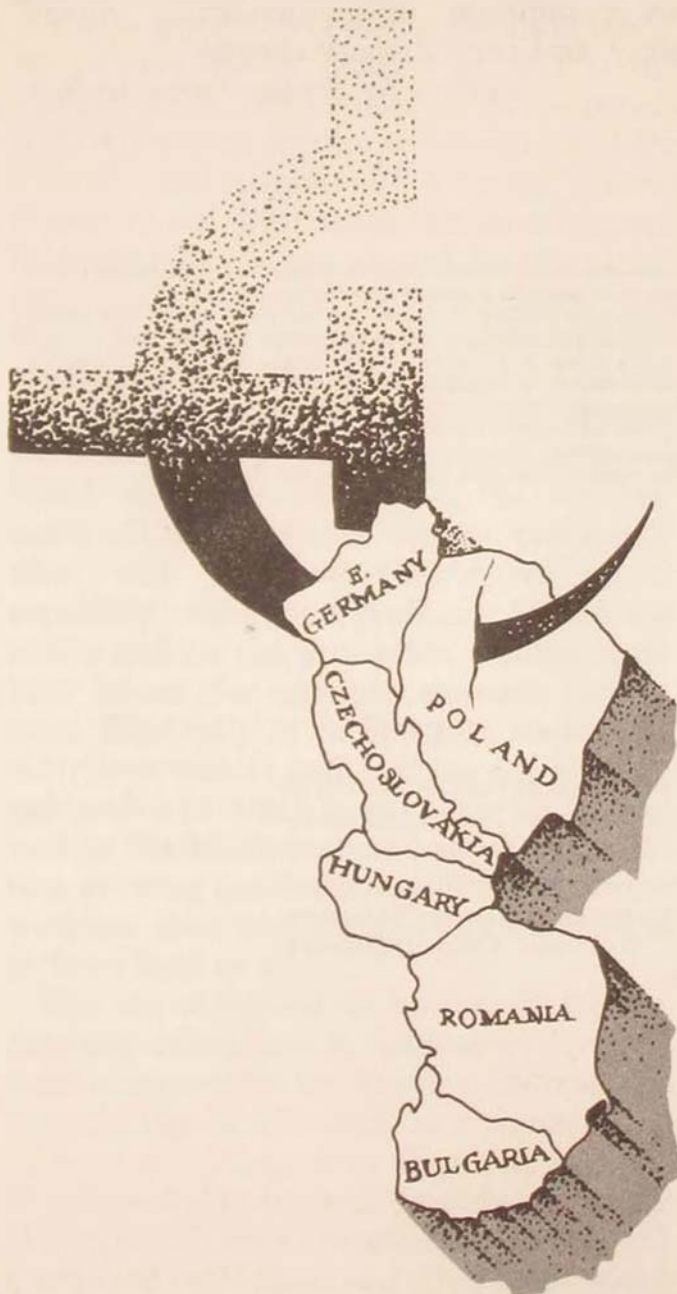
Editor's Note

An earlier version of this article was presented at the October 1976 meeting of the Inter-University Seminar on Armed Forces and Society, cosponsored by Air University and hosted by Air Command and Staff College, Maxwell AFB, Alabama. This article will appear in a forthcoming book, *The Changing American Military Profession*, edited by Franklin D. Margiotta, Westview Press (Frederick Praeger, President), Boulder, Colorado.

THE INTEGRITY OF THE WARSAW PACT

One should know one's enemies, their alliances, their resources and nature of their country, in order to plan a campaign.

FREDERICK THE GREAT,
Instructions for His Generals, 1747



ON 1 August 1975, at the conclusion of the European Conference on Security and Cooperation (CSCE), the 15 participating nations signed a declaration which, in essence, was a formal acceptance of the status quo in Europe and the existence of a climate of détente between NATO and the Warsaw Pact. However, should détente really breakdown and armed conflict between the two organisations occur, how could the Non-Soviet Warsaw Pact (NSWP) members be expected to react? Would they support their Soviet ally, or would they take the opportunity to gain their independence? These are questions that need to be addressed now since they inevitably affect the force structures of the NATO nations.

The purpose of this article is to examine both the unifying and divisive factors affecting the NSWP members and try to assess their most likely reactions to the outbreak of conventional hostilities between the two alliances. It will also consider the economic, social, and political situation of the Pact as an entity to establish a general assessment of its cohesiveness. Individual countries will also be examined with emphasis on those factors or attitudes that differ from those of the NSWP area as a whole to try to assess their individual reliability. Obviously, it is impossible to conduct a public opinion poll of the Eastern European population in order to elicit their true feelings towards the Pact; therefore, consideration will be limited to

WING COMMANDER PETER M. PAPWORTH, RAF

relatively recent historical demonstrations of attitudes and to the experience and opinions of reasonably well informed contemporary writers.

One major assumption made in setting the scene for this examination is that there will remain a reasonable military balance between NATO and the Warsaw Pact, or rather between NATO and the U.S.S.R. If the Soviets had significant superiority to the extent that there was no doubt they would succeed in extending their control further into Europe, then all the NSWP states could be expected to display the utmost loyalty; to do otherwise would be sheer folly with obvious consequences at the end of the conflict.

The Warsaw Pact as an Entity

The Warsaw Treaty of Friendship, Cooperation, and Mutual Aid (Warsaw Pact) was signed in Warsaw on 14 May 1955, within a week of the admittance of the Federal Republic of Germany (FRG) to NATO, to which it was an obvious response. The Warsaw Pact's twentieth anniversary was celebrated very quietly in 1975, possibly by Soviet decree in accordance with her desire for *détente*. The original signatories of the treaty were the Soviet Union, Albania, Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Poland, Hungary, and Romania. Albania formally withdrew from the Pact in 1968 although she had been a virtual nonparticipant since 1962. It is interesting to note that Soviet troops have been employed in maintaining good "communist order and discipline" in three of the remaining member states since World War II, namely, the GDR, Hungary, and Czechoslovakia, and nearly in Poland, where the Soviets were apparently deterred by their perception that the Polish military would resist a Soviet invasion.¹ More details on the employment of Soviet troops in these countries will be given in the individual country

sections. The Warsaw Pact, although a military organisation, has proved to be a convenient vehicle for the portrayal of a common Soviet bloc foreign policy towards the West.

The Pact also provides the Soviets with a justification for stationing troops in Eastern Europe, although within the Pact itself this location of troops is brought about by bilateral agreements²—perhaps *arrangements* would be a better term since it is unlikely that the Czechs willingly *agreed* to accommodate Soviet troops following the invasion of 1968! Although members participate in fairly regular "showpiece" exercises, the only major military action undertaken by the entire Pact was the 1968 invasion of Czechoslovakia, a member state, but Romania did not participate.³ Paradoxically, the Brezhnev Doctrine, by which the Soviets have assumed the right to take military action to preserve Communist rule in East European countries and which resulted from the Czech affair, makes no reference to the Warsaw Pact.

Factors Linking NSWP Members

Obviously the greatest factor linking the NSWP members is the defence alliance, the Pact itself, and all the senior command appointments within the Pact are held by Soviet officers. Nevertheless, following the invasion of Czechoslovakia in 1968, the Soviet Warsaw Pact Commander-in-Chief, Marshal Yakabovsky, created two multinational committees to advise him; the junior of the two committees comprises two or three star officers of each of the Pact member states. Whether this was done genuinely to obtain multinational advice or to placate the national armed forces, who may have expressed dissatisfaction with Soviet monopoly of senior appointments, makes little difference. Whatever the reason, moves of this nature can only assist in improving the Pact's cohesiveness.

military factors

A Soviet military mission headed by a two or three star officer is maintained in each of the NSWP countries, but they have no equivalent mission in Moscow.⁴ Some genuine wartime friendships between NSWP officers and the Soviets exist from the time that they fought together against the Germans; this, plus the multinational representation and the careful watch maintained by the Soviet military missions, or perhaps in spite of them, has engendered surprising loyalty to the Soviets by the military elite of the NSWP countries. However, the term "military elite" requires some qualification; it refers primarily to the GDR and Poland since NSWP armed forces are still arranged on more or less traditional lines and, except for the GDR and Poland, their prewar armed forces were a form of gendarmerie.

At present Polish officers are trained alongside their Soviet counterparts, and the National Peoples Army (NPA) of the GDR is subordinated to the Group of Soviet Forces Germany (GSFG). Although the loyalty of the armed forces in the lower echelons could be questioned, they would certainly appreciate that their potential for independent action is severely limited by their complete dependence on the Soviets for resupply and spares for their equipment that is almost exclusively of Soviet origin. Overall, the military of the NSWP countries must be considered more unifying than divisive and unlikely to take any real initiatives. Furthermore, perhaps because of their declining influence in politics—and the military representation on the party central committees has declined in recent years—they will become more institutionalised and more likely to support national government policies.⁵

politico-ideological factors

Within the Warsaw Pact obviously the greatest politico-ideological unifying factor is the

Communist ideology. All member states are one-party, Communist ruled, although they operate under various names. (Where the term "socialist" is used later in this article, it should be regarded as being synonymous with "communist.") These parties came to power either by direct transfer from the occupying Soviet military governments or by take-overs by indigenous Communists with Soviet support. Thus, despite recent increased confidence of the national Communist parties and their apparent desire to assert themselves, the political leadership of the Warsaw Pact is linked by Marxist / Leninist ideology and their opposition to the capitalist West. Any attempted dilution of the single party Communist leadership in any NSWP state has swiftly and brutally been suppressed by the Soviets, as in Hungary in 1956 and in Czechoslovakia in 1968. Some leadership changes have been accepted by the Soviets but only to the extent that loyal Communists more acceptable to their own people have been allowed to move into office.

While the Communist parties remain firmly in control, they will tend to be supportive of each other and act as a unifying force. Furthermore, the Soviet and NSWP leaders are aware of this and, in recognising the ideological dangers inherent in a policy of détente, mutual ideological control and propaganda is being stepped-up. For example, in the build-up to the détente era in "1973, ten bi-lateral cooperation agreements on ideology and propaganda were signed between the various Eastern European States."⁶ One other factor, which could be termed politico-ideological, has been and indeed remains the Western reaction to political initiatives and Soviet repressive actions in Eastern Europe.

Although there may have been some diplomatic reaction by the West following Soviet actions in Hungary and Czechoslovakia, these actions were not obvious enough to be

recognised by the people of those countries. Such apparent inactivity by the West is unlikely to instill in the NSWP countries a great degree of confidence that they would receive Western support for any initiatives that they might take to detach themselves from their Soviet overlords in the future. The recent Helsinki talks have done little to change this situation and encourage Eastern Europe to look to the West for support. It would certainly appear to the general public, both eastern and western, that United States policy, and the policy of the West in general, is currently aimed at stability in Eastern Europe rather than risk destroying United States/Soviet détente.⁷

economic factors

Following World War II, the United States, through the Marshall Plan, made available aid to assist the economic recovery of Western Europe. The East Europeans, or rather the Soviets on their behalf, declined such assistance and established instead the Council for Mutual Economic Aid (COMECON). Although COMECON includes countries like Cuba and Yugoslavia, the latter with associate status, the members of the Warsaw Pact comprise the hardcore. It is not too difficult to assess overall whether or not COMECON has added to the cohesiveness of the Warsaw Pact; multinational trade between the member states is considerable although the bilateral trade between the NSWP states and the U.S.S.R. predominates. In the early years of COMECON, attempts were made to organise on a national specialisation basis. It was specified, however, that individual nations should not become solely suppliers of food and raw materials to the others; presumably this was the result of the desire of all nations to achieve "industrialised" status. Even as late as 1970, there still existed a thread of "national specialisation" in centralised COMECON planning,⁸ and slow economic

progress has resulted since this tends to stifle increased efficiency resulting from free competition.

Basically, however, the economic structure of Eastern Europe has been geared to the Soviet economy, and to some extent this has proved to be of benefit to those countries that have cooperated most, at least by comparison with Romania, which has attempted to create an autarchic economy. However, the essence of COMECON has been to create a dependency upon the U.S.S.R. for the supply of raw materials. Despite the fact that many consumer goods are sold to the Soviets to pay for the raw materials at the expense of their own national demands, during a period of resource scarcity, this may still prove attractive to the NSWP countries. It is difficult to discover how dearly the NSWP countries have to pay for their raw materials, but it would appear that they pay less to the Soviets, in monetary terms, than world market prices for both energy supplies, including oil, and raw materials.⁹ This is indeed a concession by the Soviets who would, no doubt, prefer the hard currency obtainable by selling their raw materials to the West.

The current mood of COMECON, a mood that seems to have developed coincident with détente, is one of integration of economies rather than economic cooperation.¹⁰ Certainly, if its own forecast is to be believed, that, "they are the only group of countries in the world that can be self-sufficient in energy and raw materials,"¹¹ COMECON must be considered a significant factor in holding the Warsaw Pact together. Furthermore, despite the fact that the need to trade with the West increases as the need to meet consumer demands also increases, there are no obvious signs that this trade will reduce the mutual trade between COMECON members. Even Romania, the most independent and, in the past, the COMECON member most eager to trade with the West, must see real benefits from its COMECON membership since its

current five-year plan envisages a cutback in trade with the West in favor of trade with its fellow COMECON members. Certainly there are divisive influences within COMECON, which will be covered later, but the current atmosphere appears to be one of stability.

social factors

It is difficult to separate purely social or cultural factors that genuinely contribute to the cohesiveness of Eastern Europe as an entity from those of a political, ideological, or economic nature. Geographically, the member states of the Warsaw Pact are contiguous. They have similar social systems in the main, they are Christian to a degree, and there are also some language similarities, but the latter are not sufficient to produce any genuine area identity. Maybe the Slavonic origin of some of the states could be exploited in the interests of unity, but, if current trends continue, even Soviets of Slavic origin will soon be numerically inferior to the Asiatic Soviets.

Perhaps the only recognisable social unifying factor is one brought about by the Pact itself: the greater freedom of travel permitted between member states in comparison with the restricted travel to the West and the Third World. The social intercourse brought about by such travel must to some extent bring about an atmosphere of mutual identity, although it is unlikely that it would be very significant in the face of any real conflict of individual national interests.

Divisive Factors within the Warsaw Pact

From a Western viewpoint it would be comforting to think that there were real divisive influences created by the armed forces of the NSWP countries. However, these forces are for the most part defensively organised and equipped¹² and are sufficiently

institutionalised that they will most likely act as their political leaders, the national Communist parties, decree. Thus, any divisive actions taken by the military are likely to have been originated politically. However, as was pointed out earlier, Soviet troops have been used in the GDR, Hungary, and Czechoslovakia in "police" actions and are still there. Despite their professed defensive role against a Western threat, the earlier suppressive actions of Soviet forces are unlikely to endear them to a large portion of the population of these countries. The situation is somewhat similar in Poland, which also has Soviet troops stationed on its territory; many Poles regard the Soviets as their traditional enemies, particularly those Poles who remember events at the beginning of World War II.

politico-ideological factors

Communist ideology and the Communist Party have been described as a factor that tends to unify the Warsaw Pact. However, it is worth pointing out that party members comprise only about ten percent of the population of the NSWP states—limited deliberately in some cases to those whose loyalty is above reproach—and it is an aging membership. There also appears to be no great enthusiasm by many of the young to seek membership; for example, in 1968 in Hungary only 1.1 percent of the students in Budapest were party members, and in 1971 40 percent of the Czechoslovakian Communist Party working class members were pensioners.¹³ The youth of Eastern Europe are not as vigorously revolutionary as some of the preceding generation, nor has ideological propaganda and indoctrination been an unqualified success. What is more, the youth see the inequity of a system that allows party members to obtain preferential treatment in education and employment, and it could cause friction between party and nonparty members of the population.¹⁴

Throughout Eastern Europe in recent years there has been a noticeable increase in nationalism.¹⁵ To a large extent, it is reflected in the differing approaches to government in the NSWP countries: the strong independent line of Romania; the "Hungarian" way; and there was the German way, prior to Honecker (in the GDR there was the general national strengthening of the country by Ulbricht).

Some of these different approaches were reflected in the speeches and contacts with the West made by the NSWP leaders at Helsinki during the CSCE.¹⁶ There were significant differences displayed by the NSWP leaders on the question of sovereignty. While Romania emphasised independence, Polish leadership commented that lasting peace in the past had not come about because it "had been based upon fragile foundations of spheres of influence and upon domination of some countries over others."¹⁷ These departures from the absolute Soviet line over CSCE tend to support the apparent increasing confidence of the East European national communist parties who may see CSCE not as recognising the status quo but as a means of obtaining a greater degree of independence. After all, it must be recognised that the CSCE initiatives probably came more from the NSWP countries than from the U.S.S.R. and almost certainly for different motives.¹⁸ This may account for the problems being experienced in trying to conduct a summit meeting of European Communist leaders! As reported in the *Times* (London) of 21 November 1975, the editorial commission working on the conference was encountering difficulty in reaching a compromise in document language between the Soviets and some national Communist parties. The Soviets are supported by the orthodox Communist parties such as exist in the GDR, but Yugoslavia and Romania, among others, are seeking to reduce Soviet influence in their affairs.

The Soviet policy of détente with the West, whatever the motives, increases the possibility of weakening Soviet influence in Eastern Europe, assuming that the promised relaxations in the restrictions on East-West contacts materialise. The ideological freedom in the West can only compare favourably with that in Eastern Europe, other than to the truly dedicated Communist. However, the differences tolerated by the Soviets since the Czechoslovakian affair, including those at Helsinki, and provided the NSWP members do not stray too far from the Soviet model, could be a deliberate Soviet policy to make the national Communist parties more acceptable to their own people when comparisons are made with the West. If this is the case, then presumably the Soviets and the national Communist leaders of Eastern Europe recognise the potential for domestic instability and are trying to head it off. Nevertheless, while the perceived threat from the West tended to act as a unifying factor, during the era of détente the NSWP leadership may wish to "spread their wings" a little now that the threat is apparently reduced; if the Soviets were to initiate a departure from détente at any time in the future, then there might be resentment displayed at any loss of new-found independence.

Ideologically, the other most significant divisive factor is, of course, the tension and diplomatic conflict that exist between the U.S.S.R. and the People's Republic of China (PRC). While the Soviets would resist most strongly a change of loyalty of any of its East European allies from Moscow to Peking, the protection of a strong champion, sufficiently far removed geographically so as not to dominate them physically, might well tempt some of the NSWP countries to consider loosening ties with Moscow should the Soviets' attention and efforts be diverted elsewhere. After all, Albania broke with Moscow in favour of Peking, but she had no common border with the U.S.S.R.!

economic factors

Given that the economies of the NSWP states are now well on the way to integration with the U.S.S.R. and with each other through COMECON, and that recognisable progress continues to be made in satisfying consumer demands, there appear to be few really divisive economic issues. Certainly there are some differences within COMECON, such as internal trade balances and no truly convertible currency, but these problems are not significantly different from those faced by other regional economic organisations. However, throughout the NSWP area, as with the U.S.S.R., there is progressively increasing trade with the West, and exposure to the variety and quality of Western consumer goods might produce dissatisfaction with the less efficient, centrally planned economy and industry that prevail in Eastern Europe. While the Communist governments may not wish to expose their people to such comparisons, it may be the price they will have to pay for the technological expertise they need from the West. Furthermore, those NSWP countries with particular industrial specialisations—for example, the GDR which has a relatively advanced computer industry¹⁹—might well lose markets within COMECON to even more technologically advanced Western nations. This could be a source of considerable friction among the NSWP countries.

One other significant divisive economic factor is very much dependent on the Western approach to trading with Eastern Europe. The extending of credit to make available the hard currency required by East European countries in their trade with the West opens up an avenue for a degree of political influence. The blatant attempt to extend political pressure failed with the Soviets over the Jewish emigration question. However, with increasing trade with the West by the NSWP countries, who are following the Soviet East-West trade initiatives, they may well be more susceptible to subtle

political influence of a limited kind. If such influence cannot be exerted at present, it is surely possible in the future if these countries do, in fact, become increasingly dependent on Western trade to satisfy consumer demands.

social factors

Again it is difficult to separate social factors from those that could be described as ideological or economic. The privileges enjoyed by the Communist party members in education and employment must be socially divisive as must the restriction of intellectual freedom. Also, the resurgence of nationalism that has taken place in Eastern Europe must, inevitably, present a potential risk of conflict with the Sovietisation that has taken place, particularly during the Stalin era.

The casual observer in the West might be forgiven for assuming that the much publicised propaganda and indoctrination by the Soviets and national Communist parties must, by now, have eliminated traditional views held before Communist rule. However, this may not be the case, and at least one observer has noted that pre-Communist attitudes still prevail in some areas through parental influences.²⁰ While those with memories of pre-Communist days are now much reduced in numbers, those who experienced Soviet activities in Hungary and Czechoslovakia will be able, for many years yet, to pass on to their children the hatred that the Soviet activities will have engendered.

Warsaw Pact General Assessment

Within the scenario of no significant conventional military imbalance, upon which this examination is based, it is difficult to assess whether the cohesive or divisive factors so far discussed would predominate. One re-

cent analysis of the Warsaw Pact,²¹ based upon the variation of national defence expenditures as an indicator of an individual nation's confidence in the defence alliance, suggested that there was little evidence to indicate a change in the solidarity or integrity of the Pact, despite the events in Czechoslovakia in 1968. However, in the NSWP countries the national resources devoted to the armed forces is entirely at the discretion of the Communist governments, which have no need to submit defence policy decisions to mass public opinion. Thus, the analysis referred to is valid only for the national Communist parties and not necessarily the majority of the NSWP population.

LOOKED AT overall it would be more likely that the ideological, military, economic, and

social factors discussed would, on balance, tend to act towards cohesiveness between the governing Communist parties during normal times, when they could call upon Soviet support or support from other governments of the Pact. However, while Soviet forces were diverted from their policing role so would the national Communist parties be preoccupied with their own problems. At that time those Communist parties that were sufficiently nationalistic might wish to declare their independence of the Soviets and the Pact, and in those countries where the Communist leadership ruled only on the basis of external support, they might be overthrown by their own people. For an assessment of these possibilities one must look in greater detail at each of the countries involved.

Air War College

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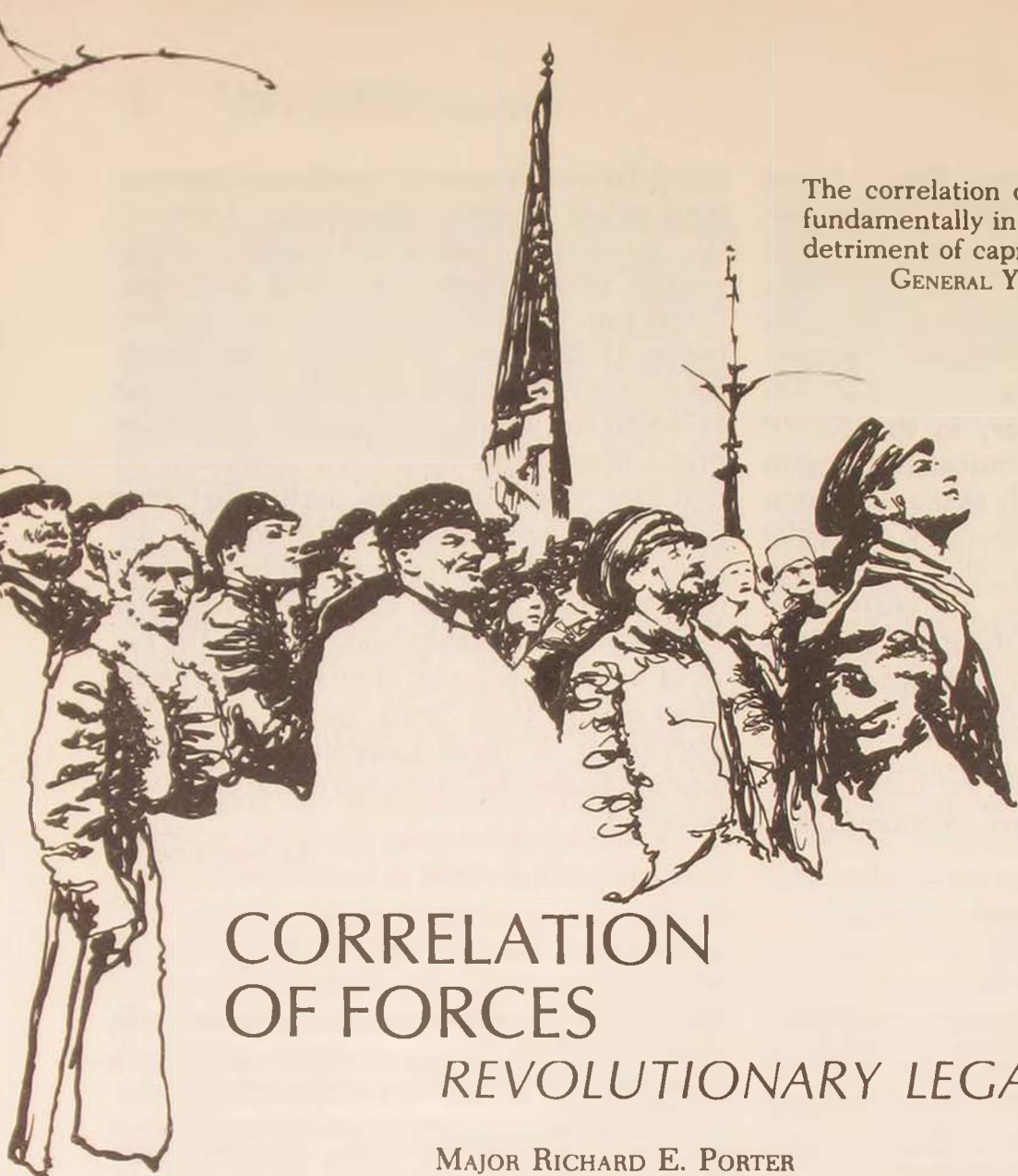
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19. Peter Christian Ludz, "Two Germanys in One World," *The Atlantic Papers 3/1973* (Farnborough, England: The Atlantic Institute for International Affairs, 1973).

20. Neuburg, p. 101.

21. Harvey Starr, "A Collective Goods Analysis of the Warsaw Pact after Czechoslovakia," *International Perspectives*, Summer 1974, pp. 521-32.

Individual national assessments and an overall assessment of the integrity of the Warsaw Pact will be covered in the concluding part of this article, which will appear in the next edition of the *Air University Review*.



The correlation of world forces has changed fundamentally in favor of socialism and to the detriment of capitalism.¹

GENERAL YEVDOKIM YEGOROVICH MALTSEV

CORRELATION OF FORCES

REVOLUTIONARY LEGACY

MAJOR RICHARD E. PORTER

AN examination of the contemporary Soviet press indicates that the old revolutionary concept of “correlation of forces” (COF) is back in fashion. One Soviet author has gone to the extreme of calling it the center of the current ideological struggle.² Certainly COF has been in vogue before, signaling some new departure or setback in Soviet policy. This time, however, the connotations are different, and a fresh look at the COF concept is warranted.

COF is a Soviet approximation of our concept of “balance of power”—an approximation because there is no Russian equivalent to our rather inclusive meaning of “power.”³ The Russians use the words *sootnoshenie sil* to relate this concept. These two words can be correctly translated as “correlation of forces,” “relation of forces,” or “relationship of forces”—all convey the idea of a relationship or distribution of power.⁴

The Russian meaning of COF has an ideological flavor that makes it unique as a "balance of power" concept. The purpose of this article is to determine the Soviet meaning of COF, discover its philosophical and historical origins, and survey its significance in contemporary Soviet defense and foreign policy decision-making.

Several dilemmas defy resolution and cast a shadow of speculation over the entire endeavor in undertaking this task. First, there is a paucity of factual information about Soviet decision-making; second, there is no way of separating the COF concept from the total Marxist-Leninist package; and third, it is never possible to distinguish a boundary between the ideological motivations and the pragmatic motivations of Soviet decision-making.

concept defined

... who is to calculate and ultimately judge the correctness of calculation, and by what specific criteria is the relation of forces to be determined precisely enough to be "scientific" ... ?

RAYMOND L. GARTHOFF⁵

The meaning of COF in an ideological sense is straightforward: "... the calculation of the relation of class forces is the basic scientific analysis which guides policymaking."⁶ That it is based on class forces fulfills the ideological requirements but does little to explain COF's practical application. Truthfully, there is no criterion for applying the COF concept to contemporary decision-making, nor do the Soviets seriously suggest that one exists. We do know that theoretically the concept entails a "totality" of considerations that far exceed our own more narrow view of "balance of power." But vagueness still remains because these considerations are themselves defined generally as political, economic, military, social, and psychological factors.

Raymond Garthoff, a prominent American observer of Soviet policy, summarized the COF concept in 1951 in terms that are still valid:

The calculation of the relation of forces is a most convenient means for internally and externally rationalizing the interpretation of Marxian ideology in pure power terms.⁷

Because of the ideological corollaries attached to it, the COF concept has utility as well as expediency. Because it deals with the relations of forces in Marxist-Leninist terms, it is "scientific." Therefore, the concept represents the only correct calculation at a given point in historical time. The theory is infallible, so the burden of correctness rests with the calculators. The Soviets are very sensitive about miscalculating. An underestimation of the enemy's true strength can lead to "adventurism" or actions incurring unwarranted risks; an overestimation of the enemy's strength can lead to "opportunism" or a failure to seize a gain which a correct calculation of the COF would have permitted.⁸ Accurately perceiving the correct COF is the first fundamental concern of Soviet decision-makers.

The COF concept is dynamic because history is dynamic. While the long-term progression of revolutionary forces favors socialism, the short-term progression toward that goal can be "tidal." To use the tidal ebbs and flows effectively, the Soviet decision-maker must continually assess the COF.

Once the COF is correctly calculated, there is a requirement for some appropriate action. If the calculation is favorable, then the appropriate *tactical* action is that which will advance the Soviet cause without generating undue strategic risk.⁹ Strategic risks are those that endanger the Soviet state or the party's rule. If the calculation is unfavorable, then retreat or defensive action is appropriate.¹⁰ This is a temporary condition to gain time so the offensive can be reassumed when the revolutionary tide changes.

Finally, to some undefined degree, COF is manipulable. The manipulable limits themselves are dependent on the current COF, particularly in regard to the strength of the opposing forces. But the main mover is history; measurable changes due to the deeds of men are only achieved with great sacrifice.¹¹

From these corollaries, it is evident that the components of the COF concept are the Soviet planner's perception and appropriate action. The utility of the concept is that it embroiders decision-making with ideological legitimacy without in any way restricting or confining it. Perception is blessed with ideological correctness, and action is tempered by pragmatic necessity. Consequently, Soviet decision-making within the COF context is not a synthesis of perception and action but a resolution of two fundamentally different historical experiences—one from the revolutionary period and the other from the two decades immediately after. The true nature of this *hybrid* is more apparent when we examine its philosophical and historical origins.

philosophical and historical origins

We must not wait! We may lose everything! . . . History will not forgive delay by revolutionists who could be victorious today (and will surely be victorious today), while they risk losing much tomorrow, they risk losing all. (Lenin's message initiating the Russian Revolution of Nov. 6, 1917.)¹²

The origins of the COF concept trace back to Marxian philosophy and the revolutionary experience. Communists believe that history progresses in accordance with certain scientific laws. Marxian philosophy gives them a "scientific" key that when applied to history allows them to see its ultimate destiny: the collapse of capitalism and the eventual triumph of Communism.¹³ History is a dynamic phenomenon based on a continual dialectic synthesis of a host of contradicting phenomena (matter), which *quantitatively* build toward revolutionary intensity accompanied

by violent leap to a *qualitatively* new stage of economic and social organization.¹⁴ Marx highlighted economic contradictions as the key motivators of social change, but the theory is inclusive of all historical phenomena.

Marx left to the revolutionary agitator the essential tools for his work. In the "predetermined end," he constituted the "revolutionary myth," so essential if a revolutionary believer is to become a revolutionary actor. In the dynamic view of history and in the onerous burden of correctly perceiving it, he left to an enlightened vanguard the legitimate right to seize power.

The early revolutionaries had a propensity to meddle with the predetermined course of history, but the emphasis was more on perceiving the revolutionary moment. Among the early socialists there developed a deep historical consciousness which characterizes the perceptive outlook of these movements even today. Except for Mao Tse-tung, no one has had a greater role in shaping revolutionary doctrine than Lenin. One of the great tactical geniuses of history, he turned Marx's philosophy into a guide for action. Because Lenin was the first of many subsequent Soviet leaders who were both Marxist and Russian, it is with him that the boundary between ideological commitment and Russian pragmatism in Soviet decision-making is eternally blurred.

In contrast to most Marxists, Lenin saw revolution not so much as a spontaneous "happening" but an orchestrated event. There was a momentum to revolution that could be only sustained by continuous appropriate action. If men in a hurry could not alter history's fate, they could at least accelerate it. Indeed, for the sake of the world proletariat, they say they are committed to do so. It is in this light that Lenin made two very important innovations in revolutionary thought—one of tactical objective and one of organization.

Lenin emphasized the class struggle at the national more than at the international level,

the idea being that to seize power in one nation at a time is more practical and expedient than relying totally on the revolutionary tide. He saw Russia as the country most pregnant with revolution, not because she was in an advanced state of capitalistic contradiction but because she was the weakest link of the imperial system.¹⁵ Thus, by narrowing the tactical objective, Lenin made revolution more manageable for a properly organized elite.

In orchestrating revolution, Lenin considered a centralized and disciplined organization essential. A movement of squabbling intellectuals and college professors was incapable of keeping abreast of and properly exploiting a fast-moving revolutionary situation. There was too much debate with too few decisions. If the chaos of revolution was to be increased and yet channeled into the seizure of power, instantaneous evaluations of the rapidly changing historical situation had to be made and exploited.

Appropriate action one day might be totally inappropriate the next. Under the title of Bolshevism, Lenin centralized his revolutionary organization and manned it with a highly dedicated and disciplined elite. The elite as the vanguard of the proletariat could legitimately assess the changing situation and then act accordingly with minimum delay or reservation. It is here that the COF concept of a composite of perception and appropriate action took shape.

SINCE MEN could only hasten the fate of history, appropriate action was tactical action. Here was the strength of Lenin's revolutionary doctrine; it could exploit the strategic weakness of the state without having to defend any of its own. Revolutionary action was purely offensive and continually sought the "weakest link." In his article "Guerrilla Warfare," Lenin defined appropriate action as any action, including lying,

cheating, murder, and robbery.¹⁶ All were ethical and moral if they accelerated the end of capitalism.

The successful seizure of power in Russia by the Communists canonized the COF concept. Although the Bolshevists concede that their triumph occurred during a period of great revolutionary flow, they attribute much to their correct assessments of the historical situation and subsequent appropriate actions. During the Revolution, the COF concept functioned as an electrical switch that allowed decision-making current to flow from the ideological reservoir directly into revolutionary action. The true hybrid nature of COF emerged from the Bolshevists' new role as defenders of the state and the accommodations necessary to defend, maintain, and consolidate their power. Unlike the Chinese, who seized power from expanding secure bases, the Bolshevists' doctrine was purely tactical and devoid of any considerations of defending territory or of functioning as a government. As in all victorious revolutions, the initial reaction was to regard professional armies as bourgeoisie and unnecessary.¹⁷ But Lenin and his cohorts were too astute to be totally swept away by revolutionary enthusiasm. Seizing power did not necessarily mean holding it. Holding power required a professional army and time to establish it. These considerations called for some fundamental changes in revolutionary decision-making.

In order to gain time, the Bolshevists emphasized the concept of tactical retreat as a result of an unfavorable calculation of COF. The idea was not to abandon the revolutionary commitment to the offensive but to bridle it with newly acquired strategic interests. The regime had to go on the defensive temporarily to consolidate its power if it was to survive and fight another day. The Brest Litovsk treaty, which gave much of the productive part of Russia to the Germans, was sold to the party leftists as the appropriate action

in light of the current unfavorable COF.¹⁸ Ideology consequently blessed and obscured the true expediency of the decision.

The establishment of the Red Army vividly demonstrated how expeditiously the decision-making model could be altered without affecting its ideological purity. A party debate arose over the question of accepting ex-tsarist officers (class enemies of the proletariat) into the new Red Army. The rhetoric was heated, but the officers were eventually brought in. Lenin and Trotsky came to realize that traditional war had its own set of rules and expertise.¹⁹ While the party stripped the army of its tsarist trappings and strengthened its overall control, it left the army's doctrine essentially in tact.²⁰ The army continued to look to Clausewitz, Russian geography, and historical experience for its strategic outlook—an outlook that was and remains defensive, cautious, and insecure rather than offensive, reckless, and optimistic.

To the army, unbridled revolutionary action generated unacceptable anxiety and had to be confined. Since the army was the basis of Soviet power, its wishes were never seriously challenged. The true hybrid nature of the COF concept as a composite is now apparent: an inclusive assessment to determine the weakest links and then take appropriate actions to exploit them. Actions based on a favorable calculation of COF are confined within specific strategic limits, limits which allow for temporary tactical gains at a minimum strategic risk. If the calculation is unfavorable, then tactical action requires even greater caution with the major emphasis (as described earlier) on retreat, consolidation, and further preparation.

In summary the COF concept was shaped in the Revolutionary period and the years shortly after. From the revolutionary experience, there are commitments to the offensive, continuous struggle, the totality of struggle, and continuous assessment of the

historical situation. Of special note, from this period comes the rationalization that Marxism-Leninism "scientifically develops" or can be reinterpreted to fit the changing historical situation.²¹ From the post-Revolutionary period comes the pragmatic reshaping of decision-making in accordance with new-found strategic considerations. The survival of the COF concept as a useful decision-making tool stems directly from its adaptability to the new strategic situation. But more than an adaptation, COF became a link, a two-way switch that allowed decision-making current to seek resolution between fundamentally different interests before manifesting itself in appropriate action.

contemporary Soviet defense and foreign policy decision-making

Therefore, insufficient attention to military technology, to its study and mastery, any underestimation whatsoever of its significance, is tantamount to a total misunderstanding of the character of future war.

COLONEL I. BAZ²²

From the post-Revolutionary period or at least from World War II onward, it is no easier to draw substantive conclusions about the impact of ideology on Soviet decision-making. The paucity of information remains, but we know enough now, largely through our own greater efforts, to make some astute guesses. For example, we know that today the Soviet bureaucracy is not the Stalinist monolith that it used to be. We even suspect that it contains many of the competitive processes of decision-making that characterize our own.²³ This is not to suggest that the Soviet bureaucracy functions in the same way.

In this section we will survey Soviet defense posture and foreign policy in the years since World War II to see if ideology, with emphasis on the COF concept, has had a significant impact on decision-making. In discussing defense posture, one often finds it

convenient to break it into strategic thought and force posture.

Except for defining the overall goal, it appears that ideology has played only a small, direct role in shaping current Soviet strategic thought. Garthoff suggests a possible exception for the period immediately after World War II. He feels that Stalin was preoccupied at this time with capitalist encirclement and the ideological conviction that the "inevitable clash" between socialism and capitalism was about to take place. He uses this interpretation to explain Soviet postwar moves to consolidate their wartime territorial and economic gains, seize Czechoslovakia, and aggravate Western alliances and relations.²⁴ Garthoff makes a good case for this interpretation, but so does Geoffrey Jukes for the interpretation that Soviet strategic thought through this period reflected a very logical and pragmatic response to the changing strategic situation.²⁵ Jukes sees the development of Soviet strategic thought motivated by a lack of "global reach" brought about by the new-found superiority of the United States in nuclear weapons and bombers. The Soviets found themselves a regional power confronted by a global one. The United States could strike them, but they could not strike back. The Soviets emphasized the role of the army and downgraded the significance of the atom bomb, not because they had ideological "hangups" but because the army was their only means of defense. The calculation of COF was *very* unfavorable, so the appropriate action was to camouflage weakness and buy time until the technological gap could be closed. Consequently, the Soviets' strategic thought since World War II simply reflected their perceived strategic weakness and their efforts to integrate new weapons properly into their defense posture.

The exponential increase in firepower, range, and speed that has characterized this entire period has been the creative force of

Soviet strategic thought. Today nuclear weapons and their carriers are central to Soviet military power. Their proper construction and use have influenced decision-making processes in the areas of strategy, force posture, economic organization, and foreign policy.²⁶

Strategic equivalence has not been achieved at the expense of the traditional forces but is a supplement to them. Despite some setbacks under Khrushchev and some notable reductions in manpower, the ground force's prestige remains traditionally high. Clausewitz is still the guiding light, and belief in the Soviet Army as the final arbiter of war still persists.

If the COF concept had any specific part to play in the postwar development of strategic thought, it was in assessing the overall strategic relationship in favor of the United States and providing the Soviets with an overriding goal: the immediate rectification of their strategic weakness. The response like the required assessment has been inclusive. More than just an effort to match hardware, the Soviets have sought to exploit any weakness that would either impair further development of American strategic forces or undermine our will to employ them.

In surveying the COF role in force posture, we appropriately focus on hardware because it is here that the Soviets are doing some of their most critical decision-making. To the Soviets the key to "peaceful" struggle is in technology and the weapons it can produce. The means of rectifying the strategic imbalance in this area is achieved only by shrewd judgments and correct decisions.

What we know of this decision-making is perhaps too much a reflection of our own experiences. Some Soviet scholars suggest that such a reflective approach leads to gross misjudgments.²⁷ While this consideration warrants caution, it does not necessarily invalidate such an approach. Despite its uniqueness, the Soviet bureaucracy (like our

taneously connected to the ideological power source.

COF has never been just fashionable rhetoric. It is not a static label to be carelessly thrown around but a dynamic link between the Soviets and their revolutionary heritage—a link that eternally commits them to monitor the pulse of history and exploit it and a link that must be perceived and understood by the West. Today the Soviets, with

their sensitive nose for historical trends, perceive that something significant has happened—something *qualitative* not *quantitative*.³⁸ In the narrower language of Bismarck, the “balance of power” has been favorably altered. In the language of Marx, the revolutionary tide, which has ebbed for too long, is at last beginning to flow. What will be the new appropriate action?

Hurlburt Field, Florida

Notes

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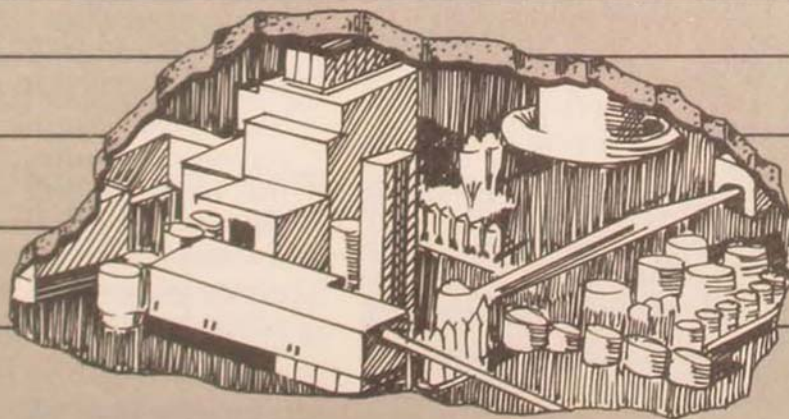
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SOVIET CIVIL DEFENSE

*U.S.S.R. preparations
for industrial-base
war survival*

CAPTAIN JOHN W. DOROUGH, JR.



IN the formidable volume of strategic material published daily, the subject of civil defense has, until recently, received such scant attention that one might logically assume its relationship to strategic stability is nonexistent. Since civil defense is not perceived as a direct threat, it does not arouse the same level of concern as discussions of strategic delivery vehicles, numbers of weapons, throw weights, etc. Nonetheless, civil defense can have an important influence on the ability of our strategic forces to perform their deterrent mission and therefore has strategic implication. The effect of Soviet civil defense preparation is damage limitation of a U.S. retaliatory strike, which could in reality lessen the credibility of our strategic deterrence.

Recently, numerous books, articles, and reports have indicated that Soviet civil defense preparations have been expanded to include protection of at least a portion of their industrial base. The stated objective of their preparations is industrial war survival, which they feel is essential to national survival and ultimate victory in the event of a nuclear war. Soviet emphasis on this aspect of their civil defense preparation suggests a view diametrically opposite to the American thinking which professes that a nuclear war is inconceivable and thus funds for civil defense are unnecessary or even provocative. It is important to note, however, the new fiscal emphasis placed on civil defense by Secretary of Defense Donald H. Rumsfeld in his FY77 Annual Report.¹

Although the status and extent of Soviet preparations are not fully confirmed, there is evidence that their efforts have been substantial. Civil defense preparations are well integrated into Moscow's strategic plans and are an integral part of Soviet military preparedness efforts.

This article is based on open-source Soviet literature and discusses the Soviet plan for industrial survivability. The extent to which these programs are actually being carried out has not been determined.

The potential implications of the Soviet industrial war-survival plans have generated a great deal of interest in both academic and military circles recently in the United States, since Soviet civil defense preparation (of which industrial dispersal and hardening are integral parts) vis-à-vis U.S. preparations is a possible major area of asymmetry. Such an asymmetry could translate to a matter of significance to high level U.S. officials when viewed in terms of net assessment. Secretary Rumsfeld evaluated Soviet civil defense in the following manner:

An asymmetry has developed over the years that bears directly on our strategic relationship with the Soviets and on the credibility of our deterrent posture. For a number of years, the Soviets have devoted considerable resources to their civil defense effort, which emphasizes the extensive evacuation of urban populations prior to the outbreak of hostilities, the construction of shelters in outlying areas, and compulsory training in civil defense for well over half the Soviet population. The importance the Soviets attach to this program at present is indicated not only by the resources they have been willing to incur in its support, but also by the appointment of a Deputy Minister of Defense to head this effort.²

Soviet perceptions

The Soviets view protection of their industrial base as a vital element of their national survival program. The following quotations are provided to place the Soviet emphasis on industrial survival in proper perspective.

The Soviet view on the critical role of the economy in wartime follows from the doctrine that while a nuclear war may be of short duration, the possibility cannot be excluded that the war may become protracted . . . the waging of a protracted war and the attainment of military preponderance may not be possible with only the weapons available to the armed forces at its start.³

Ensuring the stable [i.e., continuous] operations of facilities of national economic significance in wartime is a most important task. It must be taken into account that in a modern war with the use of weapons of mass destruction, victory will

be gained by the country having an economy which, despite losses and damage suffered in the course of the war, maintains the capability of supplying its armed forces with everything they require, and of supplying the country's populace with foodstuffs and basic necessities.⁴

It is impossible to conduct war without the continuing supply of the armed forces with everything they need. . . . As noted, the supplying of the armed forces and of the population with everything necessary, the equipping of the civil defense forces with technical supplies for the successful execution of rescue and emergency repair work in the zones of devastation are only possible under conditions of sustained operation of the installations of the national economy in wartime.⁵

industrial base program

The Soviets are engaged in a comprehensive and orderly program designed to ensure the survival of their industrial base in the event of nuclear war. They have gained a great deal of expertise in the area and appear to perceive their program as a logical way to survive a major nuclear exchange and achieve an ultimate victory.

Their program consists of such measures as urban planning, accumulation of stockpiles and essential reserves, industrial organization, protection of the work force, industrial dispersal, and industrial hardening.

This discussion will focus on Soviet civil defense preparations for industrial dispersal and hardening and the subsequent impacts of each on U.S. targeting philosophy and targeting effectiveness.

Industrial dispersal. The Soviets have been involved in an industrial dispersal program for more than 15 years. Their approach to the program has been and continues to be the siting of new industrial complexes in towns and settlements with populations of 100,000 people or less. The program has several advantages for the Soviets. First, it is of great economic importance from the standpoint of accelerating and expanding their economic development; this is especially

true regarding growth of such sparsely developed areas as Siberia. Second, it prevents high concentrations of industry in a small number of large industrial centers and helps the Soviets make better use of their abundant natural resources. Third, dispersal creates a proliferation of aimpoints for U.S. strategic planners and greatly complicates targeting tasks.

The Soviets have also expanded their industrial dispersal programs to include the Soviet bloc countries. The commonality of weapons, equipment, and procedures leads expert observers of the U.S.S.R. to conclude that the Soviets view their Warsaw Pact allies as a portion of a "single integrated economic defense system, and plan to substitute East European production capabilities for destroyed Soviet facilities."⁶ A comprehensive program of this nature has reversal effects. At the very least it increased the number of aimpoints. It also raises policy questions of targeting (perhaps unwilling) Soviet allies in retaliation for Soviet aggression. All these effects complicate the task of the U.S. planner.

Industrial hardening. The Soviets have an ongoing program designed to harden their industrial base. Included in this program are underground facilities, new plant construction techniques, construction of duplicate plants, retrofit hardening of existing facilities, and expedient techniques. The first three hardening methods can be productively utilized only for new facilities and require a long lead time for fruition. The fourth method, retrofit hardening of existing facilities, has near-term implications but is expensive. The fifth means, expedient techniques, is relatively inexpensive and has short-term implications; it will be the focus of this discussion.

If current Soviet expedient hardening preparations for protection of their industrial base are implemented on a large scale, the effectiveness of a U.S. retaliatory capability

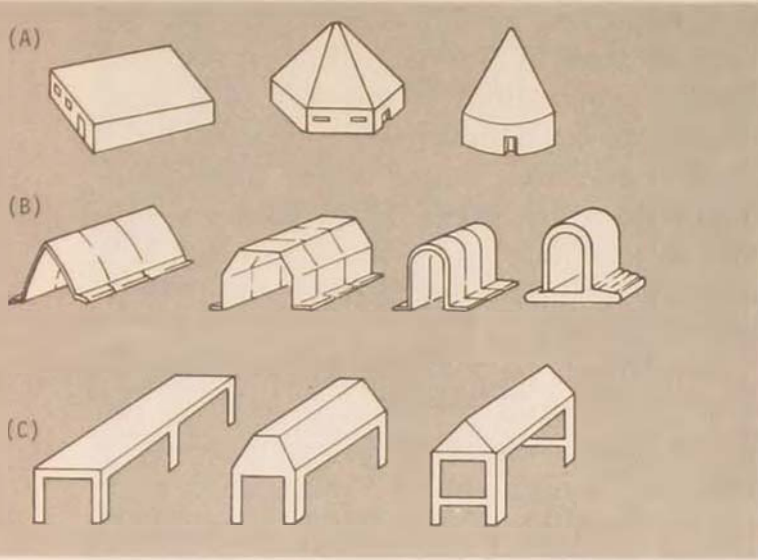


Figure 1. Protective structures for valuable industrial equipment: (a) enclosures, (b) hoods and housings, (c) canopies

could be significantly degraded. By utilizing relatively inexpensive and simple expedient techniques such as packing machinery in sandbags, the Soviets could make their industry relatively invulnerable to overpressures of a few pounds per square inch (psi). Depending on the specific precautions taken in mounting and protecting machines, they can be made to survive overpressures in the range of 40 to 300 psi. Figures 1 and 2 illustrate specific hardening techniques.⁷

The implementation of a viable and comprehensive Soviet hardening program, with resultant overpressure tolerances in the 300 psi range, could significantly reduce the effectiveness of a U.S. second strike. Dramatic reductions in the destructive capability of U.S. retaliatory forces may alter what we hold as a current notion of Soviet economic recovery time and jeopardize our ability to deny early enemy recovery to major power status and influence in the event our deterrence fails.

While industrial dispersal directly in-

creases the number of aimpoints, an industrial hardening program has the same effect indirectly by reducing the effectiveness of U.S. weapons. Industrial complexes and installations that could previously be grouped into a single aimpoint would have to be retargeted individually or in much smaller groups, to ensure a destructive level of overpressure. For a weapon with a given yield, hardening levies stringent requirements on accuracy. For a 1 megaton weapon, for example, the acceptable miss distance or circular error probable (CEP) required to achieve a .90 probability of destruction (Pd) on a target hardened to 20 psi is four times as large as the acceptable miss distance required for the same level of destruction of a target hardened to 300 psi. If current accuracies were maintained, Soviet hardening would require a significant response in the form of increases in our warhead yields or increases in the number of weapons targeted. For example, a weapon with a CEP of .3 nautical mile requires a yield in excess of 4 megatons to achieve a .9 probability of destruction on a 300 psi target while the same level of destruction on a 20 psi target can be extracted by a yield of approximately 100 kilotons. Depending on the type of program chosen to counter the Soviet hardening, these effects may have significant implications for future U.S. weaponry and force structures.

initiatives

Several initiatives deserve consideration in developing our response to the potential destabilizing effects of Soviet civil defense programs. Five of these initiatives will be discussed: a mirror-image defensive system, negotiation, revised offensive emphasis, a ballistic missile defense system, and national policy changes.

Mirror-image. The U.S. could embark on a program to mirror-image the Soviet program. This option would require a national

reallocation of both manpower and funds.

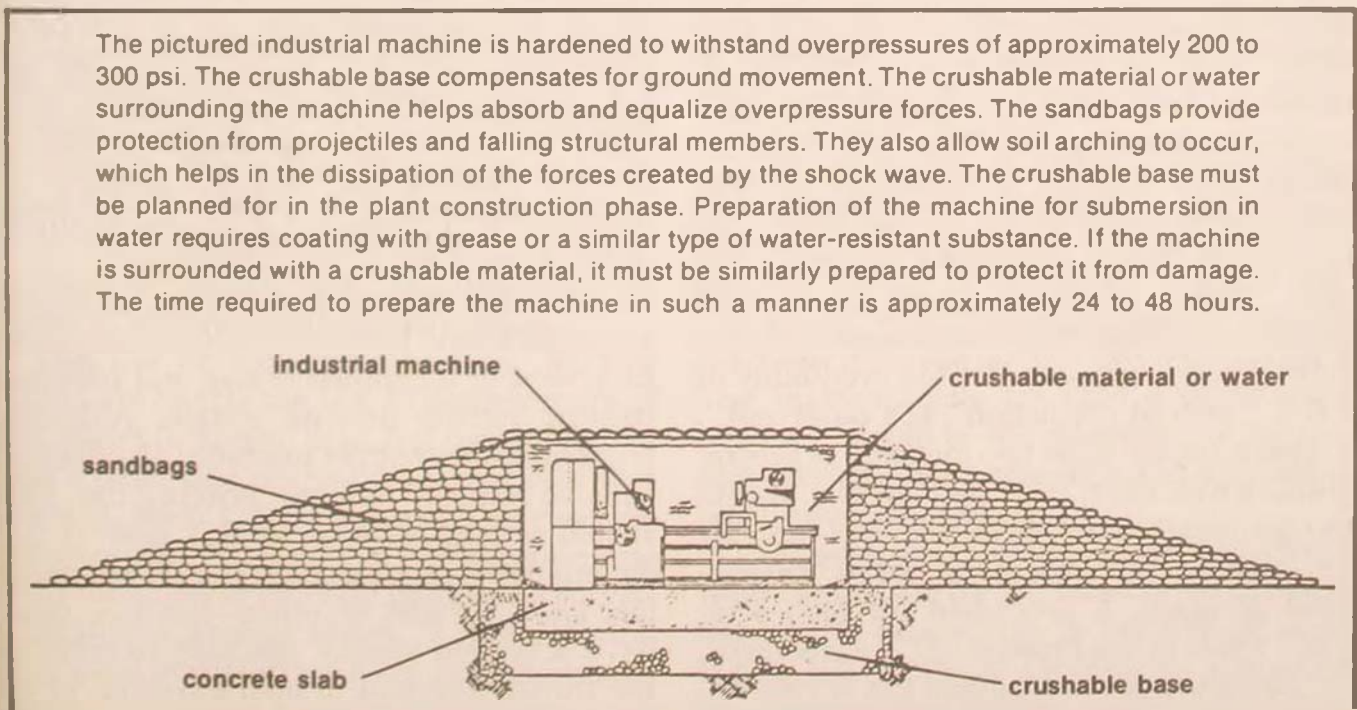
An unstructured form of industrial dispersal has been underway in the U.S. for the last 10 to 15 years. Although lacking formal direction, there has been a dramatic shift of industry and business from the northeast to the southwest, and the trend appears to be continuing. It would appear to be advantageous and desirable for the U.S. to channel some of this movement for civil defense purposes. There are clear economic advantages (energy, ecology, social-engineering, regional economic competition, etc.) and military advantages (proliferation of aimpoints and weapon requirements) to be accrued from a well-planned dispersal program. In the absence of the economic incentives that underlie the current movements, such a program would require sizable federal expenditures and could be productively utilized

and economically justified only for new facilities—an inherent limitation in the overall value of the program. Finally, within our free society, an effective industrial dispersal program would require a particular sense of resolve and commitment and a great deal of careful planning.

A comprehensive industrial hardening program would also be expensive. Since the United States does not have an industrial hardening program currently underway, it is only natural to ask if we could mirror the Soviet program. Since an expedient hardening program is a viable option only for the nation that initiates hostilities, such a program would not currently be a compatible option for the U.S. because of our traditional national policy rejecting a first-strike strategy.

In addition to our current national policy, there are other considerations opposing such

Figure 2. Hardened industrial machine



a program. First, if in times of international crisis, only a portion of the total industrial base were hardened (using expedient techniques), this selective hardening would limit the overall advantages of such a program. Second, if the entire U.S. industrial base were hardened, in times of crisis we could be faced with a difficult situation. On the basis of a Soviet feint, we might, at considerable expense, unilaterally debilitate all or a major portion of our industrial base for a period of several months or more; the recovery period required would depend on the extent of expedient preparations taken. Widespread hardening of this type could also obviate any Soviet requirement to target our industrial facilities, since our self-imposed incapacitation could be as great as any they might expect to inflict and could allow them to concentrate more on U.S. force targets. When considered in this light, an expedient hardening program does not currently appear to be a productive avenue for the U.S. to pursue.

Negotiation. A second initiative entails use of negotiation to minimize or eliminate the perceived asymmetry favoring the Soviets. Since current understandings and those concepts under consideration are designed to create a rough parity in offensive strategic capability between the U.S. and U.S.S.R., Soviet civil defense preparations assume even greater significance. U.S. strategic arms limitations (SAL) negotiators should insist that Soviet war-survival programs and capabilities be considered to ensure a mutual vulnerability and maintain the credibility of a U.S. "assured retaliation" as a deterrent.

There appear to be two methods of accomplishing this. First, insist that the U.S. should be compensated for the imbalance caused by the existing and improving Soviet war-survival program. A precedent for such a request exists in the present SALT agreement, i.e., the numerical advantage the Soviets enjoy in their missile capabilities based on their

claims of differences in offensive postures. Second, the U.S. could insist that the current Soviet civil defense program be disestablished and ban any similar program in the future. By pursuing either or both of these avenues, the U.S. could create a public awareness of the problem while seeking a negotiated solution.

Offensive weapons emphasis. Increased emphasis on U.S. offensive weapons capabilities is a third option available to U.S. planners. Acceleration of current programs for reduction of CEP in present and future weapon systems could tend to offset the value of Soviet industrial hardening; technology is available to allow such improvements. Concentrating on weapons with greater yield would also help alleviate the problem although CEP and the number of warheads available are the driving factors. The costs associated with such programs would have to be considered, as would possible destabilizing effects and the alleged risk of generating a new arms race. Current and future force structures would have to be re-evaluated to determine the optimum mix required to counter the effects of Soviet industrial hardening. For example, the use of low-yield, inaccurate weapons can no longer be depended upon to extract an acceptable probability of destruction on hardened Soviet targets. Accordingly, heavier reliance on weapons with improved yield and accuracy would appear to be more efficacious.

Ballistic missile defense system. A fourth initiative would be the development and deployment of a comprehensive and effective ballistic missile defense system. Although technology has not yet produced an effective ballistic missile defense system, the U.S. should accelerate work in this area. If the Soviets deploy such a system—charged particle, laser, missile, or other—the U.S. must have a system readily available to counter the threat. The cost of such a system, when technically feasible, could be high and under

current fiscal constraints could require retrenchment in other areas, but cost considerations would probably be secondary, since unilateral possession of such a system would dramatically alter the strategic balance in favor of the possessor. Development and deployment of such a system by the U.S. would, of course, have to satisfy then current anti-ballistic missile treaty restraints.

Thus far we have considered four initiatives. If none of these, alone or in combination, rectifies the asymmetry, the U.S. could be forced to consider this final alternative.

National policy changes. Despite a current lack of support for policies of this nature, a fifth initiative available to the national command authorities would entail national policy changes. By adopting a first-strike policy from a day-to-day posture, the U.S. could extract a higher level of destruction on Soviet economic, military, and political targets. By eliminating the Soviets' unilateral privilege of initiating a nuclear exchange, the U.S. could effectively negate the value of their civil defense plans by denying the Soviets the luxury of the advanced warning required to implement their expedient industrial hardening programs. A reasonable U.S. civil defense program combined with a first-strike option might well alter the strategic balance in a manner favorable to the U.S., but not enough to prevent devastating damage to the U.S. from Soviet retaliation. A first-strike policy, however, has traditionally been unpalatable to the U.S. and is a poor substitute for a full range of deterrent / response options.

The use of biological/chemical warfare would not enable the U.S. to destroy more of the Soviet industrial base, but it could debilitate a large part of the population base that mans it. Such a program could also negate much of the value of civil defense preparations designed to increase population survival against a nuclear attack, if chemical and biological preparations were not incorporated in their plans. Chemical/biological war-

fare is, however, indiscriminate and, as such, is clearly abhorrent to civilized values and therefore would not be a desirable option for the U.S.

IN LIGHT of the Soviets' long head start in civil defense preparations, their extensive industrial dispersal and current hardening programs, and their geographical advantages, there is considerable doubt that even an extensive U.S. civil defense program could, by itself, eliminate this asymmetry in the current strategic balance. Defense Civil Preparedness Agency officials estimate that full implementation of even a crash program for U.S. industrial hardening and dispersal would require 10 to 15 years.

Use of SAL deliberations to air the asymmetry and negotiate compensation would be the cheapest alternative, but as we pursue it, we should recognize that the probability of success of such a venture is tenuous.

An accelerated effort to develop viable ballistic missile defense technology would undoubtedly be the most expensive option, but it could provide the U.S. with a significant advantage in the future. In any case, this area should be pursued to preclude a unilateral Soviet breakthrough.

The two changes in national policy would be traumatic both domestically and abroad. The destabilizing effects of a declared U.S. first-strike policy or biological/chemical warfare policy would certainly trigger adverse reactions from the Soviets and other nations. The main obstacle for such a declaration, however, would be the reluctance of the U.S. populace to accept something so inimical to basic American beliefs.

The most productive, single alternative would appear to be the accelerated exploitation of our advantages in technology to increase U.S. strategic capabilities; this could be accomplished within current SALT con-

straints. Greater warhead accuracies, yields, capabilities, and numbers could at least partially offset Soviet civil defense measures by assuring our capability to inflict an unacceptable level of destruction on their dispersed and hardened industries.

Regardless of which initiative or initiatives the U.S. elects to pursue in countering the asymmetry created by Soviet civil defense preparations, we must apply it with determination. The logical first step, and one in

which the military should perhaps take the initiative, is the education of the public on the Soviet civil defense program and its implications on the continued effectiveness of U.S. strategic deterrent forces. Unless the United States takes the steps necessary to keep nuclear war on a "no-win" basis, the Soviets may be tempted to test their theory that a nuclear war can indeed be fought and won.

Hq USAF

Notes

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3. Leon Gouré, *War Survival in Soviet Strategy: USSR Civil Defense* (Washington, D.C.: Current Affairs Press, 1976), p. 133.

4. Major-General M. Muradian, "Raising the Readiness of Civil Defense," *Kommunist* (Yerevan), November 3, 1971, cited by Marshal of the Soviet Union A. A. Grechko, *Vooruzhennyye Sily Sovetskovo Gosudarstva*,

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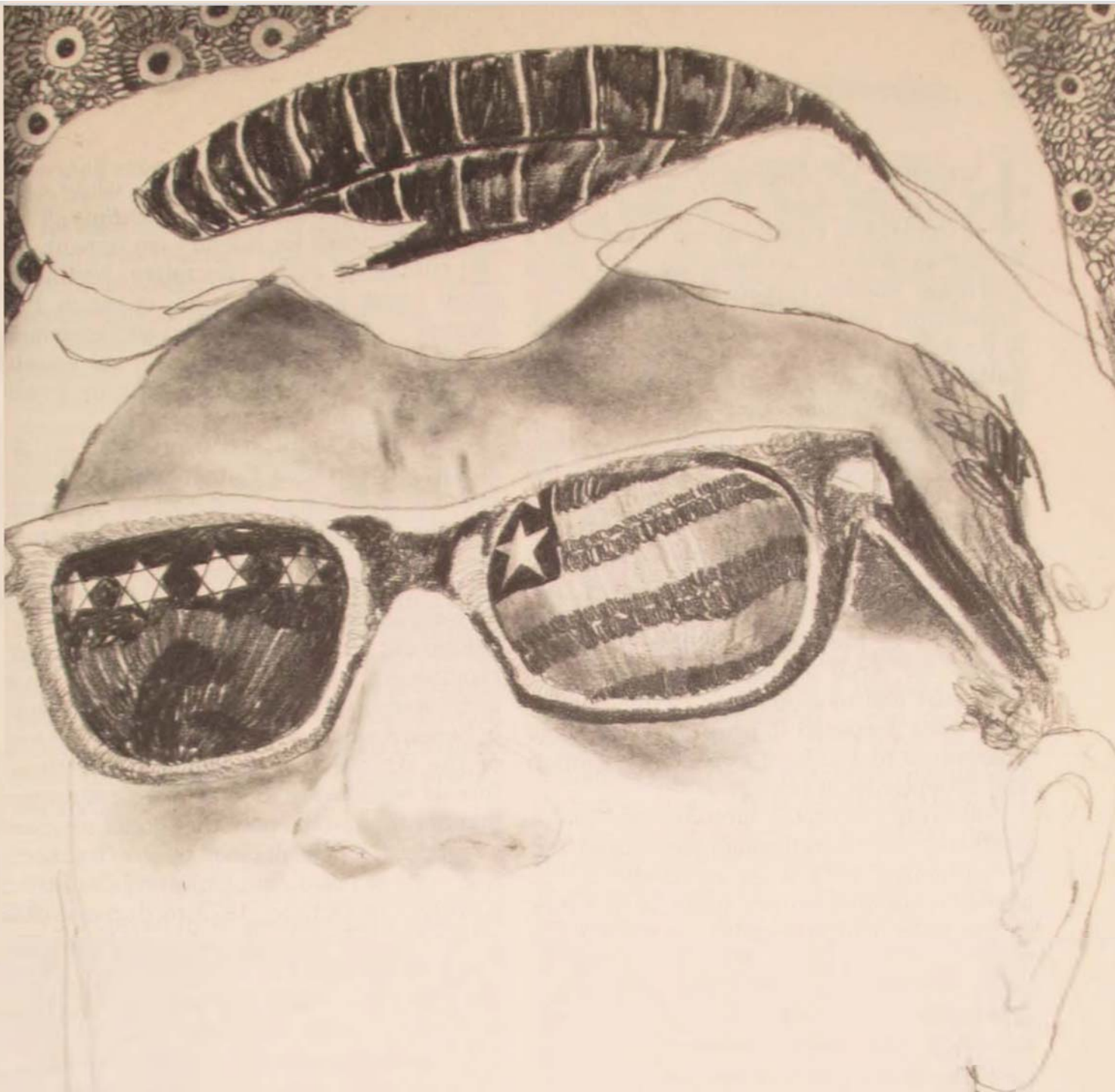
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6. Gouré, p. 140.

7. P. T. Egorov et al., *Civil Defense Moscow 1970* (Moscow: Vysshaya Shkola, 1970), p. 116, translated by Scientific Translation Service and Oak Ridge National Laboratory. Figure 2 is adapted from T. K. Jones's "Soviet Civil Defense," an unpublished study of 1976.

"In terms of the number of passengers carried—a recordbreaking total of about 220 million—[1976] was the safest year in aviation's 50-year history," according to Secretary of Transportation William T. Coleman, Jr.

Department of Transportation News



THE OIL
WEAPON
AND AMERICAN
FOREIGN
POLICY

DR. JOSEPH S. SZYLIOWICZ
MAJOR BARD E. O'NEILL

IN EARLY 1975 Secretary of State Henry A. Kissinger began a new round of visits to the Middle East designed to promote a second agreement between the Arab states and Israel. Such an agreement was vital if the momentum toward a settlement of this tragic conflict was to be maintained and a new outbreak of fighting averted. There were numerous indications that this round of negotiations would be far more difficult than the earlier disengagement agreements because statesmen on both sides now had to confront issues that they had heretofore been reluctant to face. The Israelis had to assess the extent to which they were prepared to evacuate strategic positions in the Sinai and in the Golan Heights in return largely for Arab promises. The Arabs for their part had to assess the extent to which they were prepared to provide the kinds of guarantees that at least implied recognition and acceptance of Israel.

Following several months of tough negotiations, a breakthrough finally occurred in September 1975 when Israel and Egypt agreed to another limited pullback of forces in the Sinai. Unfortunately, there has been little movement since that time, owing in part to the crisis in relations between Cairo and Damascus caused by the accord and to the tragic civil war in Lebanon. Although new hopes have been generated by the anticipated return of the parties to the conference table at Geneva in 1977, they are tempered by the sober reality that the most contentious issues separating the two sides, including the future of the Palestinians, must now be addressed. At any point, therefore, it is conceivable that the momentum toward peace may be rudely interrupted by one side or the other and that a new outbreak of fighting may occur. As was the case prior to the October War, the Arabs may come to the conclusion that the political situation has been "frozen," largely because the U.S. has been unable or unwilling to exercise suffi-

cient influence against Israel while the U.S.S.R. has refrained from meeting all of Cairo's demands for military equipment. In the context of rising frustration, hostilities could break out once again, either in the form of a consciously planned and executed Egyptian-Syrian attack, a unilateral assault by Syria, or a pre-emptive strike by Israel against one or both Arab countries.

One of the implicit dangers for the U.S. and its allies in such a situation is the threat of a new oil embargo, for it is virtually certain that the Arab oil-producing states will come under tremendous political and moral pressure from within the Arab world to wield the oil weapon. No doubt anticipating such a development, Arab spokesmen, in a manner reminiscent of their actions in 1973, have been warning the West of the relationship between a secure flow of oil and a settlement of the Arab-Israeli conflict. Though these threats were made in a far more restrained manner than in the past, they could scarcely be ignored, for the decision by the Organization of Arab Petroleum Exporting Countries (OAPEC) in October 1973 to decrease the production of crude oil and to embargo the U.S. and Holland had demonstrated vividly the then new-found solidarity in the Arab world. In the past, most observers, noting the ideological and personal rivalries that divided the Arab states and remembering the futile 1967 embargo attempt, had doubted that OAPEC could mobilize its members into effective collective action. The events of October 1973, which caught the world by surprise, demonstrated once again the dangers of basing contemporary policy on historical trends and experiences, particularly when the conditions of the past are misread. As is now quite evident, a coordinated effort on the part of the Arab states did not require even ideological unity; the shared humiliation resulting from the debacle of 1967 and the consequent need to redeem Arab honor provided a psychological bond that tran-

scended existing divisions between "revolutionaries" and "reactionaries."

As the embargo recedes into history, it too becomes increasingly subject to misinterpretations and may thus serve as the basis for unnecessary tension and conflict that would be damaging to many countries. If Arab statesmen believe that their 1973 actions in regard to oil produced major concessions in American policy, the temptation to adopt a similar strategy in the future may well be overwhelming. In view of this situation, a careful and systematic analysis of the impact of the 1973 embargo on American foreign policy in general and toward the Middle East in particular is of more than academic interest. We shall be especially interested in ascertaining whether present conditions are similar to or different from those of October 1973, and, if there is a discernible variation, what implications it may have for the future use of the oil weapon by the Arab oil-producing states.

ARAB PETRO politics in the fall of 1973 involved three separate but related actions: an embargo of the U.S., Holland, South Africa, and Portugal; a cutback in overall oil production; and a quadrupling of the posted price of crude oil. Each of these differed in terms of motives, targets, and effects, and it is therefore imperative to consider them separately.

The quantum escalation in oil prices that followed OAPEC's decision to reduce the flow of oil received the least immediate attention but, as we shall point out later, has had a severe impact. The decision to raise prices was motivated by economic considerations and involved such major non-Arab producers as Iran, Venezuela, Indonesia, and Nigeria, all of which eagerly seized the opportunity to redress what was widely considered to be inequities in the benefits accruing to raw material producers and, hence, in the

international distribution of wealth.

While there was not a conscious target against whom this action was directed, the burden (at least in the short run) was borne by the poorest states in the international system. In India, for example, hopes for economic development were at least temporarily dashed as scarce resources had to be diverted to finance higher bills not only for oil but also for such by-products as fertilizer. What this meant for India's people could be seen in the long lines that formed outside the few gas stations in rural areas where peasants clamored for fuel for their irrigation pumps in order to save their crops and avert famine. Violence was not unknown in this desperate context.

The second measure, the production cutbacks, was motivated by a mixture of economic and political considerations. Decreasing the supply of oil while demand remained high facilitated actions designed to increase prices. More important, however, were political factors. The cutback had a threefold purpose. First, since Europe and Japan were extremely vulnerable to such action because of their high dependency on oil supplies from the Arab world, OAPEC sought endorsement of Arab political objectives in the conflict with Israel. Maintaining the decrease in production was deemed a necessary fillip to achieve a second political objective, namely, generating European pressures on the U.S. for a change in its policy. U.S. decision-makers now had to consider the economic well-being of principal allies when assessing policy toward the Middle East. Third, the cutback facilitated the implementation of the embargo by ensuring that too many oil tankers destined for other countries would not mysteriously appear in U.S. ports.

The cutback in production was ultimately designed to reinforce attempts to bring about a change in U.S. foreign policy through the embargo. As the OAPEC Ministerial

Israel brought his credibility into question since he had been warning Washington of his concern for several months. Second, one must consider the political forces within the Arab world. If he had not acted, his entire regime would have been seriously endangered by a wave of resentment that surely would have followed. As things turned out, his decision to act gave him a new image. With this move, King Faisal was transformed from a "reactionary ally of U.S. imperialism" into a leading Arab nationalist, a development symbolized by his triumphant visits to Egypt, Syria, and Jordan in 1974 and early 1975. Furthermore, the massive influx of oil revenues enabled Faisal to ensconce Saudi Arabia as the major contributor in the replenishment of the armed forces of the confrontation states.

It is instructive to note that at no time during the embargo did King Faisal wish to endanger his relationship with the U.S., for he shared Washington's concern with the need to contain Soviet influence, which he perceived as presenting a threat to the survival of his monarchy. Accordingly, throughout the embargo period, he carefully sought to avoid a sharp confrontation with the U.S. and never allied himself with such radical regimes as Iraq and Libya, which were opposing any settlement that implied recognition of Israel. Thus, it was not surprising that in the midst of Kissinger's shuttle diplomacy Riyadh readily agreed with Cairo that U.S. policy had changed significantly, even though none of Faisal's original three demands (which he subsequently modified) was met. Indeed, the formal OAPEC statement announcing the lifting of the embargo, which the Saudis had been instrumental in drafting, was surprisingly mild and general. It stated:

The ministers re-evaluated the results of the Arab oil measures in light of its main objective, namely to draw the attention of the world to the Arab cause in order to create the suitable

climate for the implementation of Security Council Resolution 242. . . . The ministers took cognizance of . . . the signs which began to appear in various American circles calling (in various degrees) for the need of an even-handed policy . . . American official policy . . . assumed a new dimension vis-à-vis the Arab-Israeli conflict.

On the other hand, the announcement indicated that U.S. policy had not yet reached a position "compatible with the principle of what is right and just toward the Arab occupied territories and the legitimate rights of the Palestinian people," so production would not be fully restored to pre-embargo levels, and a review of the situation would be made later.⁴

Nevertheless, Saudi Arabia did raise its production to former levels, though it continued to warn of the need to achieve a settlement of the Arab-Israeli conflict. Washington welcomed these developments, and a new relationship with Saudi Arabia was officially confirmed in early April 1974 when both states announced an agreement to strengthen economic, technological, and military cooperation. The agreement included a U.S. commitment to re-equip and train the Saudi National Guard and the creation of mechanisms "to broaden and open the entire United States-Saudi Arabian relationship," but the State Department was at pains to deny that the U.S. was engaging in the kind of bilateral deals for which it had criticized its allies on previous occasions.

Whether or not the agreement represented a volte-face, the U.S. was clearly emphasizing a number of objectives that centered around oil, including increasing U.S. influence in the region, alleviating its balance of payments problem, which had been aggravated by the new oil prices, strengthening the security of the Persian Gulf area, ensuring U.S. access to oil, and encouraging the diversion of Saudi funds into international aid efforts and long-term programs of investment.

Also indicative of the changing U.S. position on Middle East issues was the new relationship with Cairo and Damascus. The U.S. now proffered financial and technological assistance to Syria and Egypt and carefully sought to display its new flexibility by supporting a United Nations vote condemning Israeli reprisals against Lebanon in the spring of 1974. When former President Nixon visited the area several weeks later, he received receptions in Arab capitals that ranged from correctness to exuberance. The commitments arrived at during his trip further symbolized America's new role, as diplomatic relations with Syria were re-established and Nixon emphasized more than previously that the Israelis would have to take risks to achieve a settlement. At the same time, however, the U.S. replenished Israel's military arsenal, sending it tanks, aircraft, antitank missiles, and other sophisticated equipment. The resupply of Israel, combined with intensive training and preparations by the Israeli Defense Forces, was designed to give Israel the capability to fight a two- to three-week war.

In other parts of the Middle East as well, the U.S. sought to create interdependent relationships of varying degrees through the use of diplomatic, economic, and military instruments of statecraft. Diplomatic missions were dispatched to several Persian Gulf sheikdoms, and new military sales were arranged with Jordan, Lebanon, Kuwait, Iran, and Oman. In addition, the U.S. granted the Shah of Iran permission to transfer F-5 aircraft to Jordan. The deals with Amman and Beirut, which for the most part consisted of defensive equipment such as antitank missiles, air defense missiles, and F-5 aircraft, were designed to bolster friendly governments and to dissuade them from turning elsewhere for arms. In the case of Lebanon, there was, in early 1975, a real possibility that either the Soviet Union or Syria would eventually become involved in defensive arrange-

ments. A commitment by Damascus, involving active participation in the defense of southern Lebanon against Israel's anti-Fedayeen operations, would have been most troublesome, given Israel's public position that such a situation would be unacceptable. Although the Lebanese government resisted Syrian involvement, it was under increased pressure to protect its villages in the south. How long it would be before the government yielded to such pressures and invited Syrian help was not certain.⁵ The U.S. apparently came to the conclusion that the situation was serious and that it could not afford a wait-and-see policy.

The supply of military equipment to friendly Persian Gulf states was designed to help Kuwait, Iran, and Oman (whose long-term interests were similar to those that the U.S. shared with Saudi Arabia) resist revolutionary movements, to minimize Soviet influence in the Gulf and to secure the flow of oil. Iran had not only experienced historical threats from the U.S.S.R. but was also concerned that Baghdad's support for revolutionaries within its own borders, in Pakistani Baluchistan, in Oman, and elsewhere was a strategic undertaking, aided by Moscow, to surround her in a sea of ideological hostility. Kuwait, meanwhile, was confronted by Iraq's demands for part of its territory. Finally, Oman, which is located on the southern side of the vital Strait of Hormuz, had to cope with Marxist-led revolution in Dhofar province, backed by the People's Democratic Republic of Yemen and the U.S.S.R.

While it could be argued that revolutionary successes would not necessarily bring to power regimes that would reduce or terminate oil supplies to selected countries such as the U.S., Washington was not prepared to gamble on this. Kissinger made it quite clear that the U.S. was concerned that a seizure of power by a figure similar to Libya's Mu'hammar al-Qaddafi could have an adverse impact on an already-delicate petroleum situation.⁶

Although significant changes clearly occurred in United States policy in the Middle East, a marked degree of continuity could also be discerned. The objectives that had been articulated before the October War remained constant, with the qualifications that (1) a new objective, that of restoring the oil flow, became paramount, and (2) the priority accorded to particular objectives both in the Middle East and in the larger context of American global policy changed dramatically. Unlike the situation prior to the war, Washington now focused primary attention on its objectives in the Middle East.

For the first time in years a settlement of the Arab-Israeli conflict occupied the attention of policy-makers at the highest levels, and its pre-eminence was intensified by the Arab embargo's destruction of the former separation of the Arab-Israeli issue from the oil question. Although such a settlement had represented an important objective in the region for many years, after the failure of the Rogers Plan, the issue had laid dormant because of a general feeling that the existing deadlock could not be broken in the absence of significant structural changes in the region. Those changes were wrought by the events of October 1973.

THE HIGH priority accorded the Middle East question was accompanied by a change in techniques employed there. The former policy of limited and cautious persuasion on the Arab-Israeli issue was replaced by the intensive and highly active "shuttle diplomacy" of Henry Kissinger. To implement his efforts, Kissinger combined rewards and veiled threats of withholding assistance, and U.S. aid was now dispensed far more generously to Egypt and Syria than it had been for many years. Moreover, the U.S. did not hesitate to press home explicitly to the Israelis the point that any settlement necessitated concessions involving risks on their part,

risks they should be prepared to take in the interest of peace.

It should be emphasized, however, that the U.S. deliberately pursued a policy designed to demonstrate that it was not reacting to "blackmail." In particular, Washington continued to support Israel, and, as we have stressed, Kissinger, combining threats and rewards in his negotiations with the Arab oil states, did not yield to the original demands formulated by OAPEC and announced by King Faisal.

Yet another change in American foreign policy was the increased attention paid to the security requirements associated with maintaining the flow of oil. There could be little doubt that the Persian Gulf and the Indian Ocean were critical in this regard, and both the Departments of State and Defense supported a Navy proposal to improve facilities on Diego Garcia. There was no gainsaying the fact that the strategic importance of the Persian Gulf was fully accepted by top-level decision-makers, and its security and stability would receive high priority in the future. Indeed, we are willing to hazard a prediction that before long the Arab-Israeli issue will become of secondary importance in the region and the world, and the attention of statesmen will be primarily focused on the Persian Gulf and events therein.

What role, then, did the embargo actually play in bringing about the changes that did occur in U.S. policy—changes of style and methods more than substance? This is a difficult question to answer, for one must separate two events, the October War and the actions of OAPEC. In our view, there is little doubt that the October War itself would have sensitized American leaders to the dangers of the status quo and forced a new American effort to resolve the Arab-Israeli issue, which might have succeeded over the longer term. Oil served as a lubricant, however, in increasing the pace and intensifying the effort.

In any case, the U.S. succeeded in achieving its new objective—restoring the flow of oil—and in greatly strengthening its position in the area. Relations ranging from formal to cordial were established with previously hostile states such as Syria, Algeria, and Egypt, and ties with friends in the area, notably Saudi Arabia and Iran, were considerably strengthened. This upsurge in American influence placed the U.S. in a far more advantageous position vis-à-vis the U.S.S.R. than had heretofore prevailed. Unlike Moscow, Washington had developed leverage with both Israel and the Arab world and, indeed, within the latter, with ideologically opposed states. Now the U.S. found itself in the unusual position of initiating policies rather than responding to the actions of the U.S.S.R. in the region. Thus, it was not surprising that some observers went so far as to argue that the real victor in the October crisis, at least in the short term, was the U.S.

How long the U.S. would enjoy its new position depended not only on continuing movement on the Arab-Israeli question but also on how the question of oil prices would be resolved. This issue, too, would inevitably have risen, even in the absence of an embargo, although the speed and magnitude of the change would probably not have been as great, and consumer nations would have been better able to gradually adjust to a situation that presented grave challenges to the international monetary system. After all, the Shah of Iran, one of the leaders in the drive for higher oil prices, did not participate in the embargo and publicly called on the Arabs to change their policy.⁷ His position on this issue was far more obdurate than that of Saudi Arabia, whose leaders publicly argued for lower prices. Despite continuing assurances by both Faisal and Saudi Minister of Oil and Minerals, Sheikh Ahmad Zaki al-Yamani, however, the only progress that was evident was the freezing of oil prices during an inflationary period. To what extent this action

represented a favorable portent for future reductions in price was unclear, but there was no mistaking the fact that the Saudis were responsible for preventing consideration of a price hike advocated by Kuwait during the Organization of Petroleum Exporting Countries (OPEC) ministerial meetings in February 1975.

While Washington tried hard to persuade Saudi Arabia to help push oil prices down, it continued to develop a comprehensive policy of cooperation with the consuming nations to deal with all facets of the energy problem.⁸ After the embargo, it had seized the opportunity to pursue its long-standing goal of creating a consultative partnership with Europe and Japan as a framework for dealing with political, military, and economic differences.⁹ Within the context of the oil crisis, this translated into a stress on a multilateral approach in dealing with the producer countries.

Although both Japan and the major European states were leery of a confrontation with the producers and hence concluded a series of bilateral agreements with the latter, Washington persisted in its efforts and, by 1976, had achieved some notable successes. Despite intense French opposition at the Washington Energy Conference in February 1974, West Germany, Netherlands, Belgium, the U.S., and seven other nations agreed, *inter alia*, on a comprehensive action program, financial and monetary measures to preclude comprehensive depreciation of currencies, plans for a conference with producers, and the establishment of an Energy Coordinating Group (ECG) composed of senior officials and ad hoc working groups.

Specifically, the ECG members reached agreement on oil sharing in case of an embargo, on the development of alternate sources of energy, and on the need to cut back consumption. They also established a \$25 billion "safety net" to support consumers with balance of payments difficulties as well as a \$6

billion oil facility within the International Monetary Fund. Moreover, the International Energy Agency (IEA) was created.

All of these measures were designed to lead to the emergence of a common policy on the part of the consuming nations in preparation for negotiations with OPEC. Concomitantly, Kissinger sought to exploit the potential divisions within OPEC that stemmed from political and economic differences, particularly the differing absorptive capacities of such countries as Venezuela and Iran on the one hand and Saudi Arabia and Abu Dhabi on the other. Specifically, he called for an increase in the world surplus of oil through conservation as well as an agreement on means (preferably a floor price on oil) to spur and maintain the development of alternative sources of energy prior to a producer-consumer conference.

Such cooperation was not easily achieved because of the differing positions of the consumers in regard to energy. The U.S. was the least dependent on oil imports and was the leader in the development of new technologies. Great Britain hoped to become self-sufficient in a few years through the North Sea finds. France, on the other hand, had no such expectations and sought to maximize its exports to oil producers and to develop strong bilateral ties with them. At the same time, President Valéry Giscard d'Estaing, dependent upon Gaullist support, was concerned with the possibility of American dominance of the new IEA, and he moved cautiously to coordinate his policy with that of the U.S. Despite such differences, a new relationship was cemented in the compromise agreement reached in December 1974 when he met with President Gerald Ford on the island of Martinique. Washington acceded to the desire of Paris for a conference of major importers and oil producers to discuss questions of price, with the lesser developing countries participating, while the French agreed to a preliminary producer-consumer

meeting to work out procedural matters in March. This was to be followed by intensive consultations among consumer nations to prepare for the conference, clearly a French concession to the American position, which held that major oil consumers should work out a joint policy prior to the conference with the producers.

Both the actions taken by the U.S. in the Middle East and in regard to consumer cooperation were designed to fashion an environment less conducive to the use of the oil weapon by the Arab states. And it is clear today that several factors do in fact militate against the imposition of an effective boycott. First of all, it is worth repeating that the October embargo was effectuated only after the U.S. began its massive resupply of Israel. Since recent estimates suggest that Israel is capable of fighting a two- to three-week war, thanks to the infusion of American equipment, Washington seems to have gained precious time. Indeed, it is altogether possible that Israel could achieve military success before there is any need for U.S. assistance that could, in turn, generate increased pressure for an embargo.

A second factor that might give OPEC second thoughts, or at a minimum cushion the effects of an embargo, is an outgrowth of both the bilateral and multilateral steps taken by Europe and the U.S. to deal with the petroleum crisis. Inasmuch as Arab-European relations have improved dramatically since the October War, OPEC would be hard pressed to justify reducing petroleum supplies to Europe as it did in October 1974. Sadat himself acknowledged this in an interview in *Le Monde* (Paris), January 22, 1975, when he said that "it would be absurd to punish countries like France which have maintained a fully objective attitude toward the Arab-Israeli conflict." Furthermore, the Egyptian President answered yes when asked if Europe would be spared an economic reprisal. This changed Arab perception of

Europe is important when we recall that not only were production cutbacks considered an essential adjunct of the 1974 embargo but also that the Arabs saw European vulnerability as a means to pressure the U.S.

A third development that would seem to undermine plans for a future embargo are the economic steps taken since October 1974. With the oil-sharing agreement in the summer of 1974, the industrialized states clearly established the means for mitigating the effects of an OAPEC embargo, especially if it were selective, while in the economic realm the investments of Arab petro dollars in the West (e.g., U.S. treasury bonds, industry, etc.) and their increased dependence on Western imports gave the Arabs a stake in the economic health of the West.

Fourth, the Arabs have become even more dependent on the U.S. for military equipment and training, thus reinforcing a trend that started before the embargo. And, besides the perceived threat from the U.S.S.R. which remains, the Persian Gulf area has recently become the scene of a local arms race involving a number of states which, while not openly hostile, are nevertheless interested in establishing a modicum of equilibrium in the area (e.g., Saudi Arabia versus Iran).

Finally, one must consider the changes in emphasis in American policy in the Middle East. Whereas prior to the embargo the Arabs criticized the U.S. for its relative inactivity, since that time Secretary Kissinger has made a tireless effort to arrive at a settlement, and changes have occurred in U.S. policy. Nevertheless, it would be a mistake to exaggerate their importance, for, in the final analysis, the U.S. did not alter its pre-embargo objectives, did not disavow its commitment to Israel's security, and did not yield to the initial demands published by the Organization of Arab Petroleum Exporting Countries. Moreover, the U.S., unlike Japan and leading European states, assiduously avoided even the intermediate step of endorsing the

Arab version of Security Council Resolution 242.

The argument that the much greater dependency of America's allies on Middle Eastern oil accounted for the disparity in policy responses is much too simple in that it ignores both the domestic and strategic considerations that inform U.S. policy. U.S. officials were well aware that a policy shift of the magnitude envisaged by OAPEC's original declaration would have generated an acrimonious internal political struggle and would have produced profound political repercussions on America's political position in the international system.

The principal lesson to be derived from the embargo, therefore, is well established in international politics: when the economic instrument of statecraft is directed against a vital aspect of a great power's interests, such as the credibility of its commitments, that country will react not with capitulation but rather by adjustments in the style and tactics of its foreign relations while simultaneously seeking to minimize its future vulnerability through a combination of domestic and international moves. The American-European cooperative efforts represent just such an attempt. At the same time, however, the U.S., having already made the kinds of policy changes that can be reasonably anticipated from a great power with far-flung security commitments, may well feel compelled to respond more strenuously to a new embargo. Judging from the Arab press and official statements, this possibility is taken seriously and, as a consequence, will no doubt give OAPEC pause in the event it contemplates another embargo.

Clearly many factors, such as pressures from radicals, considerations of Arab honor, the emotionalism generated by hostilities, and the fragility of crisis decision-making, could well lead to another embargo. Yet, the situation today is very different from that of October 1973. In the new context it will be

far more difficult for OAPEC to reach an embargo decision or to make an embargo an effective weapon. Since a new embargo would hardly benefit anyone, especially the conservative Arab states, wisdom counsels a

realistic assessment of the limited potential benefits and high costs attached to a renewed use of the oil weapon.

*Denver University and
The National War College*

Notes

1. *Al-Anwar* (Beirut), November 22, 1973; *Al-Jumhuriyah* (Cairo), November 22, 1973.

2. "U.S. Foreign Policy for the 1970's: Shaping a Durable Peace," a report to the Congress by Richard Nixon, President of the United States, May 3, 1973 (Washington: U.S. Government Printing Office, 1973), pp. 134-42.

3. Statement by Assistant Secretary Joseph J. Sisco Before the House Near East Sub-Committee, June 6, 1973, Press Release No. 197 (Washington: Department of State, 1973), p. 1.

4. Text of Arab Statement in Vienna on End of Embargo, *New York Times*, March 19, 1974.

5. *Al-Yawm* (Beirut), January 9, 1975.

6. Interview of Secretary of State Henry A. Kissinger. *Business Week*, January 13, 1975.

7. *Al-Hawadith* (Beirut), November 23, 1973.

8. For a persuasive argument on behalf of consumer cooperation, see *Energy: The Imperative for a Trilateral Approach*, The Triangle Paper: 5 (Brussels, The Trilateral Commission, June 23-25, 1974).

9. "U.S. Foreign Policy for the 1970's," pp. 77, 80-81.

General David C. Jones, in a keynote address to the Air Force Association, caricatured the crapehangers who see nothing good in any change and only despair of the future. He quoted one of them as saying:

"Even the future isn't what it used to be!"

FUEL SUPPLIES IN TIME OF WAR

DR. ARTHUR AKERS



ACCORDING to Napoleon, "An army marches on its stomach." Traditionally, this was true, but today's army is so mechanized that the nourishment it needs is not solid but liquid. An army needs fuel. It would be inappropriate to extend the simile to talk about an air force flying on its stomach. However, the inference is obvious: an air force requires large quantities of fuel to fight any kind of war, but in general the standards of quality control are higher than those for an army.

The logistic supply of fuel, both in rear echelons and in forward areas, will be the focus of this article. The region assumed is northwest Europe, and it is further assumed that the conditions pertain to those after the outbreak of limited war.

historical background

Forward transfer of fuel to the British army has long been achieved by means of the jerry can, a copy of that used by the German army

in the North African campaign of World War II. The German models were far superior to the "flimsy" used by British forces, so they were acquired wherever possible. Each can contains 20 liters, equivalent to 4.4 British Imperial or 5.5 U.S. gallons.

A rubber container is also available from a French company; the container is shaped like a bed pillow and contains 20 liters, the

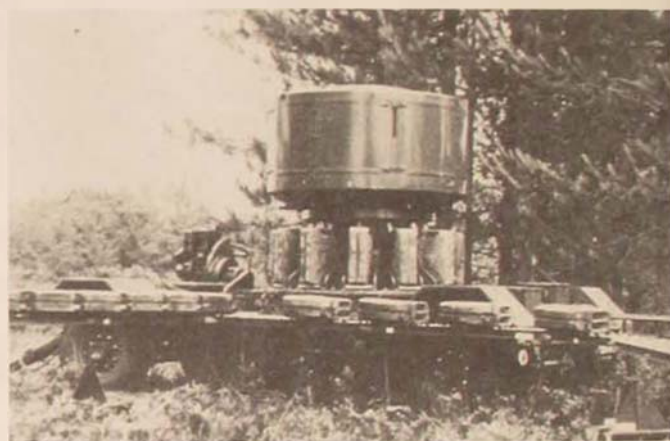
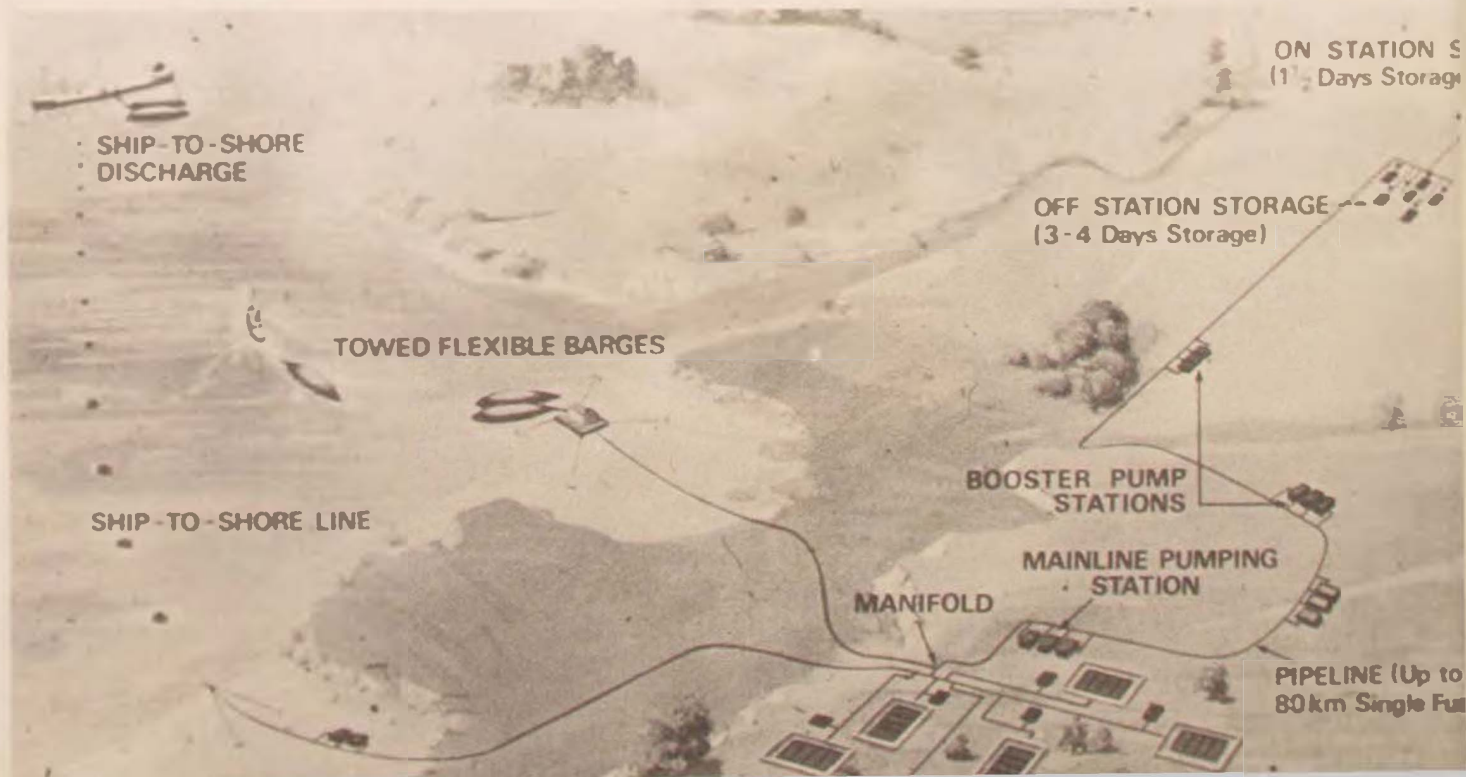


Figure 1. The rotary can filler

Links in the supply chain from sea to airplane



same volume as a jerry can.¹ The container may be dropped from a transport aircraft in a parachute-retarded or nonretarded fashion.

A great deal of money and time has been spent in exploitation of the inherent flexibility of a system based on jerry cans (as opposed to the use of tanker vehicles), and the system has been used for about 75 percent of the

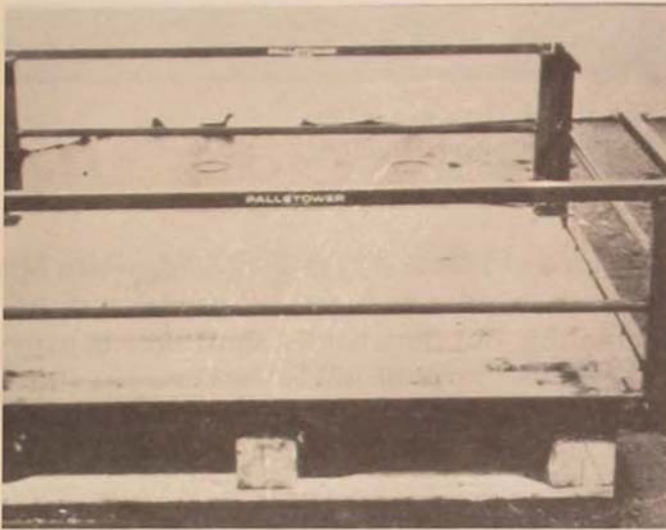


Figure 2(a). The British version of the jerry can holder

Figure 2(b), The German version (below)



total logistic fuel supply for the British army on the Continent of Europe. In addition to the work put into the development of the jerry can, many people are needed to fill them. Mechanized can fillers are available, one employing a reciprocating action which, when properly manned, fills 150 cans per hour. The rotary can filler (nicknamed "rotary cow") is designed to fill 720 cans per hour, but, in the author's experience, it achieves a filling rate of only 650 cans per hour. (See Figure 1.)

During World War II, the percentage of packed stocks of the overall logistic load moving forward was 95 percent, and in the Korean War the percentage was only slightly less. Jerry cans will probably continue to be used, and in order for the cans to be handled in bulk, efforts are being made to devise suitable pallets for them. A British example is shown in Figure 2(a) and a German version in Figure 2(b). The British one folds flat for the return journey, but the German version occupies the same space full or empty.

Thus, recent efforts have been made to handle jerry cans in bulk, but they constitute an awkward load. Although the army still uses this system to refuel armored brigades—the Royal Air Force used it in all parts of the world right through World War II—jerry cans have long since become unsuitable for aircraft fuel replenishment. In order to distribute fuel to the user, a bulk supply system must be used in the rear areas.

rear echelon supply

The supply system used must be compatible with a transport and load transfer concept based on the maximum use of standard vehicles and mechanical handling aids. There will have been opportunities for peacetime reconnaissance and pre-positioning of men and material in northwest Europe, and although much of this will have been done, the force deployed will still depend on substan-

tial air freight capability. Additional logistic problems would arise if the strike aircraft were required to operate in widely dispersed formations and if the indigenous fuel supply system was meager.

Entry by air uses drums with a capacity of 40 Imperial gallons (50 U.S. gallons),² but a large proportion is scheduled to be delivered by the 500-gallon Sealdbin—Figure 3(a). These are expensive items which cost \$1000 each in Britain (\$700 in U.S.) and weigh 250 pounds when collapsed and empty. They can be dropped by parachute, towed, rolled, bounced, floated, and filled from roadside



Figure 3(c). The shape of the Sealdbin enhances its utility.

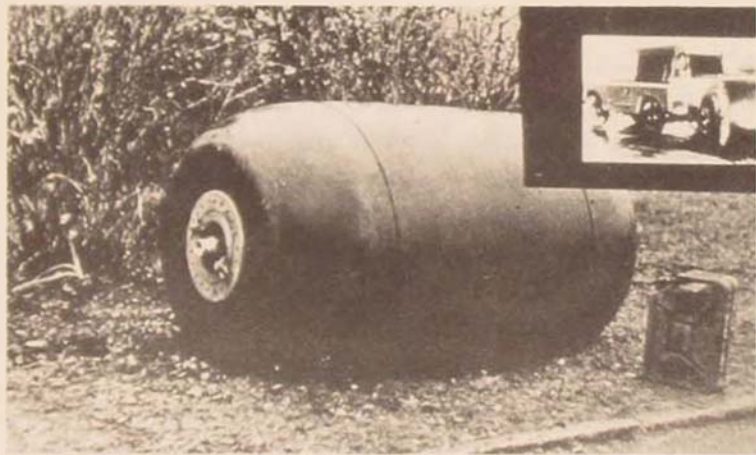


Figure 3(a). The Sealdbin (above)

Figure 3(b). The Sealdbin in use (below)



tankers—Figures 3(b) and 3(c). Sealdbins are easy to handle and can be used for direct refueling, but they have a short life, an average of 15 cycles of use.

Entry by sea can be accomplished by means of an 8-inch-diameter ship-to-shore submarine hose. The working pressure is 200 pounds per square inch (psi), and a throughput rate of 230 tons per hour is possible. An alternative method is to use the towed flexible barge or dracone. This is a large tube made from nylon-reinforced neoprene rubber 225 feet long by 9 feet wide and 6 feet deep. It is filled and emptied through a 4-inch armored hose fitted to the bow of the vessel, and pumping can take place when the ship is stationary or under way. Each dracone carries 105,000 gallons when full. (See Figure 4.) Except for biannual pumping exercises in the United Kingdom, little information is available, and wartime experience by the British is nonexistent. Experience gained by the U.S. with limited use of dracones in Vietnam shows that they are not very satisfactory from the point of view of hazard to other shipping and users of shore facilities.³

When the fuel reaches shore, it can be stored in bulk bolted steel tanks of various

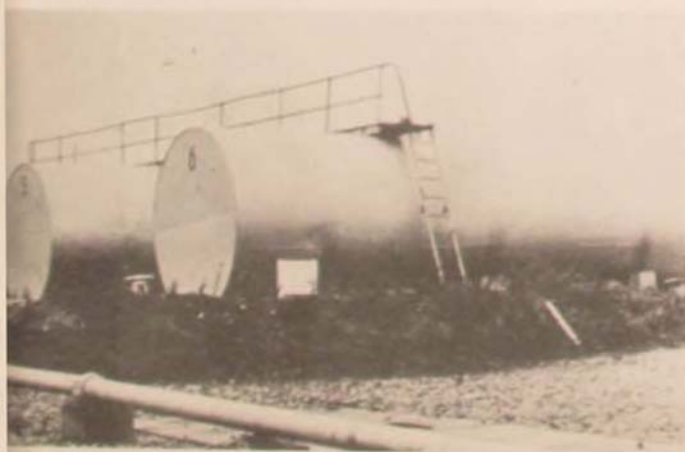
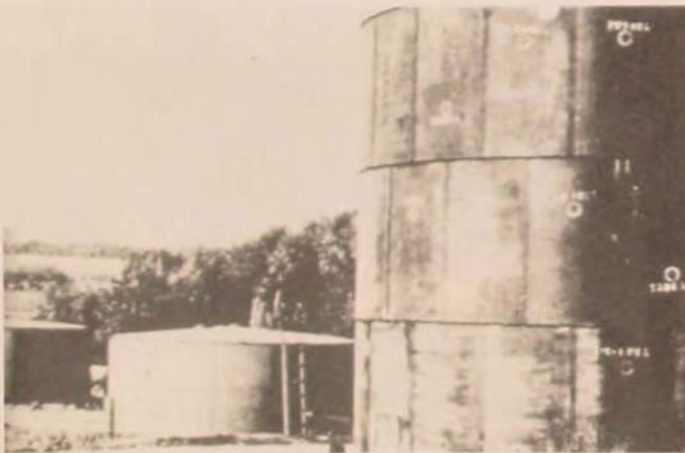


Figure 4. The flexible barge or dracone in use



Figure 6(a). 12,500 gallon flexible tank

Figures 5(a) and 5(b). Bolted steel tanks in two configurations



capacities from 15,000 to 125,000 gallons, as shown in Figures 5(a), 5(b). However, these tanks are falling out of favor since they take a large amount of sapper support, and fabric tanks seem now to be the norm. In the British system, these tanks, fabricated from nylon-cord-reinforced neoprene rubber, come in two sizes, 40,000 and 12,500 gallons, the latter shown in Figure 6(a), and can be interconnected to form tank farms. In the U.S. system, in addition to tanks having similar capacities, they are available with capacities of 10,000 barrels and 25,000 barrels—Figure 7(a). It may be noted that these tanks and their positioning require some ground preparation, if they are not to cause trouble when filled. An indication of the degree of preparation required for such so-called berm-mounted tanks is shown in Figures 7(b) and 7(c).

The complex of tanks on shore may be connected to the airheads by means of a 6-inch victualic pipeline* as shown in the overview drawing, page 54. This pipeline comprises aluminum alloy pipes, each 20 feet in length and weighing 80 pounds as compared with a

*The term victualic pipeline derives from *victualic coupling*, in which a groove (rather than threading) is cut at the end of a pipe and the pipe ends are joined by a rubber ring around the joint; a sleeve is placed about the ring and bolted, compressing the ring and making a strong, liquid-tight joint.

U.S. tanks

Figure 7(a). 10,000 and 25,000 barrel tanks (right). Figures 7(b) and 7(c) show the preparation and laying of these tanks (below).



poorly designed 200-pound steel equivalent. Helicopter movement of pallet loads is possible, as shown in Figure 8(a), but carriage of half a mile's worth on a 4½ ton truck is more usual. Figure 8(b) shows the pipeline being laid, transported by this means; a load of such pipes is shown in Figure 8(c). The line works at 400 psi and at a flow rate of 540 gallons per minute. However, it is economical to establish such pipelines only when the throughput exceeds 1250 barrels per day. The pumping is accomplished by means of two of the pumps of a three-pump station used in series. These stations, which contain their own water separators, filters, and qual-

ity control point, occur at intervals of 12 miles in the pipeline.

The U.S. system will shortly incorporate a main line pump driven by a gas turbine having speeds between 5800 and 10,000 revolutions per minute. The turbine drives the pump through a reduction gearbox with 1080 horsepower output under standard conditions, with an operating pressure of 1000 psi. Three of these units are capable of pumping more than 37,000 barrels per day of finished product 90 miles through an 8-inch pipeline on level terrain. This system should handle most theater requirements. The pump is shown in Figure 8(d).

Other means for conveying fuel from the rear echelons to the forward areas are those associated with the highly developed transportation facilities in northwest Europe: rail, truck, and barge. The main problem with all these conveyances is that the individual containers have limited capacity, require prepared media on which to travel, and manpower requirements are generally high. The supply is also discontinuous and could be sporadic or have large gaps in times of war.

forward area fuel supply

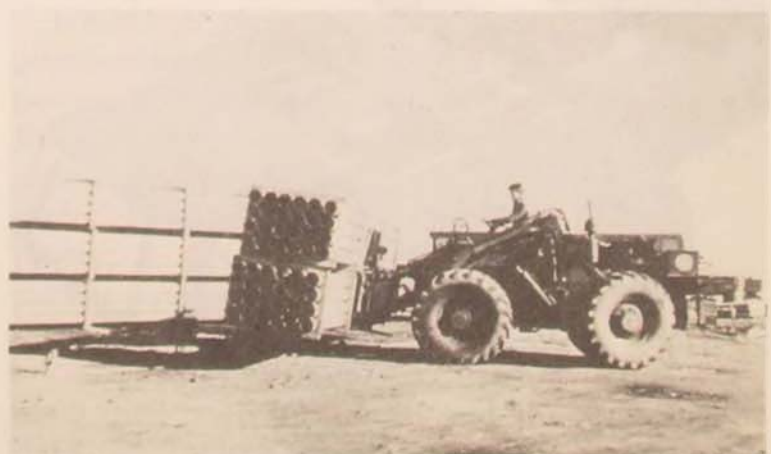
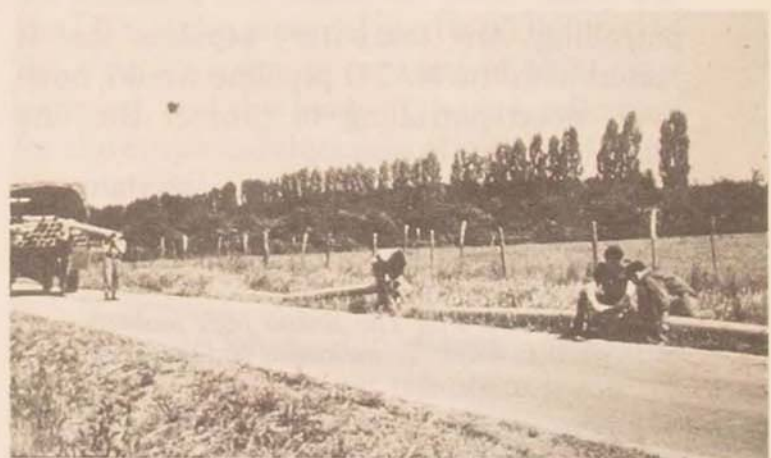
When the fuel has been moved forward and stored in large, collapsible, neoprene rubber, 50-gallon or 500-gallon tanks, it is then

pumped to the aircraft by means of portable pumps, having filters and separators integral with them. The equipment used for this is readily air-portable and may be carried and operated by two men.

The British army is scheduled to use high mobility load carriers, Figures 9(a) and 9(b). These four and a half ton vehicles should replace the medium mobility standard load carriers and may have installed on them two 600-gallon aluminum tanks from which fuel is pumped through attached separators and filters by means of a centrifugal pump. These devices would be eminently suitable for replenishing fuel for helicopters and all V/STOL aircraft.

The basis of the British Army of the Rhine

Figure 8(a). Helicopter load of victualic piping (upper left, reading clockwise). Figure 8(b). Victualic piping being laid from a 4 1/2 ton truck. Figure 8(c). A forklift load of victualic piping. Figure 8(d). The gas turbine fuel pump



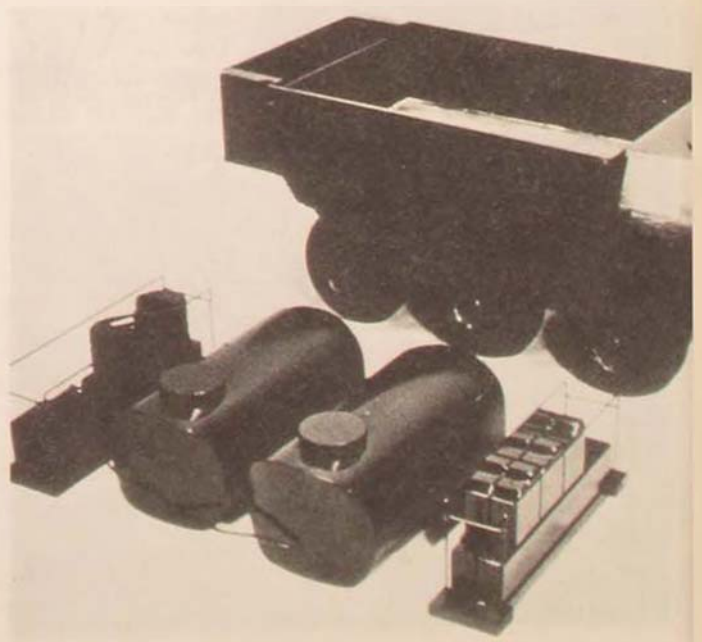
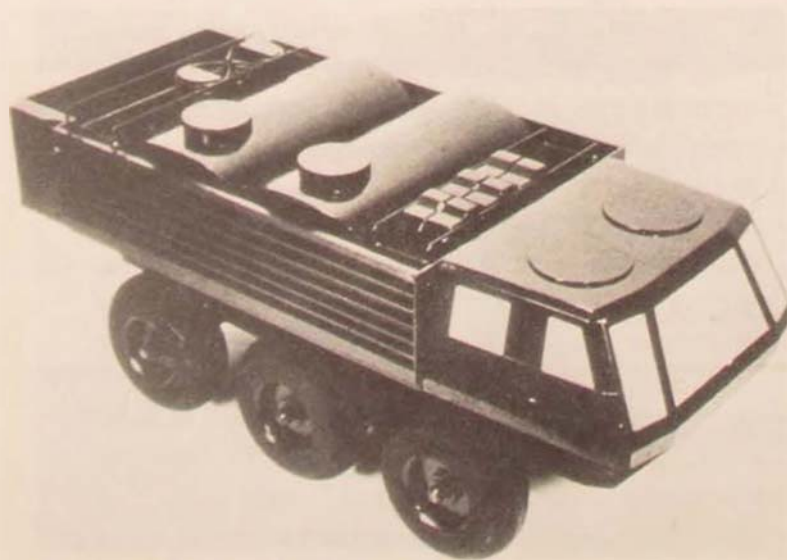
supply system is the NATO pipeline network. This is a European grid with main line pipes of 8-, 10-, and 12-inch diameters; laterals of 6 and 8 inches, connectors of 4 and 6 inches, and with port, canal, and road junction take-off points. The line is supplied by tanker ships discharging into storage at major port facilities and operates at high pressures, about 1200 psi. The flow rate through the pipeline is greater than 500 gallons per minute. Because three types have to be processed, namely CIVGAS, DIESO, and AVTUR (equivalent to MOGAS, Diesel Fuel, and JP 4), multiproduct working is used. In this, one product follows another down the line with the region of mixed fuels being pumped away into a slops tank for later separation. Supply of large quantities of any fuel to any part of the network is thus possible.

Protection of pipelines. Most of the NATO pipeline is in a buried, protected environment and, thus, requires little manning for patrolling. Any temporary pipeline that is joined with the NATO pipeline would, however, need patrolling to protect the line

against accidental damage and that due to surface action. It should be possible, though, to combine the running of the pumps with such duties, and only in extreme emergency would the manpower required exceed that used for conveying fuel by tanker vehicles. Also, the use of redundant or alternative lines could obviate some of these difficulties.

With the advent of lightweight materials for pipelines, such as new metal alloys, polymers, and metal/plastic composites, and of pumps with high power-to-weight ratios, it is possible to foresee greater use being made of pipelines in spite of the problem associated with damage. It should be possible to position these pipes and pumps rapidly so that they would link together the larger stocks concentrated in rearward areas with smaller tank farms at airheads. This method has the advantage that the pipelines can go across terrain not always negotiable by road. It may also become feasible to use similar lightweight equipment on high mobility tankers operating in forward areas and to fuel aircraft directly, even though they may be

Figures 9(a) and 9(b). The British high mobility load carrier in model form, loaded and unloaded



located a hundred feet or so from the tanker itself. This modified supply system would be more flexible than that envisaged for the near future and would be able to keep pace with the fluidity of modern warfare.

For the first role, fuel pumping rates should be of the order of 540 gallons per minute in each line, and for the second a flow rate of about 30 gallons per minute in each line is required. It is contended that most of the needs of the air force in the NATO area could be met with these two sets of conditions, and the design parameters involved in this procedure are dealt with in the succeeding part of this article.

design parameters

Pressure loss and power loss in pipelines. It is possible to derive the relationship between the pressure loss for a standard length of pipe (taken here to be one statute mile) and the flow rate in that pipe. To be more specific, for JP 4 the pressure loss, H , per mile is given by

$$H = 95.3f \frac{Q^2}{D^5} \text{ psi}$$

where Q is the flow rate (gallon/minute), D is the pipe diameter, and f is the value of friction coefficient obtained by the Colebrook-White formula⁴ using an absolute pipe wall roughness of 0.0018 inches and allowing a contingency factor of 5 percent for joints and lack of knowledge of roughness. Values of pressure loss per mile are shown in Figures 10 and 12(a), 12(b). Figures 11(a) and 11(b) show the maximum possible pipe run for different values of pressures and flow rates, and it can be seen that adoption of small bore pipes necessitates pumping at high pressures in order to maintain the flow rate at a distance.

The power required for pumping is calculated by multiplying the pressure loss along the pipe by the flow rate. Thus

$$\text{horsepower} = 0.583 pQ$$

where p is the pressure loss along the pipe given in thousands of pounds per square inch, and Q is given in gallons per minute. The variation of power loss with flow rate is given in Figures 12(a) and 12(b).

Pipe wall thickness. The wall thickness, t , is derived from considerations of pipe hoop stress. Thus

$$\text{hoop stress} = p \frac{D}{2t}$$

It is customary in a particular application to permit the walls to be stressed to a fraction of the ultimate tensile stress (UTS) of the material. The wall thickness and density of material assumed, coupled with the pipe diameter, will then lead to the weight of pipe per unit length.

In the case of the British Army's Emergency Fuel Handling Equipment (Surface) system, where the pressure loss per mile is 34 psi, the external diameter is 6.65 inches, and the UTS of the material used is 63,000 psi. In this case a maximum pressure of 1200 psi is assumed, and this leads to the law following for the empirical thickness of pipe wall using any material.

$$t \text{ (inches)} = \frac{17.7 D \text{ (inches) pressure loss (psi/mile)}}{\text{UTS of tube material (psi)}}$$

For pipes of 4- and 6-inch diameters pumping 540 gallons per minute at pressures of 400 psi, the wall thickness and pipe weight per unit length are shown in Table 1.

Weight of pumping equipment. Table 2 gives some of the relevant characteristics of power installations currently used by the British army. The present generation of pumping equipment shows an average installed weight of about 125 pounds per horsepower. A new generation of gas turbine pumps now under development could lower this figure to about 35 or 40 pounds per horsepower. The power needs envisaged have thus been calculated and the values shown in Table 3.

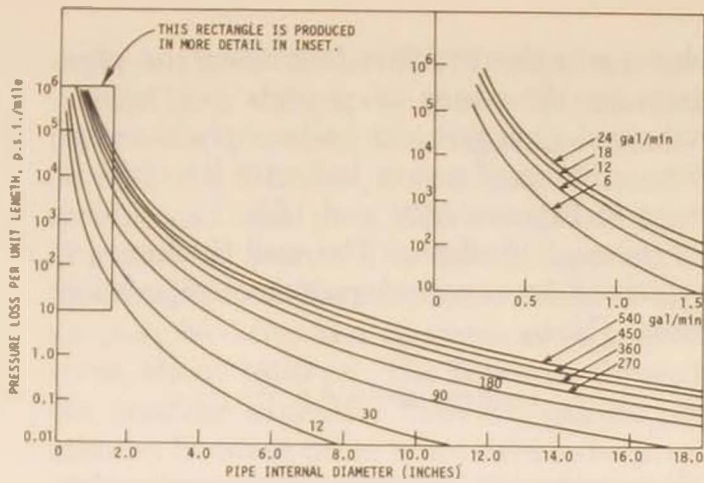


Figure 10. Variation of pressure loss with pipe length, flow rate, and pipe diameter

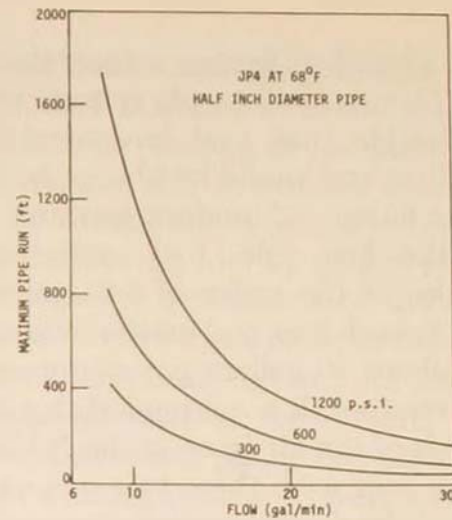


Figure 11(a). Variation of pipe run with flow rate and pumping pressure (half-inch diameter pipe)

Table 1. Pipewall thickness to convey 540 gallons per minute

Material	Wall Thickness (Inches)		Wall Thickness as a Percentage of Overall Diameter		Weight (lb) per 20 Foot Run	
	6" pipe	4" pipe	6" pipe	4" pipe	6" pipe	4" pipe
Steel	0.068	0.326	1.1	7.0	72	232
Aluminum alloy	0.170	0.820	2.7	14.6	64	206
Fiber reinforced rubber	0.500	3.620	7.1	32.2	92	646
Nylon	0.850	4.110	11.0	33.7	135	655

Table 2. Characteristics of pumping equipment

Name of Pump	Flow Rate (gpm)	Pressure (psl)	Weight (lb)	Weight: Power (lb/hp)
Morrison Dorman	540	400	16,410	130
Duetz	540	70	2,400	109
Rubery Owen	50	25	500	140
General Purpose	50	25	100	120

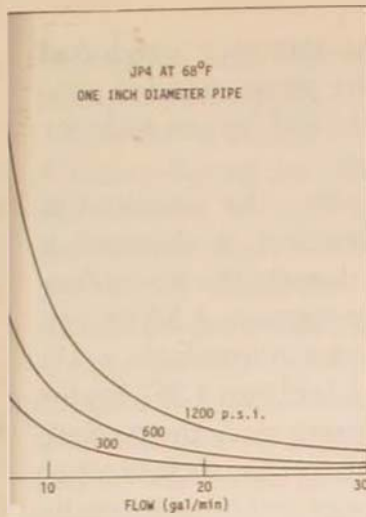


Figure 11(b). Variation of pipe run with flow and pumping pressure (one-inch diameter pipe)

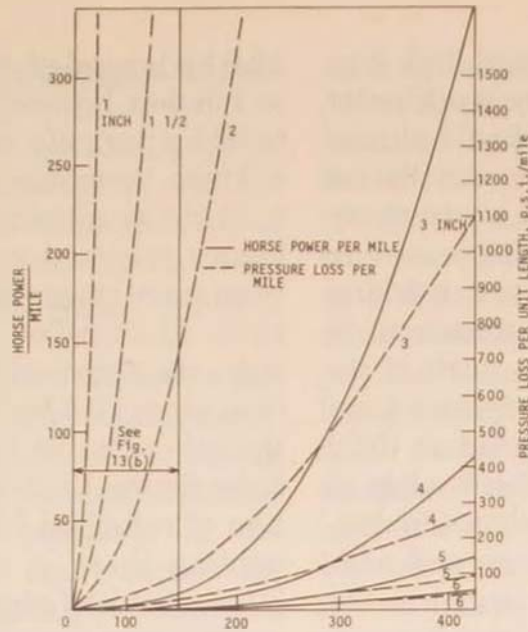


Figure 12(a). Variation of power loss and head loss with flow (gal/min) rate and pipe diameter

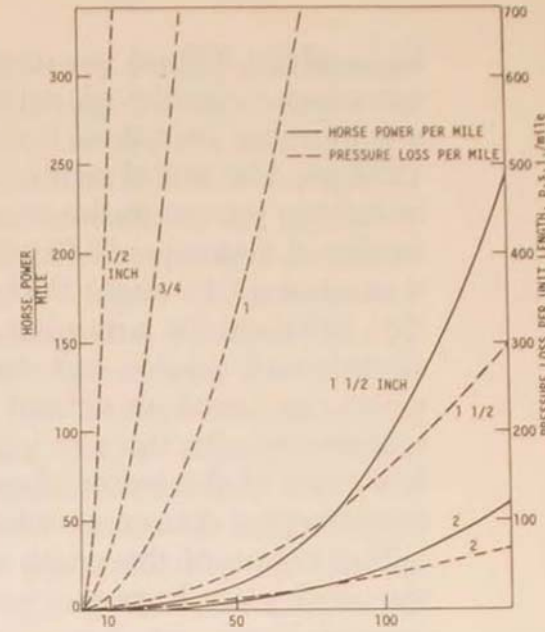


Figure 12(b). Variation of power loss and head loss with flow rate and pipe diameter

Table 3. Summary of pump weight requirements

Bore	Flow Rate (gpm)	hp/Mile	Pump Weight Needed
10"	540	1.07	0.57 tons/30 miles
6"	540	12.6	6.7 tons/30 miles
4"	540	92	49.4 tons/30 miles
1-1/2"	24	1.54	10.4 lb/900 ft
1"	24	11.9	81.2 lb/900 ft
1/2"	24	357	243.5 lb/900 ft

calculated results

Pressure loss. The calculated results shown in Figure 10 are quite startling and enable us to reach two very significant conclusions. First, when pipe diameter is very large, the head losses are low, and a substantial flow rate can be maintained over considerable distances by comparatively small power inputs.

At 540 gallons per minute a 10-inch pipe loses about 6 psi per mile, so if pumped at 180 psi, it would need boosting every 30 miles. A 6-inch pipe loses 40 psi per mile, and if pumped at 240 psi, it would need booster stations at 6-mile intervals, or at a pressure of 400 psi boosting every 10 miles. On the other hand, if a smaller pipe diameter is chosen, say 4 inches, the head losses become very

large, about 300 psi per mile, and high flow rates can be achieved only by working at much higher pressures. If we should choose 1200 psi, this would require the installation of booster pumps in the line at about every 4 miles. A flow rate of 540 gallons per minute is equivalent to about 900 tons a working day, sufficient for a number of squadrons of aircraft and a large helicopter fleet. If we wish to replenish an airhead tank farm from a large-capacity store or pipehead at daily flow rates of this order, then it is useless to consider pipe diameters of less than 4 inches.

The region of the graph concerned with the small pipe diameters is enlarged in the inset of Figure 10. It is of interest because such pipes could be used in forward areas to replenish Harriers or similar V/STOL airplanes while it hides some distance from the supplying tanker. For each aircraft a flow rate of at least 30 gallons a minute would be necessary, but the graph shows that head loss increases by a factor of more than 10 for each half-inch reduction in pipe bore, and despite the handling advantages of small-diameter pipes, it would seem that we could not afford to opt for a pipe size below one inch.

With regard to the distance pumped along given pipes at given pressures, it can be seen from Figure 11(a) that pumping through a half-inch line at a pressure of 1200 psi would produce 24 gallons a minute at 240 feet but only 12 gallons a minute at 900 feet. The situation is better at a 1-inch bore, shown in Figure 11(b): 300 psi would maintain 24 gallons a minute out to 1500 feet if necessary.

Fluid horsepower. It can be seen that power is a function of flow rate and pressure loss, and the power has been plotted in Figures 12(a) and 12(b). For completeness, the pressure loss per unit length has been plotted on the same figures for some pipe diameters in dashed lines. For a 10-inch pipe the power needed to convey 540 gallons a minute is some 1.07 horsepower per mile (not shown on the curves), and for 6-inch diameter pipes

12.6 hp is needed. If the diameter is reduced to 4 inches, however, the power needed rises to 92 hp per mile, and to 362 hp per mile for a 3-inch diameter pipe.

At the smaller diameters, the variation of power required as diameter is changed is even more staggering, despite the lower flow rates. At 24 gallons per minute, 1.54 hp per mile are required to pump through a 1½ inch pipe, 11.9 hp for 1 inch, and 357 hp for the half-inch size. It is more realistic to relate these figures to the probable battlefield situation of refueling Harriers and helicopters by quoting them as power requirements per 300 feet-run of pipe: 0.08, 0.70, and 20.3 hp respectively. The first two could be achieved from a vehicle power take-off unit, or a small portable pump, but the power needs of the half-inch diameter pipe are excessive, and its use can be quickly dismissed.

Pipeline materials. It can be seen from Table 1 that selection of the less-strong materials for the pipeline, such as plastics and fiber-reinforced rubber, would result in a very large ratio of wall thickness to bore and, hence, a stiff, unmanageable line. To make the line thinner and more flexible, it would be necessary to employ much lower pressures and, hence, reduced flow rates. The alternative is to use metal pipes; they would be thinner and, therefore, lighter, but they would be more cumbersome to handle.

THERE IS a firm impression that the logistic chain of the British army and the Royal Air Force has worked well in spite of equipment and systems that are outmoded and ripe for revision. The fact that armored brigade, helicopter detachment, and airfield commanders have always received a rapid response to their call for fuel has led to the thought that revision of existing techniques and of plant design is not necessary. This is a fallacious assumption, and, in my view, some thinking will have to take place in the near future if

helicopter and Harrier refueling is to take place expeditiously.

It is also a fact that most systems in use by Western forces postulate that future conflicts will be long in duration. The implication of shorter duration of hostilities, together with the use of minimum or no sapper support, should be investigated.

An argument has been put forward in this document which demonstrates that a reasonable solution to the problem of conveying fuel forward with the above considerations is by the extended use of pipelines. In the quantitative survey, the main factors involved in making use of such pipelines have been examined. Two appropriate applications are those of moving some 900 tons a day at 540 gallons per minute over distances around 30 miles and of replenishing helicopter or V/STOL aircraft when they are located some 300 feet from a high mobility tanker vehicle.

In the first application, the relative merits of pipe diameter as small as 4 inches and as large as 10 inches have been considered. For the smaller gauge 4-inch pipe, 540 gallons per minute can be achieved only by pumping at high pressure, say 1200 psi through a high-strength, rigid metal pipe, but the large head losses which result can only be made

good by installing every 4 miles a 368 horsepower pump weighing 14,750 pounds. As diameter increases, so the advantages conferred by lower pressures and lower power requirements can be realized, the pipes can be thin-walled, lightweight, and collapsible. At a diameter of 6 inches, 540 gallons per minute can be achieved at a pressure of 400 psi, and collapsible fabric lines are feasible. Pumps rated at 126 horsepower, weighing 5050 pounds, and placed every 10 miles should suffice to maintain the flow. For a 10-inch fabric line, the figures are even better: 180 psi pressure, maintained by 32.0 horsepower pump, weighing 1280 pounds, placed every 30 miles.

To refuel helicopter or V/STOL aircraft directly from a high mobility tanker over a distance of 300 feet, say 4 at a time each at 30 gallons per minute, lines of at least 1-inch diameter could be used, operating at pressures of the order of 200 psi. The pumping power needed would be approximately 14 horsepower, well within the capacity of a power take-off from a stationary fuel carrier.

A number of related facts have been excluded from the analysis, but it is hoped that those included here are sufficient to give some food for thought on the problem in the appropriate quarter.

Ames, Iowa

Notes

1. M. Galaso, (Fuels executive, U.S. Army Foreign Science and Technology Center, Charlottesville, Virginia), private communication, 1975.

2. In this paper when gallons are cited, U.S. gallons are intended unless otherwise indicated.

3. U.S. Army Quartermaster School, Fort Lee, Virginia, private communication, 1974.

4. C. F. Colebrook and C. M. White, "The Reduction of Carrying Capac-

ty of Pipes with Age," *Journal of the Institute of Civil Engineers* (London), vol. 7, 1937, p. 99.

ACKNOWLEDGMENT

Preparation of this article was conducted partially under the auspices of the Engineering Research Institute of Iowa State University at Ames, Iowa. This support is gratefully acknowledged.

THE budget squeeze and the need to do more with less are common themes in today's Air Force. An equally common theme is the need for improved resource management. If resource and financial management is to improve, then management systems must provide incentives for good management and must have clearly visible goals of improved efficiency. General David C. Jones, in an address to the American Society of Military Comptrollers, said, ". . . we have to find some way to provide the incentives to do the job in the most efficient manner. And if somebody does well, and doesn't spend all his resources, we should be able to say, 'All right, you managed well and therefore you can take that money and use it to do other things.'"¹

Robert C. Moot, Assistant Secretary of Defense (Comptroller), speaking to a 1973 Financial Management Conference, called for development of systems and techniques to assist managers. In so doing he wondered whether our system of incentives placed a premium on the wise use of resources.² The emphasis on incentives for better resource management in no way reflected on the motivation or integrity of Air Force managers. Without question those managers strive to reach the goal that is set for them. The question of incentives concerns whether the right goal is set. Are managers rewarded for using resources efficiently? There is some basis for answering no to that question.³ But, General Jones and Mr. Moot have called for solutions, not recriminations or accusations.



VARIABLE BUDGETS

*Application
and
Theory*

LELAND G. JORDAN

The call is for systems that provide incentives to efficient management and the information to act on those incentives. This article presents such a system. All prerequisites for its use exist; development of new accounting systems or new staff capabilities are unnecessary; it recognizes, in quantitative terms, price changes, program changes, and managerial efficiency. This system is variable budgeting.

The preceding paragraph raises more questions than it answers. What is variable budgeting? How does it provide incentives to efficient management? Will it really work? The remainder of the article is devoted to answering those questions and also to an explanation of how variable budgets fit into the Planning-Programming-Budgeting System and the control process. Every effort is made to present a comprehensive description that will allow the reader to evaluate for himself the utility of variable budgeting. Poorly defined subjects are difficult to describe and equally difficult to evaluate; therefore, the first item in this description of variable budgeting is a definition.

The American Heritage Dictionary defines budget as "An itemized summary of probable expenditures and income for a given period, usually embodying a systematic plan for meeting expenses." A budget is more commonly thought of as a list of expenses that total the sum of money available; a control against overspending. A variable budget is more than that and also more than just "... an itemized summary of probable expenditures. . . ." Variable budgets deal explicitly with the adjective *probable* and its complement uncertain. For if expenditures are probable, then they are not certain—but uncertain. One uncertainty recognized by variable budgets is the rate of activity. In complex organizations the rate of activity can seldom be accurately forecast.⁴ If the activity rate changes from that which was budgeted, then expenses will also change.

Consequently, the budgeted and actual expenses will lose comparability. The comparison of plans and realizations, an essential part of the control process, is thereby complicated, as is budget administration. If activity increases, the decision to allocate additional funds is required. Conversely, if activity decreases, then a decision to withdraw and reallocate funds is required.

If costs are expected to vary substantially with the activity rate, then it makes sense for the budget to vary with the activity rate also. The budget may then include a cost-volume relationship such as a fixed amount plus an additional amount for each unit of volume.⁵ Furthermore, if significant price changes are expected, then a price-cost relationship should be part of the variable budget. The budget would then automatically adjust for price changes.

Obviously, neither activity increases nor price changes can be allowed to drive unlimited budget changes. The resource constraint still exists, and ceilings or upper bounds on the budget must be established. However, that activity rates do act to increase fund availability should be recognized in establishing the upper bounds.*

Variable budgets are defined as budgets *that vary in actual amount with activity rates and price levels, on the basis of cost-volume and price-cost relationships that are explicitly incorporated in the budget.* The explicit incorporation of the relationships is essential if proper incentives are to result and good faith is to be maintained.

The Variable Budget and PPBS

The Planning-Programming-Budgeting System (PPBS) was initiated in 1962 to provide a mechanism for top-management decision in the Department of Defense. Then Secretary of Defense Robert S. McNamara stated the purpose of PPBS as follows:

*These increases may derive from reimbursements or from an undistributed amount or "pot" at the next higher echelon.

1. It provides the mechanism through which financial budgets, weapons programs, force requirements, military strategy and foreign policy objectives are all brought into balance with one another.
2. It produces the annual Five-Year Defense Program, which is perhaps the most important single management tool for the Secretary of Defense and the basis for the annual proposal to Congress.
3. It permits the top management of the Defense Department, the President and the Congress to focus their attention on the tasks and missions related to our national objectives, rather than on the tasks and missions of a particular service.
4. It provides for the entire Defense Establishment a single approved plan, projected far enough into the future to ensure that all the programs are both physically and financially feasible.⁶

Mr. McNamara also recognized that,

... in the end, economy and efficiency in the day-to-day execution of the Defense program rests largely in the hands of tens of thousands of military and civilian managers in the field. How to motivate them to do their job more efficiently, and how to determine whether or not they do so, have always been among the most difficult and elusive problems facing the top management of the Defense Department.⁷

PPBS has been characterized as a good decision-making process with potential for becoming great.⁸ Its evolution has continued since 1962 and is continuing, but it is still a top-management system. One of the necessary steps from good to great is the development of management systems that improve the "... day-to-day execution of the Defense program ..." and aid in determining the efficiency of those programs.

The idea that program budget systems, including PPBS, are top-management systems and that appropriate day-to-day budget systems are differently structured is not new.⁹ One of the major benefits of program budgets is the aggregation of details into logically structured groups (programs) suitable for top-management review and planning. Such a program is clearly of little use to managers

far down in the hierarchy who have just a little piece of one or several programs. These managers need a budget tailored to their decisions rather than to top-management decisions.

In terms of detail there are essentially three different kinds of budgets: object classification budgets, performance budgets, and program budgets. The object classification budget is most detailed and least abstract while the program budget is aggregated and abstract. Performance budgets hold the middle ground. An object classification budget presents the costs of classes (groups) of physical or conceptual objects. For example, the Air Force Element of Expense, Investment Codes (EEIC) are as detailed as packaged petroleum, oils, and lubricants; per diem; and military pay, airman.

Program budgets aggregate the organization's activities into coherent, related groups or programs that contribute to the broad objectives and goals of the organization. Top management can then conceptually manipulate a reasonable number of programs in balancing resource allocations rather than in trying to balance thousands of activities. DOD has ten programs in its PPBS.

Performance budgets are in terms of activities and are intended for use by managers of activities. They allow the manager to budget for the performance of specific activities and, then, to assess whether he performed those activities for the planned cost. Performance budgets are for the use of those "... tens of thousands of military managers in the field."

A variable budget is a performance budget especially useful in times of changing programs and prices; it makes possible the assessment of managerial efficiency and should therefore have a major role in the financial management system of the Air Force. PPBS is a vehicle for top-management trade-offs between programs—underpinning it is the implicit assumption that those programs are

operating efficiently. (For if major inefficiencies exist, then their correction must also be considered as a trade-off.) Validation of the *implicit assumption of efficiency* is the role of variable budgeting in PPBS.

The Variable Budget and the Control Process

Variable budgets play a significant role in the function of control. Control is the comparison of events to plans: the identification and measurement of deviations and feedback to the other four management functions (planning, organizing, staffing, and directing).¹⁰ Based on the feedback, adjustments are made in plans, organization, staff, or directives to eliminate, or at least reduce, the deviations; to bring together future events and plans. Neglect of the control process may allow the organization to travel a different path than is its objective.

The financial management control process is essentially the comparison of actual expenses to budgeted expenses. The immediate purpose is to determine whether the budgeted resources are either excessive or inadequate. A less immediate but pressing purpose is to determine the degree of managerial control over any deviations of expenses from the budget. The essence of financial management control is to ensure that the funds are expended as budgeted. However, that is not the same as ensuring that expenditures do not exceed the budget. For adequate control one must know not just that the budgeted funds were expended but also that the types and quantities of goods purchased were as budgeted. The comparison is not simple because both requirements and prices change and those changes must be considered in the comparison.

The variable budget allows identification of deviations resulting from production-volume changes, price changes, and the residual deviation that is attributed to

managerial actions or estimating error. The process of identifying the deviations is called "variance analysis." Variance analysis provides information for feedback into the planning, organizing, staffing, and directing functions. The control process is incomplete without that feedback.

Variance Analysis

Variance analysis is the analysis of the difference between planned and realized costs (budget and expenses). The analysis separates the variance due to deviations of expected and actual prices, planned and actual quantities, and the unexplained or residual variance.

The variance is succinctly stated by the following equation:

$$I - A = V + P + e + E$$

where

I = initial budget,

A = actual expenses,

V = volume variance,

P = variance resulting from price increases,

e = the estimating error of the variable budgets cost-volume relationship, and

E = the unexplained variance.

Volume variance is the difference in the initial budget and the actual expenses resulting from changes in the program size or production volume. If production (flying hours in the case of aircraft maintenance) is less than was estimated in the budget, then actual expenses should be less than the budget—provided, of course, that prices did not change.

Price variance is the difference in the initial budget and the actual expenses resulting from price changes. If prices go up and production volume is as planned (budgeted), then the actual expenses should exceed the budget.

Estimating error is the inherent inaccuracy of the cost-volume relationship. Generally speaking, estimating relationships have an

estimating error associated with them. If relationships are carefully derived, there is a good idea of the size of the estimating error, providing a standard for recognizing those that are unreasonably large. A common way to state estimating errors is in terms of confidence intervals.

Unexplained variance is the difference between the initial budget and the actual expenses that is not attributable to *volume variance*, *price variance*, or the *estimating error*. The dollar results of managerial actions that enhance the efficiency of the process will be concentrated in the *unexplained variance*. Decreases in the efficiency of the process will show up as an *unexplained variance* causing actual expenses (A) to be larger than the initial budget (I). It is clear that explicit adjustments for *volume variance* and *price variance* may reveal some efficiency changes which might have been masked by changes in production levels or price increases.

SUPPOSE THE aircraft maintenance budget for a KC-135 Stratotanker wing is computed on the basis of \$10,000 per unit equipment (UE) per year and \$70 per flying hour (FH). For simplicity, assume a five UE wing and a flying program of 1000 hours. The initial budget (I) for such a wing would be

5 UE @ \$10,000	\$50,000
1000 FH @ \$70	<u>\$70,000</u>
	\$120,000

Imagine that near the year's end the wing had flown just 900 flying hours (FH), had maintained the expected unit equipment (UE) of five aircraft, and that prices had increased 10 percent during the year. The actual expenses for this hypothetical wing were \$100,000.

Doing the variance analysis, we see that

the initial budget is \$20,000 more than the actual expenses. That is,

$$I - A = \$20,000$$

The budget provided for 1000 flying hours but only 900 were flown. The *volume variance* is 100 flying hours at \$70 each or \$7000. That is,

$$V = \$7000$$

The price increase of ten percent is approximately equivalent to a five percent cost increase since the purchase of items is spread throughout the year. The *price variance* then is five percent of the \$100,000 actual expenses or \$5000. Since prices increased, the *price variance* tended to cause actual expenses to exceed the initial budget. But the total variance is stated as $I - A$; therefore, the *price variance* is negative. That is,

$$P = -\$5000$$

The *volume variance* ($V = \$7000$) is positive, and the *price variance* ($P = -\$5000$) is negative; the logic for determining the sign, plus or minus, derives from the definition of *total variance* as $I - A$. By this definition things that would cause the actual cost (A) to exceed the initial budget (I) are negative, for example, price increases.

From the *total variance* we can now remove (deduct or subtract) the *volume variance* (V) and the *price variance* (P). What remains is the sum of the *estimating error* and the *unexplained variance*. Making the subtraction, we see that

$$I - A = V + P + e + E$$

$$\$20,000 = \$7000 - \$5000 + e + E$$

$$\$18,000 = e + E$$

Suppose that the estimating error of the cost-volume relationship is plus or minus ten percent. (For the statistically minded, let's say that is a 90 percent confidence interval.) The estimating error then may be as large as 10 percent of the \$100,000—the actual expense. That is,

$$e = \$10,000$$

at its largest. That means the unexplained variance is \$8000. That is,

$$E = \$18,000 - \$10,000 = \$8000$$

Somebody at our hypothetical wing may have managed to increase the efficiency of the maintenance process. A flag is up that says, "Hey! The maintenance organization at Wing ____ appears to be unusually efficient."

If we manage the budget as General Jones has suggested, then the wing keeps the \$8000 to spend as they wish. The remaining \$12,000 of the \$20,000 total variance belongs to the MAJCOM for reallocation. These savings did not result from actions of wing management but from the volume decrease and the estimating error, offset by the price increase.

The example provides substantial answers to the call for systems that help identify efficient managers and provide sufficient information to judge which budget savings should be retained by managers.

Benefits

Variable budgets provide an incentive to do the job in the most efficient manner because variance analysis makes possible recognition of changes in the efficiency of the production process. The explicit treatment of volume and price variance is essential to that recognition but, equally essential is the use of a cross-sectional cost-volume relationship. A cross-sectional relationship is one that compares bases or units; it does not treat each base as a unique individual. Characteristics that cause costs to differ among bases are represented in the equation. One existing cost-volume relationship recognizes that quantity of aircraft and flying hours and weather cause cost differences among bases; but given those differences, the maintenance cost of any one type of aircraft is assumed to be equal at each base.¹¹ It is that equality assumption that allows the comparison of bases and substitutes for the effect of competition in the market economy.

Use of cross-sectional relationships does

not preclude recognition of cost-driving differences not included in the cost-volume relationship; however, they do shift the responsibility for establishing such differences from the headquarters staff to the base. Any differences that a base can support will be recognized, but the shift of responsibility for establishing or demonstrating differences is significant. It is based on recognition of two factors: we are a bureaucracy, and the base staff has more information than does the headquarters. Bureaucracies are childlike in many ways; they do not naturally operate as logic or economics would seem to dictate. For example, if a manager in a bureaucracy is pressured to change procedures, he may resist. Logic would seem to demand that a manager pressured to reduce cost because others in apparently similar situations operate at lower cost would explicate the differences between his operation and those others. It is an uncommon reaction. In bureaucracies the common reaction is to cite unexplicated differences and the dire consequences of unfounded fund reductions. However, a cross-sectional cost-volume relationship, because it quantitatively recognizes certain cost-driving variables and explicitly assumes no further differences, places squarely on the base the responsibility for identifying further differences. The base or local manager is better equipped than the headquarters to identify such differences because he has better information than does the headquarters. Headquarters typically know how bases are similar—not how they differ.

The process of identifying differences is obviously iterative and requires information flows from headquarters to base and base to base, but it is only by providing the local managers sufficient incentive that the process will have enough "voltage" to work. Variable budgets, providing that voltage through cross-sectional relationships, tend to surface previously

unrecognized base characteristics that cause cost differences. Some of these characteristics may themselves be, or result from, policies of either the base or the command. Cost-benefit studies may or may not result in changed policies, but, to the extent deliberate decisions are better than unintended ones, things will have improved. Surely some policy choices which have cost-benefits will occur.

A further benefit is the recognition of changes in the efficiency of the production process that implies recognition of efficient managers.

A variable budget is easily adjusted for program or price changes because the relationships preclude the need to negotiate a basis for the adjustment; they are the basis. The idea that efficient managers are penalized through withdrawals of "surplus" funds should fall before the logic of a variable budget. Specific procedures for deciding which "surplus" funds are efficiency savings and may be retained are provided and were demonstrated in the example.

VARIABLE BUDGETS are applicable to areas other than aircraft maintenance; vehicle maintenance is another likely candidate. Basically, variable budgets are applicable whenever some activity variable can be identified. An essential thought is that if activity variables which adequately explain personnel costs cannot be found then variable budgets may still be applied to nonpersonnel costs. The reader is left to consider the implication of a failure to relate activity rates and personnel costs.

Again quoting General Jones:

. . . we have to find some way to provide the incentives to do the job in the most efficient manner. And if somebody does well, and doesn't spend all his resources we should be able to say, "all right, you managed well and therefore you can take that money and use it to do other things."¹²

Variable budgets do that.

Air Command and Staff College

Notes

1. David Jones, "General David Jones, USAF Chief of Staff, Discusses Control," *Armed Forces Comptroller Magazine*, July 1975, pp. 6-7.

2. Robert C. Moot, "The Role of the Financial Manager in the Decision-making Process," *Armed Forces Comptroller Magazine*, Summer 1973, pp. 11-16.

3. Allen Bunger, Capt., USAF, "Spend More—Get More?" *Air Force Comptroller Magazine*, October 1973, pp. 28-9. Leland G. Jordan, "Incentive-Oriented Resource Allocation Systems," *Proceedings of the Ninth Meeting of the Southeastern Chapter of the Institute of Management Sciences*, October 1973, pp. 87-92.

4. Francis E. Moore and Howard F. Stettler, *Accounting Systems for Management Control* (Homewood, Illinois: Richard D. Irwin, Inc., 1963), p. 55.

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6. Robert S. McNamara, *The Essence of Security* (New York: Harper & Row, 1968), p. 95.

7. *Ibid.*, p. 100.

8. John W. Cooley and Calvin R. Nelson, "The Arrival, Evolution and Prospects of PPBS at the Pentagon," *Armed Forces Comptroller Magazine*, April 1975, pp. 10-13.

9. Jesse Burkhead, *Government Budgeting* (New York: John Wiley Sons, 1956), pp. 139-42.

10. Joel E. Ross, *Management by Information System* (Englewood Cliffs, New Jersey: Prentice-Hall, 1970), pp. 51, 97.

11. Anthony Wilbur, Major, USAF, "A Model for Forecasting Flying Hour Costs" (Offutt AFB, Nebraska: Hq SAC/ACMC, July 1975).

12. Jones, *loc. cit.*

An aerial photograph of Sydney, Australia, featuring the harbor, the Sydney Opera House, and the Sydney Harbour Bridge. In the foreground, a Royal Australian Air Force Caribou transport aircraft is flying over the water. The text 'military affairs abroad' is overlaid on the right side of the image.

R military
affairs
abroad

THE ROYAL
AUSTRALIAN AIR
FORCE

LIEUTENANT COLONEL DAVID N. BURT

Caribou transports of the Royal Australian Air Force fly over the harbor at Sydney, the famous opera house and harbor bridge in the background.

How would you like to be responsible for the defense of an area the size of the contiguous 48 states with a population base less than that of the state of New York? This is the challenge facing members of the Australian Department of Defence.

Fantastically rich in mineral resources yet sparsely populated, Australia would be a tempting prize for any would-be aggressor. A thin red line of 69,000 members of the Royal Australian Navy, Royal Australian Air Force, and Australian Army is responsible for the defense of this island continent of 2,900,000 square miles as well as its 12,500 miles of coastline and surrounding waters. If the Law of the Sea Conference extends territorial limits to 200 miles, an area nearly equal to the land mass of Australia will require surveillance and potential interdiction.

The Royal Australian Air Force (RAAF) bears a large share of the responsibility for Australia's defense. The defense roles of the RAAF are (1) to defend Australia, its territories, and Australian forces against air attack; (2) to maintain an air striking capability against enemy forces and installations; (3) to provide strategic and tactical reconnaissance; (4) to provide strategic military air transport support for the Australian forces; (5) to provide close offensive and tactical air transport for the Army; and (6) to provide maritime air reconnaissance and antisubmarine support in conjunction with the Royal Australian Navy. In addition, the RAAF expends considerable resources and effort on civil disaster relief and on reconnaissance for illegal fishing and smuggling.

background

The forerunner of the Royal Australian Air Force, known as the Australian Flying Corps, was dispatched to Mesopotamia on 8 February 1915. Other elements of the Corps saw action in Egypt and Palestine from 1916 to 1918 and on the Western Front in France in 1917–18. Many Australians also flew with the

Royal Flying Corps, Royal Naval Air Service, and Royal Air Force during the war.

On 31 March 1921 the Australian Air Force was formed—some twenty-five years prior to the formation of the United States Air Force! The prefix “Royal,” subsequently approved by King George V, became effective on 31 August 1921. During the period from 1921 to 1939 the Royal Australian Air Force experienced budgetary, equipment, and personnel problems similar to those of the predecessors of the USAF during the same period.

The RAAF came of age as a fighting service during the Second World War. At the onset of the war in 1939, the RAAF had 310 officers, 3179 airmen, and 164 operational aircraft. At the height of the war, personnel strength had increased to 20,000 officers, 144,000 airmen, and 18,000 airwomen. During the war, members of the RAAF served in every theater of operation.

Several RAAF squadrons were involved in operations in the Middle East, Mediterranean, and Italian areas. The RAAF fought in Syria, at Malta, and supported the allied advance in North Africa, then Sicily, and finally Italy. Many members of the RAAF served in the Balkan Air Force, supporting liberation movements in Balkan countries. Others participated in the supply-dropping operations in support of the Polish uprising in August 1944.

The RAAF was well represented in the Fighter, Bomber, and Coastal Commands of the Royal Air Force. Australians in these units saw the fires of Berlin and Hamburg and the flak of Happy Valley (the Ruhr); they helped destroy railway systems, U-boat pens, and flying-bomb sites, and they took part in the struggle to prevent U-boats from cutting Britain's maritime life line. Spitfire-equipped squadrons functioned as interceptors and escorts.

RAAF involvement in the Pacific began with coastal patrols against German shipping

in 1939. The RAAF became totally involved in the Pacific in 1941 when four of its squadrons that were stationed in Malaya attacked Japanese transports. The RAAF participated in the battles of the Coral Sea and the Bismarck Sea and in operations in New Guinea, the Solomons, the Admiralty Islands, the Netherlands East Indies, and the Philippines. Over a thousand members of the RAAF took part in operations in the Burma-India theater.

In the immediate postwar years the RAAF maintained a high state of readiness in spite of drastic reductions in personnel and equipment. One hundred forty-four aircraft and 12,000 men and women were authorized to man two forces: a strike force and a home defense force. Aircraft included Australian-modified and built Lancasters (Lincoln) bombers; Mustangs and Vampire fighters, both largely built in Australia; Dakotas; Catalinas; Mosquitoes and a variety of training aircraft. Recognizing the critical importance of education and training, the RAAF College (later RAAF Academy) was established in Victoria, and the RAAF School of Technical Training was established in New South Wales.

Following the war, elements of the RAAF were assigned to the British Commonwealth Occupation Forces in Southern Japan. Transport crews participated in the Berlin Airlift. RAAF transports and bombers assisted in operations against the Communist territories in Malaya during the period 1950-58. Two RAAF squadrons played key roles in the Korean War. No. 77 Squadron, equipped with P-51 Mustang fighters, was involved in harassing operations during the early days when enemy forces attempted to gain all of South Korea. The unit then supported the drive northwards across the 38th parallel. Its pilots struck at Chinese transports pouring down the roads out of Manchuria during the long retreat south and remained in a ground attack role through the end of the war. RAAF

Dakotas carried out most of the aerial supply and medical evacuation for British Commonwealth forces in Korea.

The Australian Air Force's commitment to the war in Vietnam was an integral part of the 7th Air Force. It included Canberra bombers, Iroquois helicopters, forward air controllers, and the Caribous of the "Wallaby Airlines." More than 600,000 passengers, including Americans, Australians, New Zealanders, South Vietnamese, Koreans, Thais, and North Vietnamese prisoners of war, rode aboard the Caribous. RAAF pilots flew with the United States Air Force as forward air controllers. In addition, several RAAF officers flew with USAF F-4 squadrons.

the RAAF today

In November of 1973 the three service departments (Army, Navy, and Air) were incorporated into the Australian Department of Defence. The Chief of the Defence Force Staff (CDFS), subject to ministerial directions, commands the Australian Defence Force. Administration of the Defence Force is the joint responsibility of the CDFS and the Secretary of the Department of Defence.* The CDFS is directly responsible to the Minister of Defence and is his principle military advisor. The Secretary of the Department of Defence, also responsible to the Minister of Defence, provides advice on general policy and the management and utilization of Defence resources. The Chiefs of Staff of the Army, Navy, and Air Force exercise command of their respective services under the CDFS. The three Service Chiefs of Staff have direct access to the Minister of Defence in relation to their professional responsibilities.

In order to facilitate communications in

*The term "Secretary" does not have the same connotation as in the United States Department of Defense. In Australia a Minister (an elected Member of Parliament) is political head of the department. The Secretary is a Public Servant. He assists the Minister and is the permanent departmental head.

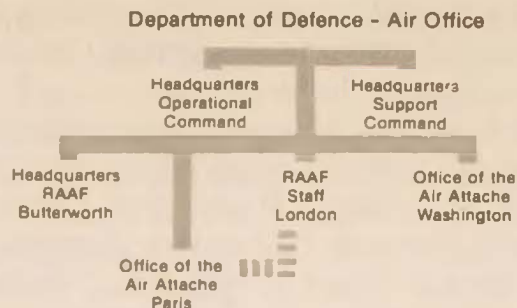


Figure 1. Organization of the Royal Australian Air Force (RAAF)

the scientific and logistics areas, several key officials of the Department of Defence are "two hatted," being responsible to both a senior official in the Department of Defence and to their own Service Chief of Staff.

The RAAF is organized into an Air Office, located in Canberra, Australian Capital Territory (A.C.T.), and two functional commands. The two RAAF squadrons at Butterworth, Malaysia, are under the direct control of the Air Office. (See Figure 1.) The Air Force has a staff of some 533 military and 307 civilian public servants. The Air Office is responsible for doctrine and policy, similar in many ways to the USAF Air Staff, and also performs most of the functions of the USAF Systems Command in the developing of requirements and selection of major capital

Figure 2. Operating and staging bases of Operational Command



equipment. The mechanics of contracting for particular major items are the joint responsibility of the Department of Defence and the Purchasing Office of the Department of Administrative Services.

The two major commands are Operational Command, with its headquarters at Penrith, New South Wales, and Support Command, with its headquarters in Melbourne, Victoria. Operational Command has responsibilities similar to those of TAC, SAC, MAC, and ADC combined. Briefly, the air officer commanding Operational Command is responsible for: (1) the conduct of air operations and opera-

Headquarters Support Command Installations

RAAF Base Point Cook, Victoria
 RAAF Base Wagga, New South Wales
 RAAF Base East Sale, Victoria
 RAAF Base Laverton, Victoria
 RAAF Base Pearce, Western Australia
 No. 2 Aircraft Depot
 No. 3 RAAF Hospital
 Richmond, New South Wales
 RAAF Staff College, Canberra, A.C.T.
 No. 2 Stores Depot
 Regents Park, New South Wales
 No. 7 Stores Depot
 Toowoomba, Queensland
 Diploma Cadet Squadron
 Melbourne, Victoria
 No. 3 Aircraft Depot
 Amberley, Queensland
 No. 1 Stores Depot
 Melbourne, Victoria
 No. 2 Stores Depot
 Detachment D
 Dubbo, New South Wales
 No. 1 Central Ammunition Depot
 Kingswood, New South Wales
 Movement Co-ordination Centre
 RAAF Richmond, New South Wales

tional training, including definitions of standards, evolution of techniques, and preparation of plans; (2) the maintenance of lines of communication throughout Australia and its territories; (3) cooperation, control, and supervision of antibushfire patrol and other activities in support of local civil defense organizations. In addition to its Headquarters, Operational Command exercises control over all combat aircraft dispersed over seven operating and two staging bases. (See Figure 2.)

Support Command has responsibilities similar to those of the U.S. Air Force Logistics Command and Air Training Command. Its functions include: (1) the conduct of individual air and ground training; (2) recruitment of all personnel; (3) procurement and storage of bulk store holdings of all RAAF equipment and its distribution to all units (including logistic support beyond the logistic capability of Operational Command); (4) the maintenance and modification of equipment beyond the approved capacity of Operational Command and other RAAF units and ele-

ments, and (5) cooperation with Operational Command to achieve coordination of activities in which the commands have a common interest. In addition to its large complex in Melbourne, Support Command is responsible for four training bases, two aircraft depots (similar to the maintenance facilities at a USAF Air Logistics Center), three stores depots (similar to the warehouses at a USAF Air Logistics Center), and several other activities. The principal bases of the two commands are shown in Figure 3.

Before describing the RAAF's operational capability, I believe it desirable to discuss "the core force" concept. An Australian defense writer has commented that "Australia's Defence problem is that there is no Defence problem." The point being made was that in trying to determine the shape and size of the Defence Forces the key element of an identifiable threat was missing, thereby raising problems in striking a Defence Force composition. The Australians' answer has been the development of a concept called "the core force."

Continued on page 80

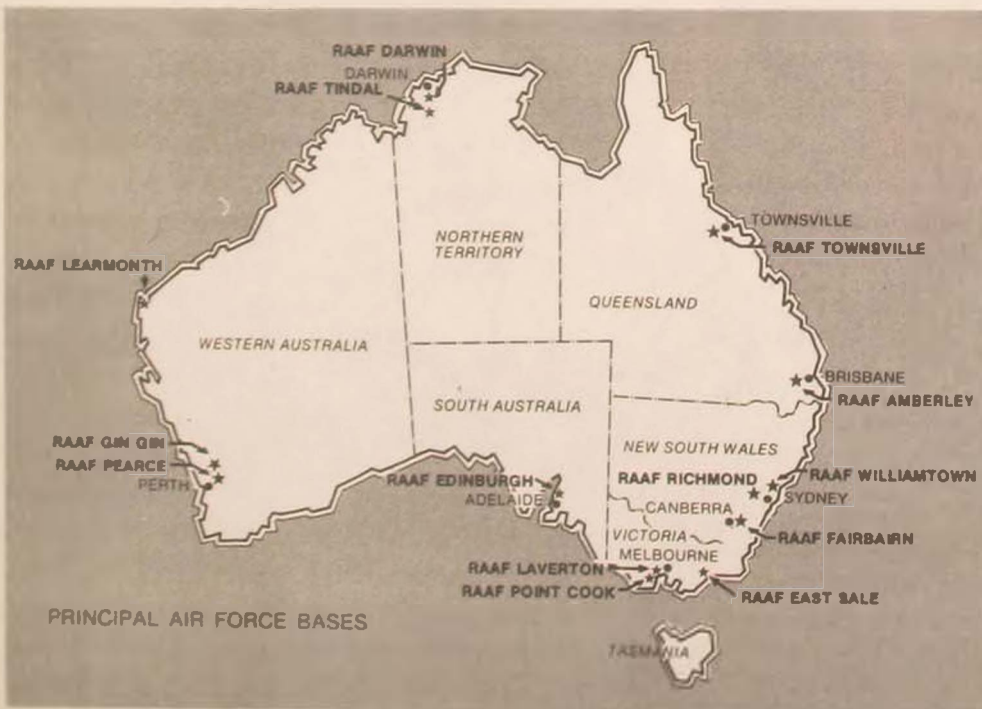
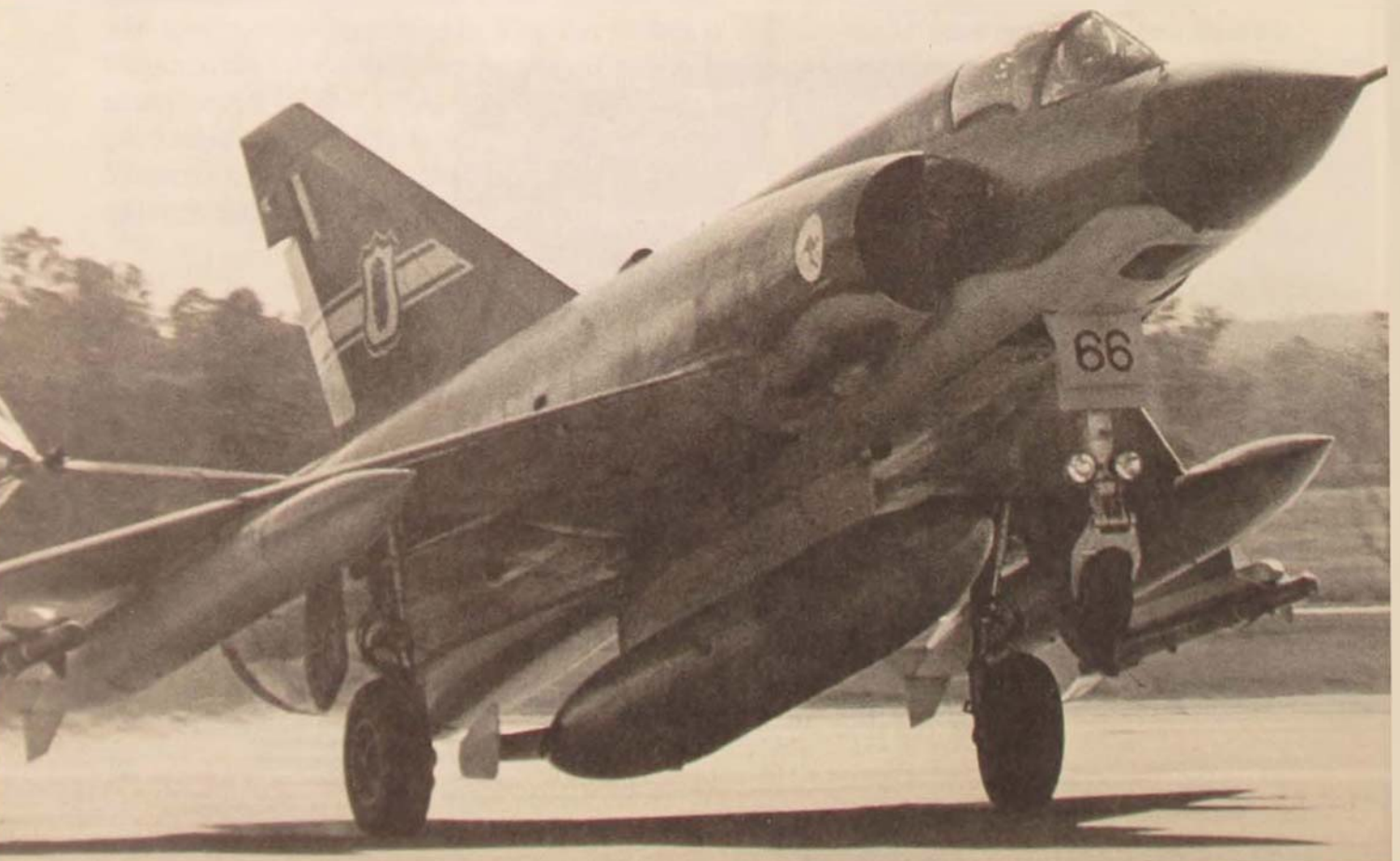


Figure 3. The principal bases of the Operational Command and Support Command

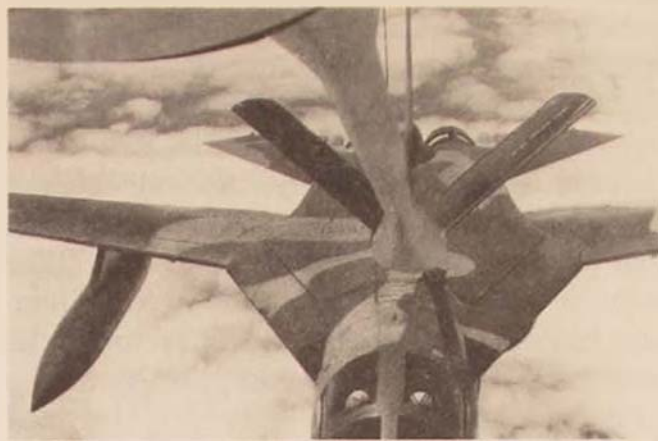
RAAF Operational Capability

In following "the core force" concept, the RAAF aims to make the most economical use of its defense resources while ensuring that personnel are skilled in operational techniques and have a suitable technological base from which to expand. The inventory includes the French Mirage fighter (below), shown landing during exercises.





Special Air Services personnel from the Australian Army (left) conduct rappelling exercises with an RAAF Iroquois. . . . During recent international exercises in Queensland, USAF tankers refueled Australian F-111C aircraft between strike tasks.



Downwash from the Iroquois rotor blades (left) blows the fire clear of one side of a Vampire airframe, enabling firemen to fight the blaze in a conventional manner, during a demonstration at Williamtown. . . . The RAAF has two home-based maritime squadrons defending Australia at sea. A Neptune from No. 10 Squadron (above) makes a low run over a Royal New Zealand Navy ship off New South Wales.

The concept is a practical exercise in determining the most economical use of defense resources. It aims to determine the force needed to cope with a range of low-level contingencies while maintaining a capability for expansion to meet developing situations. It has been stated that, based on the present unlikelihood of major assault against Australia, the capabilities related to defense against such major assault deserve low priority at this time. It is generally held that even low-level contingencies are rather remote. Therefore, the capability for expansion has become the significant factor in determining the size and composition of the core force. It has been clearly recognized that the time needed to expand could be quite variable. The time depends on numerous factors such as the assessed type and degree of conflict, the priority given by the government to acquiring manpower and materiel resources, the availability and delivery time of equipment, and the nature and size of the core force in being, including the training base.

Thus, there is no easy mathematical formula which can be applied for the expansion process, and Australia is very much aware of the need for perceiving threats at an early stage.

The two basic considerations in the concept are (1) that the core force personnel must be highly trained in modern operational techniques and (2) that the equipment in the inventory must keep abreast of worldwide technological improvements to enable Australia to have a satisfactory technological base from which to expand.

The RAAF currently has 15 frontline squadrons plus 4 flying training squadrons. No. 1 and No. 6 Squadrons, stationed at Amberley, fly the F-111C, one of the world's most advanced aircraft. These two squadrons compose the RAAF's Strike Force.

Three squadrons, Nos. 3, 75, and 77, are equipped with the French Mirage fighter.

The Mirage-III can operate at Mach 2 at 30,000 feet and can operate at altitudes of 75,000 feet. The Mirage's primary armament consists of the French Matra R.530 and the U.S. Sidewinder air-to-air missiles and is capable of all weather, day and night operation. During the 1960s, over 100 Mirages were built and assembled in Australia under license. These squadrons performed in the air defense and ground attack role. Two of these squadrons are based at Butterworth, Malaysia, and the other one at Williamtown, New South Wales. A detachment of Mirages from the squadrons assigned to Butterworth is normally deployed at Singapore under the Five Power Agreement.

The RAAF plays a vital role in the defense of Australia at sea. Two maritime squadrons are based in Australia with the capability of deployment elsewhere as required. No. 10 Squadron, based at Townsville, Queensland, is equipped with the SP-2H Neptune. In 1978, No. 10 Squadron will be equipped with the P-3C Orion and be relocated to Edinburgh, South Australia. No. 11 Squadron, already stationed at Edinburgh, is equipped with the P-3B Orion. The Lockheed P-3B and P-3C Orions are the backbone of our U.S. Navy's Maritime Patrol Airfleet. The propjet-powered Orions are equipped with modern antisubmarine detection and tracking equipment. The aircraft can dash at speeds above 400 knots and loiter at speeds of 200 knots. It can remain on patrol for more than 17 hours and search up to 250,000 square miles of ocean.

Five squadrons of transport aircraft meet the RAAF commitment to provide air transport for strategic deployment, tactical support of ground forces, and special flight requirements. No. 36 Squadron operates the C-130A Hercules. These aircraft will soon be replaced by C-130Hs. No. 37 Squadron flies C-130Es. Both squadrons operate out of Richmond, 30 miles northwest of Sydney, New South Wales. RAAF Hercules were the

life line of Australian servicemen in Vietnam. They hauled huge quantities of supplies to Australian forces and brought home the wounded. Besides the defense role, Hercs are always to the fore in times of national disasters—be they floods, droughts, cyclones, or bushfires.

Nos. 35 and 38 Squadrons operate Caribous. The Canadian-built Caribou is a twin-engine light tactical transport aircraft. It is used in conjunction with Army operations and in civil air work. No. 34 Squadron, located at RAAF Base Fairbairn near Canberra, flies BAC 1-11, Mystère 20, and HS 748 aircraft. This squadron's main role is the transportation of senior government officials and overseas dignitaries throughout Australia and, occasionally, overseas.

There are three squadrons of helicopters plus four search and rescue detachments. No. 12 Squadron operates CH-47 Chinooks from Amberley. No. 5 Squadron, stationed at Fairbairn, A.C.T., flies Iroquois. It has both training and operation assignments. No. 9 Squadron operates squadrons located at RAAF bases and at Butterworth, Malaysia.

The RAAF maintains two geographically remote strategic staging and operational bases. (These are similar to USAF dispersed operating bases.) These are situated at Learmonth in Western Australia adjacent to the Harold E. Holt Joint U.S. Navy/Royal Australian Navy VLF Communications Facility and at Tindal (south of Darwin) in the Northern Territory.

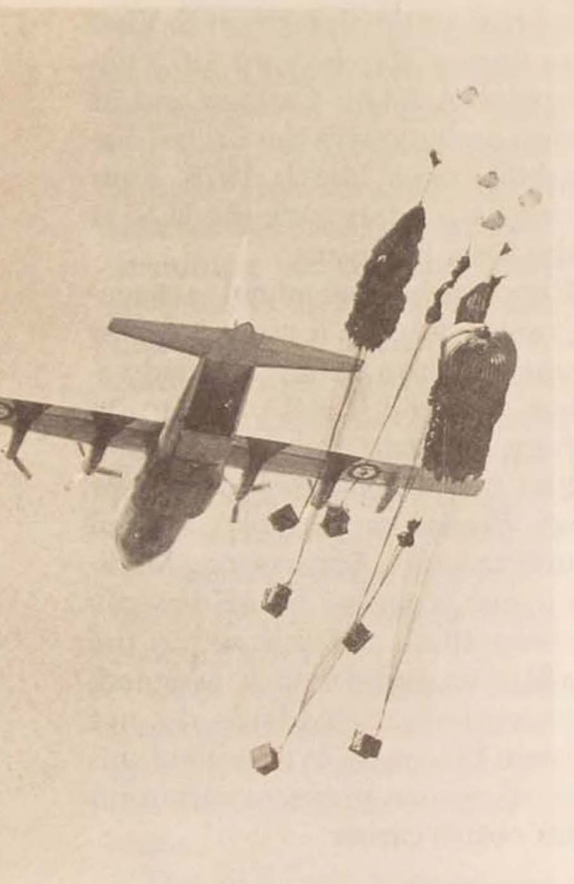
Basic flying training is conducted at Point Cook, Victoria, which also is the home of the RAAF Academy. New Zealand CT/4 air trainers are used during this stage of training. Advanced flying training is conducted at Pearce in Western Australia. The Italian Aermacchi jet trainer is employed for this phase of training. Navigation and Air Electronics Officers receive their training in the British Hawker Siddeley HS 128 trainer at East Sale, Victoria.

The RAAF provides flying training to personnel of the Papua-New Guinea Defence Force and the Royal Malaysia Air Force. Instructors have been loaned to Malaysia and Singapore to train personnel on location in these countries.

The RAAF also provides air transport assistance to the United Nations. Seven RAAF C-130s provided humanitarian support to Vietnam refugees during March-April 1975 under U.N. auspices. A RAAF Caribou and its crew have been on duty with the United Nations in Kashmir since March 1975. Four RAAF Iroquois are on duty with the U.N. at Ismailia in the Sinai Peninsula.

The RAAF approach to personnel management at all ranks calls for a much greater degree of generalization within a broad career field than does the USAF program. In the RAAF there are eight distinct branches: General Duties (rated personnel), Engineer (maintenance), Equipment (supply), Special Duties (administration), Accounting, Medical, Chaplain, and Women's RAAF branch. Promotion competition remains within the branch to which an individual is assigned. With few exceptions, individuals do not transfer between branches. As a result of this approach, an officer can progress within his branch for his entire career.

AN INDICATION of the breadth of assignments within a career field is best conveyed by reviewing the assignments of a reasonably representative engineering officer currently assigned to the Air Office: (1) Engineering Officer at an operational squadron responsible for engine and airframe flight line and organizational level maintenance and for the scheduling of all scheduled aircraft maintenance; (2) member of an assessing team which determines spares requirements for aerospace ground equipment associated with aircraft due to enter the RAAF inventory; (3) Engineering Project

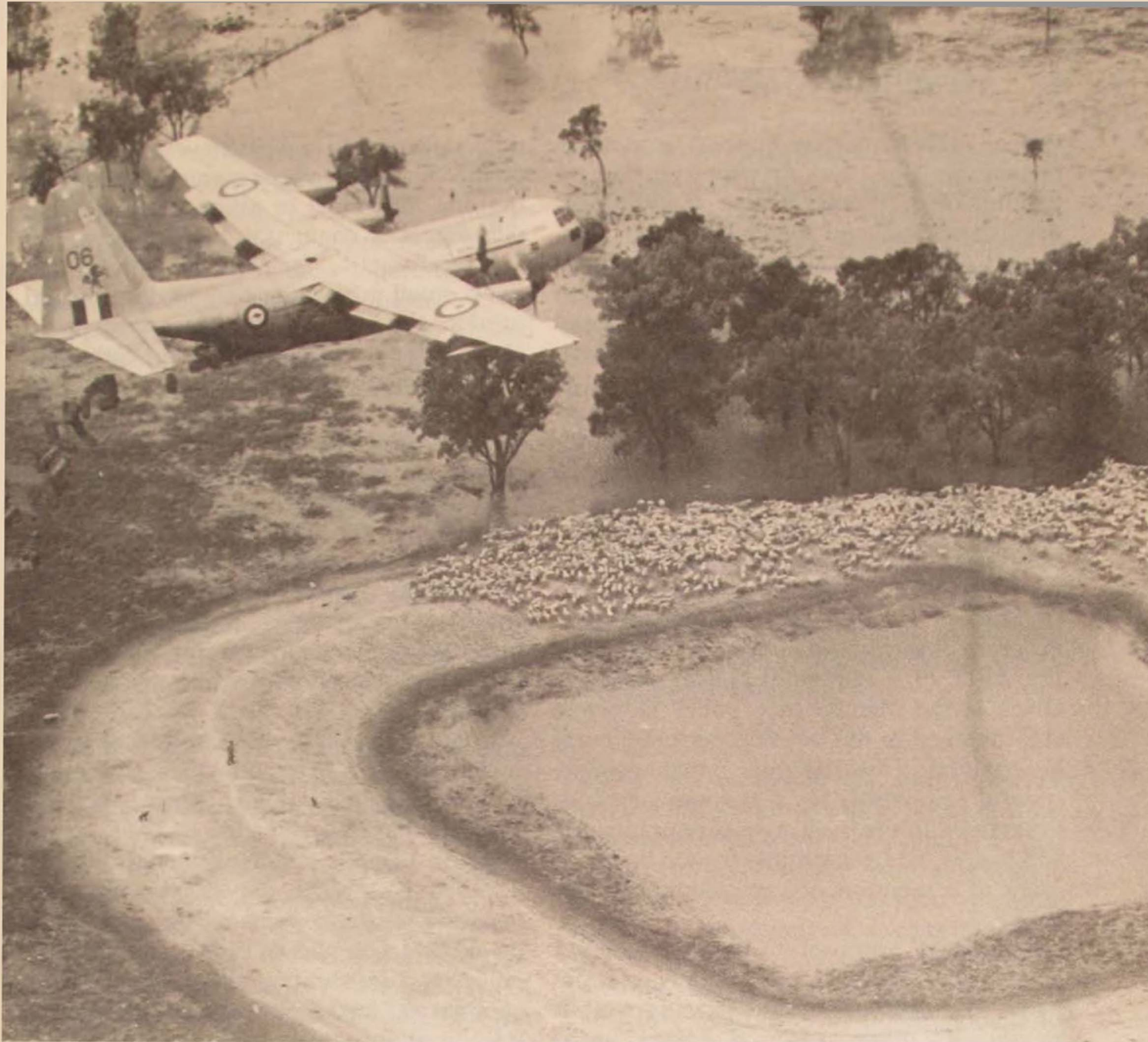


The RAAF Airborne

The Hercules medium transport (above) has been part of the RAAF inventory since 1958. By 1978 Australia will have replaced its twelve C-130As with H models. . . .

Chinook helicopters (above right) have been used in a variety of locations and roles since March 1974. . . . A Bell Iroquois (right) flies over the countryside near Canberra, Australia's national capital.





RAAF Civil Aid

A C-130 Hercules from No. 38 Squadron (above) drops bales of fodder to sheep marooned during floods near Moree, New South Wales. . . . A Hercules from No. 36 Squadron makes a low run down Strickland Gorge in Papua, New Guinea. RAAF Hercules and Caribous fly civil aid missions quite regularly.

Officer at Headquarters, Support Command, responsible for the airframe portion of maintenance requirements, modification, documentation, and manuals on the Neptune, Caribou, and Orion; (4) Senior Engineering Officer for an operational squadron with 5 engineering officers and 200 enlisted personnel under his control; (5) RAAF Resident Engineer at Bell Helicopter Company in Fort Worth, Texas, with responsibilities similar to those of an Air Force Plant Representative; (6) Overseas Staff appointment in the Australian Embassy in Washington, responsible for monitoring developments and resolving engine and airframe problems on RAAF operated, U.S.-produced equipment; (7) Student in the Graduate Management Program of the School of Systems and Logistics, AFIT; (8) Engineering Officer of the Air Office in the Maintenance Policy Directorate, involved in the development of a computer-aided maintenance management system, responsible for a maintenance coding system for use in all areas of maintenance and supply, and responsible for the development of a maintenance philosophy for the RAAF.

The RAAF approach to the management of the logistics functions of supply, maintenance, transportation, and procurement is significantly different from that found in the USAF. As previously noted, procurement responsibility on major equipment purchases is divided between the Department of Defence and the Purchasing Office of the Department of Administrative Services. An Engineering Air Vice Marshal (major general) is in charge of the Engineering Branch at the Air Office. This organization is responsible for engineering, maintenance, and assessing spares requirements. An Equipment Air Commodore (brigadier general) at the Air Office is in charge of the Equipment (Supply) Branch. He is responsible for supply (after spares assessing) and transportation within the RAAF. The several logistics func-

tions at command and base level are similarly divided with the officer commanding being the one individual in a position to resolve differences or conflicts at base level.

It is impractical for Australia with its relatively small population base to develop and produce the majority of its major weapon systems. This places the RAAF in the rather enviable position of being able to select its systems from a number of proven overseas competitors. For example, the British Hawker Siddeley Nimrod, the French Breguet Atlantic, a Boeing maritime patrol version of the 707, and the Lockheed P-3C Orion—all were carefully reviewed before selection of the Orion to replace the SP-2H Neptune. Selection of overseas developed and manufactured systems has several implications, the two most interesting of which are now discussed.

In order to achieve a desired level of self-sufficiency, RAAF maintenance policy calls for virtually total in-country repair, overhaul, and modification capability. Thus, repair work on USAF equipment which would be performed at USAF depots or commercial facilities and most engineering work which would be accomplished by U.S. contractors is performed in-country, either by RAAF or commercial facilities. Such an approach results in the development of individuals in both the officer and enlisted ranks who must be very adaptable and flexible. It also requires the accomplishment of maintenance and modifications at base level, which are not common under the USAF approach. A significant amount of depot-level maintenance work is performed by commercial contractors. This approach is based on two objectives: (1) to release military manpower to more combat-related duties and (2) help maintain a viable in-country aircraft industry.

The combination of remoteness and the desire to maintain a reasonable level of self-sufficiency requires the RAAF to maintain

significantly larger inventories of spare parts than would USAF activities with similar numbers of aircraft. The majority of follow-on supply support for U.S.-produced equipment is purchased under cooperative logistics arrangements. Normally, major items or equipment purchased from the United States are in the U.S. services' inventory or are scheduled to become a part of the inventory. In some instances a U.S. service has agreed to provide support under the International Logistics program. When any of the above situations exist, the RAAF may enter into a Supply Support Agreement (SSA) with the appropriate U.S. service. These agreements allow the RAAF to requisition against U.S. stocks, thereby reducing lead time and costs since the U.S. is able to purchase and stock larger, more economic lots. The spares are turned over at U.S. depots to the RAAF, which then becomes responsible for the shipment of the items to Australia. The SSA requires the RAAF to purchase an equity in the stock of spare parts for the item of equipment to be supported. The logistics support provided under these supply support agreements is a major factor in the sale of U.S. defense equipment overseas. Recent interviews conducted with key personnel of the Royal Australian Air Force indicate that the logistics support provided by the three U.S. services is "magnificent" and a key factor in the decision to purchase U.S. equipment.

The RAAF maintains close professional

and working relations with the USAF and the Maritime Squadrons of the United States Navy. The RAAF participates in joint exercises with U.S. forces. Recent exercises include RIMPAC III conducted in Hawaii and Summer Rain and Kangaroo II hosted by Australia. Many RAAF personnel have received technical and professional training from USAF, USN, and U.S. Army schools. Several graduates of the Air Force Institute of Technology occupy key positions within the RAAF and the Australian Department of Defence. Twenty RAAF officers serve in exchange billets with U.S. activities. These individuals have virtually identical responsibilities to those of the host U.S. service. Conversely, a like number of U.S. officers are on duty with the RAAF in exchange positions.

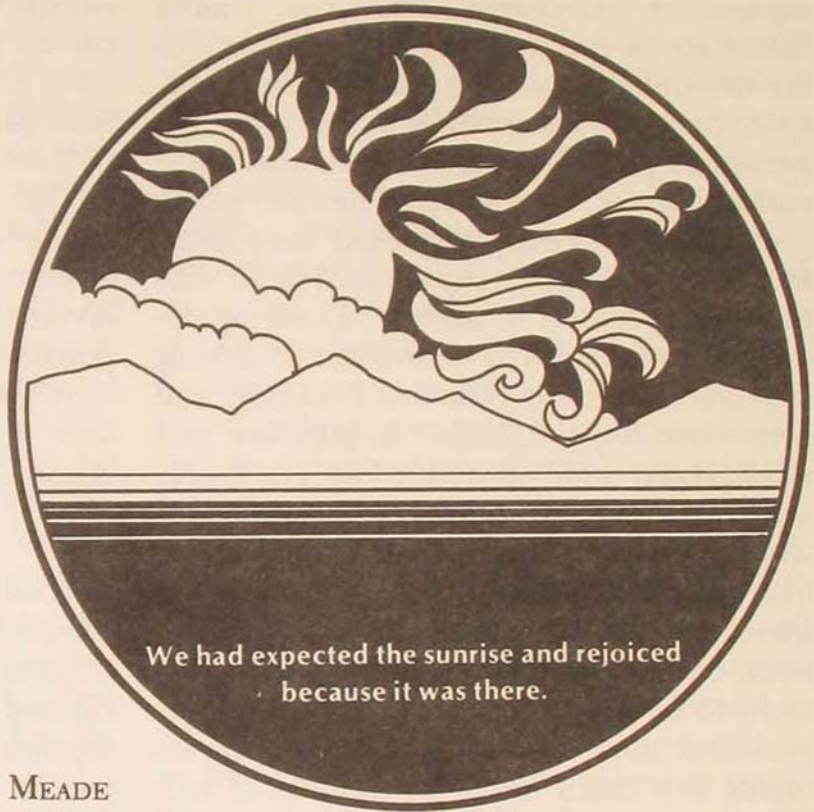
AUSTRALIA IS a capable ally. She represents fundamental U.S. interests in terms of trade, investment, resources, and a common political and cultural heritage. Australia, with its wonderful people and enormous potential wealth in resources, is a country whose friendship and continued independence are mutually important in these trying years. The Royal Australian Air Force, notable for dedication and professionalism throughout its history, is playing a key role in maintaining Australia's security and independence.

Canberra, Australia

ACKNOWLEDGMENT

We are grateful to Wing Commander Hans J. F. Roser, RAAF, for his help in reviewing the article and assisting with the illustrations, while a student at Air War College, Air University, 1976-77.

R in my opinion



COMMITMENT TO INTEGRITY

CHAPLAIN (MAJOR GENERAL) HENRY J. MEADE

THE OTHER night I woke up from a sound sleep thinking frantically about this meeting and the kinds of presentations that would be made. I found myself asking, "What does a priest from Boston have to say to the semiannual meeting of the senior stockholders of the Air Force?" I must confess I was tempted to assume an uncharacteristic posture of humility. I would make an appropriately brief and demure "state of the

Chaplain art" pitch and run for an inconspicuous seat. Then I remembered an old Jewish story.

In the story a learned rabbi, a splendid-voiced cantor, and a simple synagogue janitor were preparing for the Day of Atonement. The rabbi beat his breast and said, "I am nothing; I am nothing." The cantor also beat his breast and said with great feeling, "I am nothing; I am nothing." The janitor,

Editor's Note Chaplain Meade's address "Commitment to Integrity" was originally presented at Corona West, the semiannual meeting of Air Force generals, in October 1976.

genuinely affected by the repentent grief of the others, also beat his breast and cried, "I am nothing; I am nothing." Startled, the rabbi looked up and, with a voice full of scorn, said to the cantor, "So, look who thinks he's nothing."

So I've elected to come without apology, wearing my spiritual sombrero as the senior clergyman in the Air Force community, to share a concern that I am convinced is absolutely critical to all of us. But I will be cautious about the language I choose in light of a prayer I once heard: "Lord, make all my words gracious and tender today, for tomorrow I may have to eat them." My concern: Commitment to integrity.

Integrity is a nice safe word. It shares a special place with words like brotherhood, motherhood, peace, honor, justice. Run them up the flagpole and everybody salutes. They make us feel good, clean, and 100 percent American.

The problem is to convert the word integrity from being just a flag for rallies—to empower the word by giving it real lively flesh and bones—our flesh and bones. That can be a long and painful process. And it is always an individual process.

LET ME suggest first that the time has come for the reassertion of integrity as a lifestyle for leaders in every part of our national life. In my opinion it serves no value to chronicle or catalogue again the details of our national scandals and wrong-doing—except to say, in its tragedy I believe we will find a light of renewal.

Another observation: Bill Moyers, whose name is familiar to us, spent a year visiting, speaking with, and most especially listening to the voices of Americans from border to border, shore to shore. At about the halfway mark of his voyage, this significant observation was made in one of his broadcasts: "I've travelled over 10,000 miles so far this year

and listened to a lot of people. Most of them have one thing in common. Black or white, North or South, they feel *diluted*. They feel like flotsam floating down some polluted river and disappearing into the ocean with nobody giving a damn. . . ." Diluted—nobody gives a damn—where is our integrity, our personal and our national wholeness?

One of my predecessors was fond of telling about visiting in the home of another chaplain. It was dinner time, and the 10-year-old son was called in from play to wash his hands. "But I just washed them a while ago," he protested. The mother was sure of her ground. "Even though you can't see any dirt, your hands are covered with germs. Now go wash them!" Groaning, the boy marched to the sink and washed. Then clean, he moved to the table, sat down, and picked up a fork to eat. "Just a minute, son," the father said. "You know we always pray before we eat." With a sigh, the boy dropped his fork and endured the prayer. As the food was being passed, my predecessor heard the boy mumbling to himself, "Germs and Jesus—germs and Jesus. That's all you ever hear around this house, and I've never seen either one of them."

And that's the tragedy of integrity. It's a magic word we hear again and again. But to the serious observer of our national life, integrity as a total way of life gets harder and harder to see. Yet we need integrity. Man needs boundaries, man needs treasured landmarks, man needs revered sacred signs.

Harold Lamb, in his life of Alexander the Great, described the consternation, the terror and dismay, that swept through the Greek army following Alexander across Asia Minor when the members learned that they had marched clear off the maps. The only maps were Greek maps, and they showed only a small part of Asia Minor. There were no guideposts to the mysteries ahead, and men need unmistakable landmarks by which to be guided—they then and we now.

Given all our talk about “Future Shock,” some things never change. An eighteenth-century businessman traveling from New York to London may have needed weeks for the trip, while his counterpart today arrives in hours. But on arrival, they both face the same questions: Do I remain honest in my business dealings? Do I treat people as things or as persons? Do I remain faithful to my wife? Do I tell the truth, whatever the cost?

What is most important in our lives is precisely that which does not change—our familiar quest for justice, friendship, love, truth, order, faith, integrity—the human constants. They are, and must continue to be, the measure of all change.

Men need landmarks, and the time has come to reassert integrity as a lifestyle for leaders in every part of our national life.

Perhaps it would be helpful to ask ourselves what it is we’re talking about when we speak of integrity. The *Oxford English Dictionary* describes integrity as “. . . the condition of having no part or element taken away or wanting; undivided or unbroken state; material wholeness, completeness, entirety.” *Webster’s Collegiate Dictionary* adds another dimension: “. . . moral soundness, honesty, uprightness.”

That is to say, integrity is not just truth-telling, or kindness, or justice, or reliability. Integrity is the state of my whole life, the total quality of my character, and it is witnessed by the moral soundness of my responses in every life situation.

Integrity will resist the subtle forms of ethical relativism that blur the issue of right or wrong in favor of the functional or pragmatic attitude that asks only what will work. When what works is always right, then performance becomes the measure of everything. Right and wrong get lost, and integrity disappears.

Integrity suffers when leaders demand or expect an exaggerated personal or mission loyalty from their subordinates, the kind of

loyalty that keeps people from telling the truth, or at least discourages them from it. Integrity suffers when we become obsessed with image and try to support a dream world that differs from the real world in significant ways. Integrity suffers when the drive for success blunts our ethical sensitivity, when the personal need to achieve becomes more important than moral responsibility.

IN SOME circles there is the reasonable belief that what we need is a reissue of our Code of Ethics—with fresh new words and phrases, more clout and more persuasion—or at least some new device that might rally us to a new start; . . . a document or charter that might light fires within and bring commitment without. I very much believe we need such public documents, but in my opinion it is simply not enough to evoke change.

Perhaps I might illustrate this with a story:

“A wealthy and eccentric Texas oil man built an Olympic-size swimming pool and filled it with crocodiles. He was so delighted with it that he decided to have a christening party to which everyone for miles around was invited. While the guests were enjoying cocktails on the patio around the pool, the oil man announced over the public address system that if any unmarried young male would swim the length of the pool and survive the crocodiles, he would reward him with a choice of three things: a million dollars, a 10,000-acre ranch, or his daughter’s hand in marriage.

“No sooner had the oil man made the announcement when a young man hit the water. The churning between him and the crocodiles was nothing short of spectacular. But to everyone’s utter amazement, moments later the young man pulled himself out at the other end of the pool without a scratch on him.

“The oil man quickly ran to where the young man was standing. ‘I don’t believe it; I just don’t believe it! There’s no way anyone can survive that pool with all those crocodiles, but here you are with not a scratch on you. Well! I’m a man of my word, and I promised you one of three things, so which will you have: a mil-

lion dollars, a 10,000-acre ranch, or my daughter's hand in marriage?"

"I don't want any of them," retorted the young man. "All I want is the name of the bastard who pushed me into the pool!"

Now that's the essence of ethics. The young man could not accept the reward because it never was his intention to be a contestant.

Codes of honor are proclamations of our belief, and to that extent they are useful and needed. But unless the message is *interiorized* and becomes a part of us, then it will be of no more value than a moral pronouncement.

Integrity rests on expectation. Moral soundness, honesty, uprightness, wholeness ought to be continually obvious in all of us. When seen in us, they ought not to be a surprise, but a reasonable expectation. Remember when our prisoners of war returned home. They became national heroes, and rightly so. What was it that pleased and excited every American about them? It was their obvious patriotism, their heroism, their loyalty to one another, their open religious faith—in short, their integrity. In spite of everything, they maintained their wholeness. And as a nation we were proud because our expectations of American fighting men were met. We had expected the sunrise and rejoiced because it was there.

Integrity is not something one can get. It cannot simply be added to one's life. The problem with professional codes is that they have a way of becoming ends in themselves rather than creators of integrity.

A prominent fund-raiser has a rule for all of his campaigns. He tells those involved in a fund-raising effort, "Don't set a minimum, the dollar goal will be met. The problem is that *minimums have a way of becoming maximums.*" And so it is with codes of ethics—minimums have a way of becoming maximums.

Karl Menninger says that integrity means

being "weller-than-well." It isn't enough just to be well. The man of integrity is undivided man, collected and gathered man.

If I am a man of integrity, I know what I really value in life. I am in touch with my intentions and know where my life is headed. There will be visible congruence between my actions and my values. You can test my values by my actions.

But how do we go about achieving that lofty and urgent goal? One of the hard lessons we're trying to deal with about the current crop of young people is that they've got values that differ radically from ours. They're what some educators are calling "street-wise."

Many of these young people do not find their identity in institutions, as most of us have. When they become a part of the military institution, the Air Force is simply not their primary loyalty. It is where they earn their living. Moral and spiritual values are less important than self-realization—self-fulfillment. Identity is found outside the institution and its values.

Now that I have stated the problem, I am desperately waiting for the solution, but instead of nice, packaged glib answers, I only hear more questions. There is simply no magic formula. The commitment to integrity resists legislation or edict . . . and yet I believe there is light in the tunnel.

We have some prized and choice educational resources available. Given the values of today's youth, should we not muster the resources of Air Training Command, Air University, Air Force Chaplains, and our chaplain and social agencies in a massive and continuing commitment to moral education? I believe the strategy is sound and correct.

In the film version of *The Royal Hunt of the Sun*, the famous explorer Pizarro and his men are confronted by a deep abyss in the mountains of Peru. Between two peaks stret-

ches a filmy rope bridge. It is the only way to go on. Even the bravest of the party tremble with fear. Pizarro slowly looks over his disheveled band. In the rear—immobilized by fear and apprehension—stand the clergy. Sizing up the situation, Pizarro issues his order: “The Church goes first.”

Although the movie audiences inevitably howl with laughter at the sight of the men in robes scrambling out across the bridge, the image should speak powerfully to our understanding of leaders.

Someone has to lead the way. We are—we must be—the people on the bridge. Integrity cannot be ordered, but it can be exemplified and imitated. Our commitment to integrity leads the way for others. Our evangelization for integrity leads the way for others. There is no other way to get our people across.

Our commitment must be persistent and patient and never ending, and it must be done—it must be made to work.

Washington, D.C.

To the Editor:

Major William E. Gernert’s article “On Fostering Integrity” (*AU Review*, September-October 1976) provides a hurricane of fresh air on a topic long torpid by the heavy atmosphere of high-sounding preachments and “good old days” nostalgia.

His identification of our integrity problem with “our collective failure to stop the erosion of integrity caused by official Air Force management systems and procedures” is both insightful and helpful. Helpful because he foregoes the tempting trap of blaming “the system” but rather points to “our collective failure.” Like Pogo he recognizes “we have met the enemy and he is us.”

Integrity requires the courage of sometimes saying no—or at least a persistent asking “why?”—from all of us to others of us who institute unexamined regulations that often require “no-win” solutions for both the system and personal integrity.

Sincerely

RICHARD D. MILLER, Chaplain, Colonel, USAF

Installation Chaplain

Wright-Patterson AFB, Ohio

A CASE FOR EQUALITY IN HOUSING

MAJOR GARY W. MATTHES

THE AIR FORCE has instituted many programs such as race relations classes and social actions committees to eliminate minority and sex discrimination in the service. But racial minorities and women are not the only groups that have been treated unfairly. The Air Force has discriminated against single Air Force members through its housing system since the birth of the Air Force in 1947. *The Random House Dictionary of the English Language* defines discrimination as “. . . making a distinction in favor of or against, a person or thing based on the group, class, or category to which that person or thing belongs rather than on individual merit.” Single members have been statutorily placed in a class lower than their married peers based on marital status, not merit.

For years, the services have been aware that singles were dissatisfied with their quarters. But improvements cost money; and the leadership always seemed to feel that a token effort would placate the singles, allowing leadership to spend their time and the taxpayers' dollars on family housing. Initially the singles accepted this, but they have become increasingly vocal in demanding their fair share of the increasing quality of Air Force life. Both married and single members have received part of this increased quality of life in the form of significant base pay increases over the past decade, but money alone is not the answer. Money is only a measure of affluence when it can be used to

improve living standards. Singles who are forced to live in barracks and bachelor officers' quarters (BOQ) are relegated to a lower standard of living regardless of their salary.¹

The intent of this article is to put the demands of the single members of the Air Force, officers and enlisted men, in perspective—to show that their cries of inequality are based on fact.

If the reader is to understand what is to follow, he must be familiar with the two assumptions on which this article is based.

The first assumption is that the abilities to perform military duties are not inherently different as a function of marital status. Many have argued that married personnel are more stable than single personnel. There is no convincing evidence tabulated on this, possibly because “stability” is a nebulous trait that defies accurate definition, much less measurement. Even if marriage does bring stability, it also brings many problems that can detract from the accomplishment of military duties. Single personnel are supposed to be more flexible, but again that oft-defended opinion is difficult to prove. Flexibility is a requirement for all military personnel. In the long run everything balances, and the assumption stands that the ability to perform military duties is not a function of marital status.

Title V of the U.S. Code states, “It is the policy of Congress that Federal pay fixing for employees under statutory pay systems be

Pay Grade	Minimum/ Maximum*	Single
O-6	1225/1670	400
O-5	1120/1400	400
O-4	1120/1400	400
O-3	865/1250	400
O-2	865/1250	250
O-1	865/1250	250
E-9	960/1080	200
E-8	960/1080	200
E-7	750/1080	200
E-6	750/1080	90
E-5	750/1080	90
E-4	750/1080	90

*Married (member and spouse)

Table 1. Net living area standards (square feet)⁴

based on the principle that there will be equal pay for substantially equal work.”² A second assumption is that this policy applies to the military. If the promotion system in the Air Force is valid, this concept translates to equal pay for equal rank.

Comparison of the Housing Systems

Since Department of Defense policy is to provide adequate housing for all service members,³ it is important to see what DOD considers adequate to mean. One measure of adequacy is the net living area that quarters provide. Table 1 lists area standards through pay scale O-6: two figures (minimum for adequacy and maximum by law) are given under the married column, with some exceptions.

The first of the housing system inequities becomes apparent as we examine Table 1. If we compare single and married housing using the example that is closest to being equal, an O-3, we see that the married captain and his spouse receive more than twice the area given a single captain. The inequity is even greater when we compare a married E-4 with his single peer. The married E-4 gets

more than eight times the space that the single E-4 receives. These comparisons are made using the minimum areas listed in Table 1. It also shows the maximum areas allotted for family housing established by law. These are the standards that have been used to design new family housing for at least the past five years.⁵ The inequity increases significantly using these figures. One additional point merits mention: these areas are net living areas that do not include patios, storage areas, utility areas or garages/carports, items that are normally included in family housing and rarely provided in single housing.

Another criterion to determine adequacy standards is the type of accommodations or number of bedrooms provided. Table 2 gives a comparison of the basic adequacy requirements with respect to accommodations. The married personnel requirements shown are based on just the service member and his spouse. Table 3 gives the connection between the number and type of dependents and the number of bedrooms allotted.

By using Tables 2 and 3, we can compare the accommodations of a single E-4 with those of an E-4's seven-year-old son who has a sister. The seven year old has a private bedroom. He shares a bathroom with no more than three other people and a lounge area with normally no more than three other people. He has 24-hour access to a well-equipped food preparation area. The single E-4 gets 90 square feet of sleeping area in a room that he may be forced to share with three other people. He shares a latrine with everyone who has quarters on the same floor, and he shares a lounge with at least the same number of people. He can use a dining hall located near his building to obtain food, provided it is open. That E-4 is the man repairing a multimillion-dollar aircraft, handling the personnel problems for countless people, or working with one of the world's largest and most complex accounting systems. Surely, he is worth as much as a seven-year-old child.

Pay Grade	Married (member and spouse)	Single
O-6	4 bedroom house	private bedroom, private bathroom,
O-5	3 bedroom house	living room (shared by not more than one other) and
O-4	same	kitchen (shared by not more than one other)
O-3	2 bedroom house	
O-2	same	unshared sleeping/living room combination, private bath
O-1	same	
E-9	same	private room, private bath
E-8	same	
E-7	same	
E-6	same	two to a room, central latrine
E-5	same	
E-4	same	not over four to a room, central latrine

Table 2. Accommodations⁶

The enormous disparity in accommodations should cause widespread uneasiness throughout the Department of Defense if that agency adopts a "fair rental value" system for all its housing. Under this scheme, all base housing would be assigned a monthly rental price based on prices in nearby communities for comparable quarters. Since many family units would rent for prices exceeding the basic allowance for quarters (BAQ) of several officers and enlisted men, these people would be required to pay a substantial amount out of pocket each month to remain in their quarters. On the other hand, if bachelor quarters were included in the program, the government would have to return a portion of the BAQ to just about every bachelor member occupying government quarters.⁸ The government would have difficulty in determining the "fair rental value" of barracks as these seldom have a civilian

counterpart save for accommodations at the YMCA or the Salvation Army.

In a final look at the accommodations problem, I want to concentrate on a comparison of single housing with selected accommodations in the civilian community. In a DOD study in 1966, officials were shocked to discover that DOD housing standards for enlisted troops were barely above the level established by the government for convicts in federal prisons and lower than those for prisoners at the Youth Correction Center at Lorton, Virginia.⁹ Other categories of civilian housing exceeded the standards set for enlisted men, including college dormitories and typical single hotel rooms.¹⁰ BOQs fared better than the quarters of enlisted men but still were about the same as a Holiday Inn motel room.¹¹ It is important to point out that all these civilian examples are temporary housing, not meant to be a "home."

For a career serviceman who remains single, the barracks or BOQ is supposed to be his home. But the standards and condition of the bachelor enlisted quarters prompted Professor Stuart H. Loory of Ohio State University to observe that "barracks had the same relationship to a home as did a skid-row

Table 3. Bedroom requirements—based on family size and composition⁷

Number of dependents, excluding wife	Number of bedrooms
0-1	2
2—under 6 years, same or opposite sex	2
2—same sex, both over 6 but under 10 years	2
2—opposite sex, one over 6 years	3
2—same sex, one over 10 years	3
3—none or one over 6 years	3
3—two same sex, both over 6 but under 10 years	3
3—one under 6, one between 6-10, one over 10 years	4
3—two, opposite sex, both over 10 years	4
3—all over 10 years	4
4—or more	4 or 5

flophouse.”¹² Occupants of barracks and BOQs tend to agree with the conclusion. Even the Air Force housing office reported in 1974 that of the 250,000 Air Force bachelor quarters, about 100,000 were not “totally adequate” but still had to be filled even though they needed repair.¹³ With such a high number of quarters that are not totally adequate and in need of repair, one logical solution is to allow bachelors to move off-base to obtain housing of their choice. Logical as it may seem, there is a catch in the system, and it brings me to the final step in comparing the two housing systems, that is, to examine the quarters assignment system and the rules that allow living off-base.

On the surface, both assignment systems appear to be based on the same DOD policy that commanders will ensure maximum use of available government quarters.¹⁴ However, the method by which this policy is implemented and the attitude of the governing manuals differ significantly although subtly. First, AFM 30-6, *Assignment of Family Housing*, states that it is the policy of the government to rely on local community assets to provide housing for military families;¹⁵ and that “to the extent possible, housing will be assigned to eligible personnel who are *volunteers* for and *desire* to occupy military family housing.”¹⁶ Furthermore, married members, upon application for housing, may request a special statement from the housing officer stating that the member’s circumstances authorize permanent off-base arrangements while assigned to that base. The manual allows issuance of this statement for *personal reasons*, such as a *normal desire* to be a homeowner in the nearby community.¹⁷ “Commanders should give favorable consideration to such requests when they can reasonably expect to keep their housing units filled; when they normally have sufficient waiting lists to enable occupancy standards to be met; and when the public interest is not adversely affected.”¹⁸

Finally, once a married member obtains a statement of special circumstance at a base, he will not be mandatorily assigned to family housing.¹⁹

On the other side, the policies listed in AFR 30-7, *Bachelor Housing and Transient Quarters*, do not include the use of off-base housing as a primary means of providing quarters for single members. The tone of the regulation is much different from that of AFM 30-6. Words and phrases such as volunteer, desire, personal reason, normal desire, and guarantee against mandatory assignment are replaced by directive statements that show no intent to satisfy the housing wants of the bachelor. The regulation states that a bachelor may have to move on base after being given permission to live off-base.²⁰ A commander may allow a bachelor to live off-base without BAQ but can require him to move back on base with little or no notice.²¹ The family housing manual expresses a sincere effort to satisfy the desires of married members while the bachelor housing regulation directs the housing of bachelors.

This comparison of the two housing systems demonstrates that not only are the two types of quarters unequal but the two systems do not provide service members of equal rank with equal opportunity for off-base quarters. As the cost of living continues to rise, especially with respect to housing, the provision of housing becomes an even larger portion of service “pay.” Thus, if the housing provided to members of the same rank is unequal, then their pay is unequal. Such unequal pay violates government policy as stated in Title V of the United States Code.²²

Financial Aspects

The most obvious inequities in the military housing system concern the financial aspects of the system. To examine these, I will approach the problem from both an individual

and an Air Force-wide point of view. First let us consider the individual effects on each service member.

As part of a service member's pay, he receives government housing or BAQ to obtain housing. In the preceding section, we saw that the housing provided to single service members was not equal in kind or quality to quarters provided married members. Table 4 shows that the BAQ given to service members to obtain off-base housing is also unequal. In strictly monetary terms, then, married personnel drawing BAQ are paid more than their single peers. This provision also violates government policy.

Next, let us consider the case of the bachelor versus the geographic bachelor (a married man living away from his dependents by choice or directive). If adequate government quarters are available, both will reside in bachelor quarters. However, the bachelor will give up his BAQ while the geographic bachelor will reside in the same quarters free. If his dependents are living in base quarters, they may be allowed to remain there. If he is drawing his BAQ, he will continue drawing this allowance.²⁴ Regardless of

the case, the geographic bachelor is drawing the equivalence of double BAQ and is being paid more than his single peer. This again violates government policy as stated in Title V, U.S. Code.

Consider equivalent pay or that amount of money which equalizes the quality of quarters of service members of the same rank. For discussion purposes, consider two majors stationed in California: one, married, residing in family quarters on base and the other, single, residing in similar quarters in the local civilian community. The married major is supplied adequate quarters and utilities. For this, he forfeits his BAQ. The single major must pay approximately \$300 per month for similar quarters in the civilian community and \$80 per month for utilities. Since his quarters allowance is only \$198, he must supply \$182 from his base pay to have the same quality of living accommodations as the married major. In other words, the married major is being paid over \$2000 per year more than the single major, not because he works more but because he is married. Once again, this violates government policy.

Finally, in discussing the individual effects of the housing systems, I want to examine the policy on substandard housing. AFR 30-7 specifies that military necessity may require involuntary use of bachelor quarters that are substandard. Even then, BAQ will be forfeited in *total*.²⁵ Concerning married members, AFM 30-6 emphasizes that personnel cannot be mandatorily assigned to substandard housing except when specifically directed by the commander as a matter of military necessity.²⁶ Military personnel assigned to substandard housing do not forfeit their BAQ. Rather they must pay a rental charge that will not exceed their BAQ.²⁷ This charge is normally no more than 75 percent of their BAQ.²⁸ For individuals occupying substandard housing, this means that married members are paid more than their single peers. Again, this violates government policy.

Table 4. Basic allowance for quarters(\$)²³

Pay Grade	Married	Single
O-6	286.20	234.60
O-5	264.60	219.60
O-4	238.80	198.00
O-3	216.60	175.50
O-2	194.70	153.60
O-1	156.90	120.60
E-9	204.00	144.90
E-8	190.80	135.00
E-7	178.80	115.80
E-6	166.20	106.20
E-5	153.60	102.60
E-4	134.40	90.30
E-3	116.10	80.10
E-2	116.10	70.80
E-1	116.10	66.60

How does the Air Force as a whole divide its housing money? The answer will show how Air Force housing policy affects married and single members as groups. Two major classes of expenditures are important to examine, operations and maintenance and construction.

A 1966 study, commissioned by the Assistant Secretary of Defense (Manpower), revealed that the services were spending disproportionately larger sums on family housing than on bachelor quarters. In operations and maintenance, the services were spending approximately \$158 per month for each family housing unit for officers in pay grades O-1 through O-3 while spending only \$59 per month for bachelor officers of all grades.²⁹ In the enlisted grades, the cost was \$139 per month per family housing unit for pay grades E-4 through E-9. On the other hand, the services were spending only \$14 per month per single enlisted man.³⁰ Since 1966, the difference between the amount spent to maintain married quarters and single quarters has not changed significantly.

The picture for construction expenditures is equally grim. Total expenditures have little meaning for this comparison, so construction outlays will be presented on a per capita basis; that is, total expenditures for family housing divided by the number of married personnel and total expenditures for bachelor housing divided by the number of bachelor personnel. Table 5 gives this per capita expenditure over a five-year period. Figure 1

Table 5. Military construction expenditures per capita(\$)³¹

Fiscal Year	Married	Single
1971	150	32
1972	235	46
1973	191	39
1974	190	35
1975	146	70

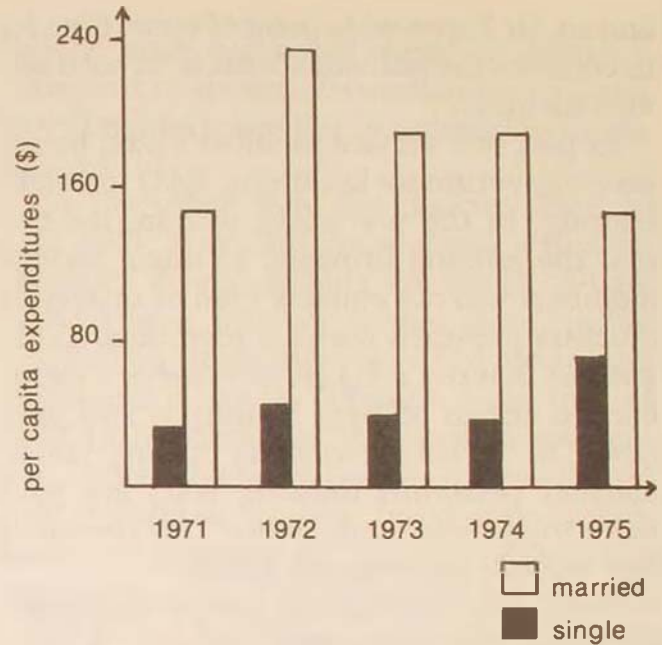


Figure 1. Per capita construction expenditures³²

presents the information graphically. The inequity is obvious. The disparity between the two groups would be even more pronounced if per capita expenditures were based on the numbers of people actually occupying government quarters. Far more singles live in government quarters than married members.

Effects of Housing Inequities

The inequities between family housing and bachelor housing have prevailed so long that they have become accepted by military leaders who request the money for military construction and by congressmen who approve the money. These two groups do not perceive what has become an almost ludicrous difference in the types of things the married members are requesting versus what single members are requesting as reflected in recent housing surveys.

Consider: married members want *modernized* kitchens, while singles just want a kitchen; married members want *more* stor-

age space, singles want *some* storage space; marrieds want a *family* room, enlisted singles want a room; married members want *improved* privacy, single enlisted men want a *little* privacy. One could add to the list by reading any number of articles concerning military housing published over the past decade. The point is that singles are asking for basic essentials; married are asking for frills. Singles are being told there is no money; married requests are being incorporated each year.³³ One effect, then, of the housing system has been an implication to singles as a group that they will not get nor do they deserve housing of the same quality as married members.

In an all-volunteer service, the special benefits that are given to military personnel must be aimed at retaining our people. Housing is one of these special benefits that is considered essential by top leaders in the Department of Defense.³⁴ It is interesting to note the effect of the housing system on retention within the two groups under consideration. In 1967, a survey of some 6300 single officers living in BOQs who were leaving the service indicated that 10 percent of these officers chose their quarters as the number one reason, from a list of nineteen reasons, for leaving the service.³⁵ On the other hand, a study in 1974 showed that the new family housing does not improve retention among married members.³⁶ If one considers that it costs approximately \$125,000³⁷ to train each pilot or \$20,000³⁸ to train an enlisted weather observer, for instance, it would seem prudent to try to reduce the number of people the Air Force has to train. Obviously, if the Air Force can retain its people, training costs will be reduced. Considering, then, that poor housing is sending singles out of the service while the improved family housing has no affect on retaining married members, doesn't it seem foolish to continue to put money into family housing while neglecting single housing?

Many military leaders view the possibility of unionization of the military services as a major problem facing the U.S. military establishment.³⁹ The dissatisfaction over housing among single members of the military makes them an easy mark for unions. Even though singles comprised 31 percent of the Air Force, 44 percent of all services in 1975,⁴⁰ they have been unable to affect the rules that keep them in their second-class position. When all individual efforts to improve a situation are continually frustrated, men historically look for an organized voice, and unions will be there waiting. As to whether a union could have the strength to effect changes, consider the teamsters. With a membership of only 400,000, they have the power to bring the U.S. economy to a near standstill.⁴¹ In 1975, there were over 900,000 singles in the military services.⁴² If organized, they could wield a great deal of power.

Unions do not have to be the inevitable result if the Air Force takes action to correct the inequities. There are other solutions.

Correcting the Mistakes

Before any problem can be solved, it must be recognized. From reading the many proposed changes to bachelor housing, I believe that the leadership has missed the problem. They set new standards for bachelor housing that they consider as "lofty," but these standards are lofty only to men in Congress and the military whose only recollection of bachelorhood is that of a military trainee living in an open bay barracks or as a college student living in a dormitory. It was a transient time for them, and, thus, they view bachelorhood as a transient condition that people pass through early in their life. They do not wish to waste money on this transitory state. This view is not only incorrect, as shown in a recent census bureau study,⁴³ but it is also irrelevant. The problem

transcends this view. To state it simply: Can the military justify paying its people on a basis other than work performed? Government policy says no.

How can the Air Force solve the problem? A good start would be by treating people of equal rank the same. It is that simple and that obvious. Get rid of the double standard in military housing. Let all housing be controlled by one office in the Air Force. Write one manual that covers assignment for all Air Force housing. Determine minimum standards that apply to all personnel of the same rank. The idea is not original. Interestingly, the Soviet Union, the epitome of socialism, assigns officer quarters by rank or position.⁴⁴ Yet here in the cornerstone of capitalism, we use a socialistic system based on need for the assignment of military housing. Housing should be assigned by rank.

Stop the defenseless system of paying BAQ rates based on marital status. Again, this is

not new. The British do not distinguish between married and single personnel with respect to off-base housing allowance.⁴⁵ Raise BAQ so that those who have to seek off-base quarters can obtain the same grade of housing and the same benefits (such as utilities) with their BAQ as their peers who live on base. In other words, give equal pay for equal work.

FOR THE Air Force to retain its best people, its housing system, like its promotion system, must reward good work. It must give each and every member the opportunity to share the same living standards as his contemporaries. The Chief of Staff, General David C. Jones, wants to increase the quality of life in the Air Force. Fine! Let's start by putting some quality into the lives of the single members.

Armed Forces Staff College

Notes

1. Stuart H. Loory, "Hair and Harassment in the GI Slums," *Progressive*, October 1973, p. 19.
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3. AFR 30-7, *Bachelor Housing and Transient Quarters* (Washington: U.S. Department of Air Force, 1975), p. 2-1; AFM 30-6, *Assignment of Family Housing*, p. 1-2.
4. U.S. Department of the Air Force, AFR 90-7, *Standard Family Housing/Criteria for its Repair, Replacement, Retention and Disposition* (Washington: 1970), p. 3; AFR 30-7, p. 2-3; *Armed Forces*, 10 U.S. Code sec. 9774 (1970).
5. 10 U.S. Code.
6. AFM 30-6, p. 6-3; AFR 30-7, p. 2-3.
7. AFM 30-6, p. 6-3.
8. Bob Towle, "Housing Problems: No Easy Solutions," *Air Force Times*, 27 February 1974, p. 13.
9. "Bachelors May Get Pentagon OK to Live Off Base; DOD Finds Prisoners Faring Better than Military," *Journal of the Armed Forces*, 28 May 1966, p. 7.
10. *Ibid.*
11. *Ibid.*
12. Loory, p. 19.
13. "Housing Deficit Down, But By No Means Out," *Air Force Magazine*, October 1974, p. 52.
14. AFM 30-6, p. 2-2; AFR 30-7, p. 1-2.
15. AFM 30-6, p. 3-1.
16. *Ibid.*, p. 6-2.
17. *Ibid.*, p. 4-2.
18. *Ibid.*, p. 4-3.
19. *Ibid.*, pp. 4-2-3.
20. AFR 30-7, pp. 3-1, 3-8.
21. *Ibid.*, p. 3-6.

22. 5 U.S. Code sec. 5301.
23. "Adjustments of Certain Rates of Pay and Allowances," Executive Order No. 11883, 8 October 1975, *United States Code, Congressional and Administrative News*, 94th Congress, 1st Session, pp. 2181-82.
24. AFR 30-7, pp. 2-1-2.
25. *Ibid.*, p. 3-4.
26. AFM 30-6, p. 7-1.
27. *Ibid.*, p. 7-2.
28. "Housing Deficit Down, But By No Means Out," p. 50.
29. "Bachelors May Get Pentagon OK to Live Off Base; DOD Finds Prisoners Faring Better than Military," p. 41.
30. *Ibid.*
31. *Military Construction Appropriations Act of 1971, U.S. Statutes at Large* 84, sec. 1409 (1970); *Military Construction Appropriations Act of 1972, U.S. Statutes at Large* 85, sec. 482 (1971); *Military Construction Appropriations Act of 1973, U.S. Statutes at Large* 86, sec. 1156 (1972); *Military Construction Appropriations Act of 1974, U.S. Code, Congressional and Administrative News* 87, sec. 766 (1973); *Military Construction Appropriations Act of 1975, U.S. Code, Congressional and Administrative News* 88, sec. 2179 (1974); U.S. Department of Defense, OASD (Comptroller), Directorate for Information, *Selected Manpower Statistics* (Washington: Issued annually), 15 April 1971, p. 41; 15 April 1972, p. 43; 15 April 1973, p. 45; 15 May 1974, p. 45; 15 May 1975, p. 44; U.S. Department of the Air Force, *Civil Engineering Cost Report* (Washington: 1976), HAF 7101-2 (by telephone conversation with Mrs. Bentz, HAF, 18 March 1976).
32. *Ibid.*
33. "New Housing: All the Amenities," *Air Force Times*, 26 June 1974, p. 49.
34. U.S. Congress, House, Subcommittee of the Committee on Appropriations, *Military Construction Appropriations for 1974*, 93rd Congress, 1st Session, 1973, p. 4.
35. "BOQ Conditions Cause Many to Quit Service," *Journal of the Armed Forces*, 14 January 1967, p. 6.

36. "DOD Housing Study: Still a Dim View," *Air Force Times*, 8 May 1974, p. 4.
37. AFR 173-10, *USAF Cost and Planning Factors* (Washington: U.S. Department of the Air Force, 1973), vol. II(C), p. 32-6.
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40. *Selected Manpower Statistics*, 15 May 1975, p. 44.
41. "Tea-sters' Biggest Strike Ever—The Impact," *U.S. News and World Report*, 12 April 1976, p. 89.
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43. "Divorces Up, Marriages Off in U.S.," *The Virginian-Pilot*, 2 April 1976, p. 1.
44. Harriet Fast Scott, "The Military Profession in the USSR," *Air Force Magazine*, March 1976, p. 81.
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The makers of our Constitution undertook to secure conditions favorable to the pursuit of happiness. . . . They sought to protect Americans in their beliefs, their thoughts, their emotions and their sensations. They conferred, as against the Government, the right to be let alone—the most comprehensive of rights and the right most valued by civilized men. To protect that right, every unjustifiable intrusion by the Government upon the privacy of the individual, whatever the means employed, must be deemed a violation of the Fourth Amendment.

LOUIS D. BRANDEIS:
Dissenting, *Olmstead v.*
U.S., 277 U.S. 438 (1928)

R books
and
ideas

MYTHS AND VIETNAM

RAYMOND E. BELL, JR.



THE title *Neither Peace Nor Honor* † is deceiving. Author Robert L. Gallucci has written an objective analysis of how isolation of key government officials during the Vietnam war's early years (up to 1967) led to a morass in which decision-making became a matter of increasing participatory exclusiveness. He homes in on the air war against the Communists and the tactics of "search and destroy," which are subjected to close scrutiny. But there is nothing in the book that deserves the title of *Neither Peace Nor Honor*.

Gallucci began this work as a doctoral dissertation, which probably accounts for the detailed annotation and bibliography, but he has altered the necessary scholarly approach to make a highly readable and succinctly analytical study of *why*, not *how*, things went wrong in Vietnam. Be warned, however; I can recommend this book only to those whose "parochial back" does not stiffen at the touch.

There are some brutal things said about the United States Air Force and its bombing in Southeast Asia. But the brutality is tempered since this is not a strident, antiestablishment work. Such quotes as the following from Senator Stuart Symington to Air Force Chief of Staff John P. McConnell during an appropriations hearing in 1967 provide some idea of the book's tone, however.

If you all don't get after some meaningful military targets in North Viet-Nam, Air Force and Naval airpower will go down the river. People are going to lose confidence in airpower. This country will be left in a position where the Navy will consist of submarines and sealift, and the Air Force missiles in silos and air lift.

Unfortunately, the scope of the book does not extend beyond 1967 so the author cannot

bring in a final verdict. The B-52 bombing of North Vietnam around Hanoi in the final months of 1972 and its apparent success in bringing the North Vietnamese back to the negotiating table appear to counteract the implied conclusion that the entire bombing effort was a waste of time, effort, and lives. But the strength of the book is that you, the reader, will be disposed to render an objective judgment.

The search and destroy tactics of General Westmoreland are also subjected to a hard look. A fascinating part of the analysis is Westmoreland's maneuvering to get the 1st Cavalry Division, the U.S. Army's first "airmobile" division, to Vietnam. The very presence of this type of highly mobile organization in Vietnam sealed the fate of the defensive enclave concept that was a pet theory of General James Gavin, an outspoken critic of U.S. tactical doctrine in Vietnam. As Gallucci points out, the usual Boy Scout image of Westmoreland holds no credence when one considers that the 1st Cavalry Division was the first major army formation committed to battle. From the very beginning Westmoreland intended to carry the war to the enemy, and he did.

This book fills a vacuum, and it fills it in a highly readable and dispassionate manner. Even if one disagrees with many of the author's conclusions or premises, one will be exposed to some thought-provoking analyses.

On the other hand, *The Myths of National Security* †† is a strident, argumentative, abrasive work by an ex-CIA specialist who purportedly "pinpoints growing dan-

† Robert L. Gallucci, *Neither Peace Nor Honor: The Politics of American Military Policy in Vietnam* (Baltimore: Johns Hopkins Press, 1975, \$10.00), 187 pages.

†† Arthur M. Cox, *The Myths of National Security: The Peril of Secret Government* (Boston: Beacon Press, 1975, \$9.95), 231 pages.

gers of America's 'secret government.'” The book is published by Beacon Press, “the non-profit book publishing house sponsored by the Unitarian Universalist Association for responsible exploration of the human condition.” But the reader is not privy to this information because the author, Arthur Macy Cox, a former member of Truman’s White House staff, starts out from left field and stays there.

There is no introduction, no statement of purpose, no establishment of bias. Finally on page 205 I found out what ax Cox was trying to grind. He is trying on you, the reader, the need for “. . . an entirely new approach which will implement the sound principles of independent intelligence estimating, for the first time.” How this central theme is to be reconciled with the banner title will have to be left to your own determination. I am still not reconciled to either Cox’s style or his conclusions, and although he articulates, he does not communicate.

Perhaps if one is sensitive to the events of the past few years, one is suspicious of anything painted in absolutes of black and white. Cox gives the reader little middleground to maneuver in, and an adversary relationship is soon established between the printed word and the reader. How does one separate the critical elements that are components of such statements as these?

The principle to be remembered in considering all these measures is the desirability of providing greater openness and freedom of information while protecting essential secrets. We should be careful not to mix considerations of espionage with issues of freedom of information, as Congress did in 1959 acting under the influence of McCarthyism and Stalinism.

Grand as they are, they say too little. And so goes it throughout the work. But be warned, this is a book of argument, not of analysis or even of chronology. The author knows his

battleground well, but one is not tempted to enter the lists against him. The title is his battle cry, and one is certainly drawn at least to consider contesting his many simplistic hypotheses. Frankly, I do not think it is worth it.

It is too bad that the reader cannot read the flier that preceded publication of the book. It would do yeoman service as a foreword or introduction and allow one to set his frame of reference at the beginning of the book, not in the middle.

All in all, Mr. Cox has his say, but his approach turns the reader off and in doing so vitiates the impact of his argument. It is a short, compact work one might thumb through in a library while researching contemporary politics.

NOT so *The Wars of Vietnam 1954–1973* † by Edgar O’Ballance. O’Ballance is an experienced and objective chronicler of military activities. He first came to my attention when he wrote a definitive piece on the 1956 Sinai campaign and the events surrounding it. Since then his name has appeared on a number of military works.

O’Ballance is true to form in this book that easily qualifies as a primer on the conflict in Vietnam from 1954 to 1973. But one could only wish he had waited until the collapse of the American will to meet its commitments in 1975 to finish it. Having also written *The Indo-China War 1945–54: A Study in Guerilla Warfare*, he must now decide whether or not to write a Vietnam trilogy. He might best wait, however, until final peace is assured in that now-united country.

This is a lively account that moves the reader along fast. It is not extensively documented, but then the author makes no pretense that it is or should be. But his index,

† Edgar O’Ballance, *The Wars of Vietnam 1954–1973* (New York: Hippocrene Books, 1975, \$13.95), 224 pages.

appendices, and list of abbreviations contribute to its value as a Vietnam chronicle. Objectivity must be stressed as a strong point, but it seems strange to read of oneself in the U.S. as "the enemy" on the battlefield.

Although there is much to praise here, a couple of areas must be criticized, too, areas where authors often lose control over their work. Improperly captioned pictures—never to my knowledge has there been an M-42 light tank or a production model M-144 armoured personnel carrier—detract not from the interest or even the credibility of a work, but they do reflect negatively on the professional expertise of the author. This failing seems most frequent in writings about foreign military establishments: O'Ballance is an English author.

The second problem area is the maps, which are very poor. Names to be named are missing. Maps are improperly juxtapositioned to the text. Some of them contribute nothing to the book at all. Unfortunately this malady seems to be the rule rather than the exception in many military works.

O'Ballance makes many valid points, but one seems particularly pertinent. He accuses the U.S. Military Assistance Command, Vietnam (MAC/V) of treating the Army of the Republic of Vietnam (ARVN) as a second-

class army and laments the failure to treat Vietnamization seriously until too late. Hindsight being what it is, I agree with the author emphatically. Undoubtedly the U.S. soldier's arrogance, vocalized in such appellations as "gook" and "slope," really worked against our efforts. The imprint of U.S. values—as for instance the conventional and outmoded regimental organization—on the Vietnamese coupled with our desire to do it all ourselves did not and probably could not come to fruition.

Had the United States started a valid program of Vietnamization in 1966 rather than in 1969, more ARVN units would have performed as some did in 1972 along the My Chanh River in northern South Vietnam. Unfortunately, one cannot be sanguine about our ability to learn from this mistake since our sights have now been turned almost exclusively to that area where we would best like to fight—Europe.

For those who want a broad survey of the action and an easy pocket reference, this book should prove to be quite useful. And it will be useful, too, for those who want to do without emotion and have the story told ". . . as it really happened, which may not be quite as many would have liked it to be told."

Cornwall-on-Hudson, New York

QUESTION OF HONOR

LIEUTENANT COLONEL JON A. REYNOLDS

AMERICAN prisoners of war (POWs) returning from Vietnam received a homecoming welcome that exceeded in enthusiasm the greetings extended any other group of American servicemen during that long and divisive conflict. They were accorded honor and esteem from a nation which, having torn itself apart through the frustration generated by its inability to resolve or succeed in its adventure in Southeast Asia, needed a group on which it could accord some of the hero worship of earlier conflicts. To many, the return of the POWs represented the concluding event in a struggle that most Americans, advisedly or not, were eager to forget.

Books by former POWs have tended to enforce the national sentiment that greeted them upon their return. Most of these literary efforts are highly autobiographical, following an established routine of shutdown, capture, torture, boredom, and release. For the most part, these books are highly religious and/or patriotic in flavor. The first half dozen or so, with the exception of Robinson Risner's account of his unique experience, are fairly similar; the names of authors could be interchanged, or for that matter the name of almost any POW substituted, and the books would read about the same.

However, John Dramesi's *Code of Honor* † is totally unlike any previous work about the American POW experience in Vietnam.

His stated purpose is not to disgrace anyone but to present the clear and convincing truth of our POW experience in North Vietnam "so that we prepare our young men and women for the future." Dramesi, captured on 2 April 1967, quickly dispels any notion that American POWs in Hanoi were superhumans. He presents them as they really were. Thus we find men confined in unventilated cells during the long subtropical summers, their bodies raw with heat rash, their future uncertain, their present a daily humiliation in the presence of their captors, their hygienic and biological functions a community project, behaving in a psychologically predictable manner. Under these conditions, which combined to create one gigantic mental and physical frustration, the effort required of each inmate to live in peace and harmony with his fellow captives exacted heroic self-discipline. Consequently, we find Dramesi, along with some of his "roommates," behaving in a manner somewhat less admirable than depicted in earlier works. Instead of the dignity displayed during repatriation, petty jealousies and feuds seem part of the norm. It is not amazing that the POWs behaved as they did but that they were able to adjust so well and that confrontations, when they did occur, rarely progressed beyond verbal threats.

The hero of this book is Lieutenant Colonel John A. Dramesi. Raised amidst the

†John A. Dramesi, *Code of Honor* (New York: Norton, 1975, \$7.95), 231 pages.

toughs of South Philadelphia, where one is taught at an early age to rely on his skill and determination to win, the author makes it his prison goal to excel in that test as he has excelled in other, less demanding tests during his career as a fighter and fighter pilot. For an individual to excel in Hanoi, he had to adhere strictly to article three of the Code of Conduct: "If I am captured, I will continue to resist by all means available. I will make every effort to escape and aid others to escape." It was toward this end that Colonel Dramesi devoted his efforts. Most POWs required some kind of philosophy or regimen to endure the daily existence in Hanoi. For Dramesi, the regimen consisted of a program of inflexible resistance and never-ending search and preparation for escape.

Dramesi's goal was not the idle dream of the average POW. He was not the temporal "iron man" who emerged only during the latter days of confinement when others could witness his resolution. He details his two genuine attempts at securing his freedom. The first, alone, within days of his capture and before his arrival in Hanoi, had a reasonable chance of success. The second, with a partner and the tacit blessing and knowledge of all Americans within the camp, was doomed to failure. Dramesi describes the ruthless retaliations of the Vietnamese for this second escape attempt. His partner, Edwin Lee Atterbury, to whom the book is dedicated, was killed. And yet, despite the cruelty of the punishment inflicted on Dramesi, he devoted the remainder of his Hanoi tenure to preparing for another attempt.

For his efforts in Hanoi, John Dramesi was, and is, a controversial individual. To many of his former roommates, he was an abrasive and inconsiderate being. To others, he set the standard for POW conduct, dedicated to conducting himself in the manner expected of a POW as embodied in the spirit of the Code of Conduct. As christened by one of his

cellmates, he was a gadfly, whose physical strength and mental will permitted him to resist in a manner that frustrated men of equal determination but weaker flesh. No doubt he did alienate many of those intimately familiar with him. As one who considered any improvement in living conditions a compromise to his program of resistance, he indeed could be a gadfly to other strong men who sought and accepted camp improvements as their just reward. Only another POW would understand this dichotomy, for Dramesi's strict adherence to the often-proved POW adage "Beware of gooks bearing gifts" was not unjustified recalcitrance on his part. That nothing was given away by the Vietnamese was, to POWs, a truism that was often reinforced. Unfortunately, as Dramesi notes, the great American public was never informed of this tender issue.

The issues and questions that *Code of Honor* addresses are multiple. Many of them were evidently suppressed by official sources during and immediately after the POW's homecoming. In adhering to his purpose for writing the book, Dramesi raises delicate subjects openly, hoping that their acknowledgment and resolution will improve the performance of all POWs in later struggles.

The special circumstances surrounding the early release of several POWs should be publicized. The usual public notion on this issue is that the "lucky few" were selected at random by the Vietnamese and then released, with no stigma attached. Remember the gift-bearing gook. Many of those who were in Hanoi, especially those at the Plantation Camp, from which most of the early returnees were selected, will assert that this simply was not the case. With some exceptions (e.g., the case of a seaman apprentice who had fallen overboard, whose status as a POW was never resolved, whose resistance was exemplary, and who was permitted by the senior-ranking officer of the camp to return early), many of those who accepted repatria-

tion early must be suspected of violating the Code of Conduct. An accurate recounting of how and why these men returned home early has yet to be made public. So far, only the men themselves and their Vietnamese captors know all the details.

POWs who came home "on time" have conjectured that the major goals of the early release program were for propaganda and for the divisive and demoralizing effect it would have on those who stayed. To be sure, the early releases were well publicized within the walls of the Hanoi camps. The immediate effect of this news was generally one of disbelief, followed by crushing disappointment at the opportunistic conduct of fellow prisoners. The determination to avoid selection for an early out had a binding influence among those POWs who remained. After the first and second groups were released, the Vietnamese had difficulty identifying others to participate in their "go home early" program. Penetrating questions to and by many former POWs today, however, still remain unanswered. What were the circumstances surrounding the early release program? Navy Commander John S. McCain III, who was offered an early release and refused it, has made his story public. Might not some of those who accepted it make theirs public also?

Evidently the decision to take no action against any former POW, even though charges were pressed by senior Navy and Air Force officers, was taken to enable the POW issue to subside. That willing collaborators, although few in number, still enjoy the benefits and honors accorded the majority who served loyally and resisted to the limits of human endurance is an issue that should be rectified. The United States has prescribed a Code of Conduct for American fighting men. Although this code was modified by senior-ranking officers to fit the situation in North Vietnam, the line of resistance they set was rigorous, and their directives stipulated that

no man would cross it without significant torture. This line was measured within the capability of each POW to endure. Senior American officers in North Vietnam spoke with force of law. That some men did not obey merits hard examination. The United States will fight again. Some of its combatants will become prisoners of the enemy. One should consider the examples they will have before them and question what code they will be expected to follow.

PERHAPS THE most delicate issue raised by Dramesi concerns leadership. The thoughtful reader will note that he examines this quality at all levels; from the individual cell, where a lieutenant would often step forward to acknowledge his responsibility, to the senior-ranking officer in the camp, who might or might not be in a position through which he could exercise his authority. Dramesi identifies those senior leaders who came forward at great personal risk to themselves to lead during periods of extreme stress. He also examines leadership during periods of lesser duress. In the final analysis, there is questionable conduct, but there is also "ample evidence to prove the courage, honor, discipline and determination of our military."

To understand leadership as it was exercised within the walls of the prisons of North Vietnam, one must be familiar with the various periods through which American POWs passed. Treatment was often a direct function of external factors, most of which were out of the control of the POWs. Rarely did the Vietnamese volunteer to identify these factors, and one cannot say that their treatment was harsh only when the bombing was heavy, or that treatment improved as the war improved or as the peace talks progressed. The only thing of which the POW was certain was that the treatment did change dramatically during certain periods.

From August 1964 until November 1965, before Dramesi's arrival, the American experience in Vietnamese prisons was not terribly harsh. In fact, treatment seemed to indicate that the Vietnamese were not exactly sure what to do with each of their newly arrived uninvited guests (other than to isolate them). The first American POW, Lieutenant (j.g.) Everett Alvarez, during his six months as the only POW, enjoyed such niceties as letters from home, physical exercise, and Red Cross packages. As more POWs arrived, no systematic routine of interrogation, exploitation, or torture was applied, and the relationship between captor and captive rarely progressed beyond one of mutual animosity and distrust. Most POWs were optimistic, convinced that the war would soon end, victoriously, and they would return home to resume a normal life. Most fixed this date as no later than the end of 1965.

The covert leadership organization during this period was also somewhat casual. Subjected to no tough or regimented program of interrogation or exploitation and mentally unprepared to accept the reality that one was indeed a prisoner and facing a protracted incarceration, most newly captured POWs felt that guidance or directives from a senior-ranking officer were not really necessary. Random advice to abide by the Code of Conduct seemed to suffice, and each man proceeded to make plans for the anticipated leave period that would soon follow what each expected to be his imminent release.

With the arrival of Lieutenant Colonel Robinson Risner (now Brigadier General retired) in September 1965, a campwide organization of the POWs began to function almost immediately. The covert communication system was improved, and a coordinated POW drive for improvements in living conditions began. Soon after Risner's assumption of command, he distributed a written note throughout the camp. Basically, the note encouraged intracamp communication and

contained a series of guidelines for POWs dealing with such items as escape and attitudes toward the guards and interrogators. For the first time, a directive dealt with more items than just the Code of Conduct. Discovery of the note by the Vietnamese precipitated a thorough search of all POW cells which, due to a heretofore unnecessary security system, revealed "contraband" (in the form of nails and razor blades) and much of the clandestine activity underway. The response of the Vietnamese to these discoveries was swift. Possibly impelled by increased United States participation in the conflict, the prison authorities now developed and applied a well-defined program of treatment, discipline, and exploitation. The application of this program began the second phase of the American POW experience in North Vietnam.

The period from late 1965 to October 1969 marked the harsh and ruthless era of POW incarceration in North Vietnam. Enter John Dramesi on 2 April 1967. The period was characterized by brutal beatings, extended isolation, and protracted and deliberate torture on the part of the Vietnamese. Violations of the "camp regs" met with swift and cruel reprisals. Purges, generally designed to disrupt efforts at communication, were frequent and intense. Prisoners were held near prime target areas, such as the Hanoi thermal power plant. Protracted isolation was common. The hardcore camp of Alcatraz, where particularly difficult and senior POWs were locked in leg irons every night for sixteen months, was opened. Efforts at indoctrination, although primitive and generally ineffective, were continuous. Guest interrogators, such as the Cuban "Fidel," paid their visits. In short, the life of the American POW was one of day-to-day survival sustained by the hope that one day it would all be over.

The major thrust of the Vietnamese efforts during this phase was to prohibit communi-

cation and any semblance of organized leadership. The Vietnamese were well aware of the relationship between these two factors. Several members of Hanoi's Central Committee had spent long periods held by the French as political prisoners. Drawing on their experience, they recognized that if their efforts at indoctrination and exploitation were to be successful, communication and leadership had to be eliminated. Consequently, in addition to the aforementioned severe treatment, satellite camps such as Son Tay and the plantation were opened in an effort to further stifle communication and organization.

The largest and "most prestigious" camp for American POWs, however, continued to be the famous Hanoi Hilton, where problems associated with assuming and/or exerting leadership were substantial. Although four Air Force O-6s (colonels) had arrived in Hanoi, none of them assumed command at this time. In the tactful words of Dramesi, "for some strange reason they were unavailable for command." To be sure, this was a period during which even the cleverest POWs found it difficult and risky to communicate. The plight of the senior men, due to isolation, was of even greater magnitude. Since they were not present during the formative years of POW clandestine methods, perhaps—and this is speculation—these four were simply ignorant of how to join the intricate communication net. Risner was able to do it in June 1968 only by a note drop with Las Vegas* dishwashers, a risky venture at best. Another possibility—and this is also speculation—is that as senior American officers their knowledge of sensitive military information was of such magnitude that they did not wish to risk the brutal punishment and potential disclosure of this information by participating in the "forbidden" communication system. In any event, to lead one must

*Las Vegas—A section of the Hilton complex.

communicate, and, for the most part, the authority of the O-6s lay dormant during this harsh second phase.

Most POWs today recognize Commander James B. Stockdale and Lieutenant Colonel Robinson Risner as the men who, during this difficult period, acknowledged and accepted the crushing responsibility of the acting senior-ranking American officers. For their efforts, both men were subjected to torture and humiliation far beyond that of the average POW. Colonel Risner told his story in *The Passing of the Night*. The role of Admiral Stockdale is less well known. For fifteen months he led the men at Alcatraz. On returning to the Hilton, he tried to convince the Vietnamese of his determination to be a symbol of POW resistance, and he gained the lasting recognition of Dramesi as well as all the "old school" POWs. Recently, to memorialize his efforts, Admiral Stockdale was awarded the Medal of Honor by the Congress of the United States. Hopefully, someday, he will tell his story, presenting it in the eloquent and dignified manner so characteristic of him.

The last period of POW treatment began at some undefined date in late 1969 and lasted until the negotiated release in the spring of 1973. Generally, this period was characterized by an attitude of tolerance on the part of the Vietnamese. Although this attitude was often strained, it generally prevailed.

Following the Son Tay rescue effort in the fall of 1970, although improved treatment continued, all American POWs were moved from the various satellite camps to the Hanoi Hilton. Here, in a "new" section of the Hilton complex, they were confined in large open bay cells. Communication was simple. Although the Air Force O-6s were still sequestered away from the main unit cells, contact with them was established. It was at this time that Colonel (now Lieutenant General) John P. Flynn identified himself as the senior-

ranking American officer in North Vietnam and proceeded to organize all Americans under his command.

Operating under the code name of "Sky," Colonel Flynn applied himself to the enforcement of strict discipline and the maintenance of morale. Taking advantage of having all the POWs assembled in one camp, Sky formalized and disseminated uniform policies and instructions. There were no ambiguities with respect to conduct, attitudes, or the prospect of early release. Each man knew precisely where to stand and what was expected of him. Orders were "issued" under the aegis of the newly formed 4th Allied POW Wing, an organization that Colonel Flynn administered and led in an exemplary manner. Vietnamese efforts to render it and its commander ineffective were overcome by a now efficient and swift communication net. By early 1972 the relationship between POW and captor had evolved into one of live and let live. Just before release, the North Vietnamese finally acquiesced, recognized, and dealt with Colonel Flynn as the legitimate commander of U.S. forces in Hanoi.

COLONEL DRAMESI remains a controversial figure. Most former POWs who know him, or who have read *Code of Honor*, give him either their wholehearted endorsement or condemnation. Very few take their stance in-between. To be sure, he deserves a measure of criticism. That which he leaves unsaid destroys, in part, his credibility. For example, he might have mentioned the barbaric reprisals by the Vietnamese on all members of the Zoo compound for his attempted escape—reprisals of such intensity and duration that many were reluctant ever again to endorse or authorize an escape that lacked any reasonable chance of success.

One also grows weary of reading in the first person singular. John Dramesi wrote the book. That he is its hero is admissible. But there were more tough men in Hanoi than

he would lead you to believe. And there were men equally committed to that ultimate form of resistance—escape. The well-planned escape of McKnight and Coker, for example, was far more successful than Dramesi's. And it was not a spontaneous operation, as the uninitiated reader is lead to believe. Dramesi's greatest flaw, however, was in his own physical and mental strength, so singular and of such forcefulness that he apparently could not comprehend or tolerate the performance of those who could not match it. One wonders how he interpreted Admiral Stockdale's prison mandate: "unity over self."

In the final analysis, however, John Dramesi's presentation of the American experience in North Vietnam is basically accurate. The important issues that he raises merit examination and resolution. There were opportunistic prisoners who were willing to pay the price for an early release. Unfortunately, efforts to prosecute deficient conduct were quietly set aside, and their example is still before us and the POW of the future. Why?

There also remains the delicate issue of leadership. To be sure, leadership as exhibited within the walls of Hanoi prisons was a curious quality that existed in various degrees and forms throughout the long incarceration. The names Risner and Stockdale evoke such respect that even today the memory of their performance boggles one's comprehension of the limits of human dedication and endurance. To list those who willingly assumed this very burdensome responsibility, who were willing to send directives through a tenuous and hazardous communication net, and were willing to put their name upon them would be both awkward and, no doubt, unjust to others. But to accept responsibility was the norm. The issue tactfully raised by Dramesi is "Why were some senior men unavailable for command?" Perhaps the O-6s could answer this question and lay the issue to rest.

In reading *Code of Honor*, one should consider the issues raised and take care to avoid making generalizations. For the most part, the Americans in Hanoi demanded of themselves standards of conduct that were based on moral fiber and personal integrity of the highest order. As one who spent more than seven years in their midst, I have nothing but

the highest regard for the vast majority with whom I served. The real value of Dramesi's work is embodied in this purpose—to illuminate issues so that we might, in our quest for excellence, improve our performance in the next conflict.

United States Air Force Academy

During one naval exercise, a [Russian intelligence] trawler was particularly successful in dogging a British carrier, keeping pace with the larger warship despite heavy seas. As the exercise was concluding, the admiral aboard the carrier signaled the trawler inquiring if the smaller ship required refueling. The smaller craft quickly replied, "Not if you maintain your original schedule." The exercise schedule and the British admiral's reaction both were classified.

NORMAN POLMAR

Soviet Naval Power: Challenge for the 1970s, Revised edition (1974)

POTPOURRI

Memos of a West Point Cadet by Jaime Mardis. New York: David McKay Company, Inc., 1976, 261 pages, \$8.95.

The author, Jaime Mardis, was born in Louisiana and grew up in Texas. He completed his high school education at St. Francis Preparatory School in Houston. In 1969, against the advice of St. Francis's dean, Mardis went on to the United States Military Academy, West Point, New York. This book is a dramatization of his one frustrating year as a "kaydette" at the Point.

At one point Mardis says of West Point cadets: "... on visiting the outside world they could be right in the middle of it and still be a thousand miles away." Mardis was, I fear, right in the middle of it (West Point) and yet a thousand miles away!

Mardis's story is, at times, genuinely humorous, and as a parody of cadet life, it is a success. Unfortunately, the book jacket claims that the book provides insights into the controversies which have begun to taint the institution. If this is the book's objective, the author was notably unsuccessful. What the book does accomplish, quite naturally, is to describe the institution and its practices as seen through the eyes of Jaime Mardis. And how accurate a portrayal can Mardis provide? Certainly one must be a bit skeptical of an "inside" story, an exposé, presented by one who was unable or unwilling to adapt to the system.

There is much in the West Point system against which an intelligent and sensitive young man might rebel: the frequent black-white approach to complex problems, the demand for physical and mental conformity, the emphasis placed on physical strength and courage. On the other hand, can any other approach provide leadership for an army? Is

it not necessary for the military officer to subjugate his individual desires to the needs of his service? Only by making the objectives and policies of the service his own can an individual make a real contribution to the success of a military organization. Anything else is certain to lead to organizational and, ultimately, individual failure.

The author mentions the West Point honor system frequently in his *Memos*. Whether his descriptions of its operation are accurate has little bearing on the subject; his comments are certainly timely. One is, in fact, tempted to question whether simply exploiting the present controversy concerning West Point's honor system is not the basic motivation for the book. Experience with the West Point honor system leads this reviewer to conclude that Mardis was a part of it but did not understand it. He quotes several of his characters as "putting someone on his honor." Unnecessary! Cadets are *always* on their honor to refrain from lying, cheating, and stealing. However, a cadet is not honor-bound to obey regulations—although he transgresses them at his peril. If caught, he will be disciplined in accordance with the seriousness of the infraction. Infractions of regulations rarely result in expulsion of a cadet from the Academy. Violations of the honor system, if verified, have always resulted in expulsion from the Academy.

The standards of the West Point honor system are very high. Traditionally, these standards have been a reflection of the American refusal to compromise honesty and principle for personal gain. That the standards are under fire from so many quarters is undoubtedly a discouraging commentary on the state of our Nation's moral health.

Memos of a West Point Cadet makes little attempt to define the limits or objectives of either the institution or its traditionally re-

spected honor system. Therefore, a reader can make judgments only on the basis of emotional reactions to the incidents described in the book. In short, Mr. Mardis's book is entertaining but not enlightening.

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Friendly Fire by C. D. B. Bryan. New York: G. P. Putnam's Sons, 1976, 380 pages, \$10.95.

On 4 September 1969 Sergeant Michael Mullen left his parents' Iowa farm for Vietnam; six months later he returned home in a government-issue casket, victim of an American artillery officer's miscalculation. The short round that killed Mullen also made casualties of his mother and father. Goaded by an obsessive refusal to accept the inglorious, meaningless way their son had died, Peg and Gene Mullen abandoned the ranks of the silent majority and went to war against the United States government.

It is possible to read *Friendly Fire* from several perspectives. The reader can, like the author of the book, see the tribulations of this one family as a microcosm of the wounds the war inflicted on American society as a whole. On the other hand, the Mullens can be dismissed as a pair of abrasive, naïve, uncomprehending cranks, indiscriminately venting their rage in quixotic forays against the Establishment. But the professional officer who fails to look beyond these two points of view has missed a vital message.

Whatever else may have soured the Mullens on their government, the book makes it clear that the military bureaucracy played a major role in their estrangement. To be sure, some of the incidents that exacerbated the tensions between the distraught family and the Army stemmed from laws and regulations and thus were unavoidable. However, no statute could ever excuse the blatant lying, the gross insensitivity, the calloused bungling, and the insultingly inappropriate responses to which the Mullens were subject-

ed by the military. What were the grief-stricken survivors of a soldier killed by friendly artillery in a noncombat situation to make of posthumous awards for valor, identically phrased condolences from officers at different levels in the chain of command, and repeated refusals of authorities even to acknowledge, much less answer, their requests for information? How were they to feel about the Chief of Staff's downright inane assurance that Michael's "devoted service was in the finest traditions of American soldiers who . . . have given the priceless gift of life to safeguard the blessings of liberty"? ("Westy" and his ghostwriters always did have an unfailing eye for the gauche non sequitur.)

To sum it up, in a case demanding human understanding, the military professionals, with one admirable exception, ignored the nobler principles of their calling and behaved like bureaucrats. Mechanistic "command management" techniques triumphed over leadership, integrity, common sense, and decency. The consequences were disastrous, not only for the Mullens but for the United States Army as well. This is the message *Friendly Fire* should convey to the man at arms. And for precisely that reason the book will probably never make the required reading lists for junior officers.

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Airships: Yesterday, Today and Tomorrow by Henry Beaubois. New York: Two Continents Publishing Group, 1976, 238 pages, \$35.00.

The recent rash of books on lighter-than-air (LTA), capped by Michael V. Mooney's *Hindenburg* and the popular motion picture based on it, seems to indicate that interest in the "gas bags" of the past is not dead.

Short as was their place in the development of flight, the leviathan airships of the early twentieth century firmly established their chapter in aerial history. They had their beginning in the Montgolfier balloons that

used hot air from bonfires—strangely, it was the smoke that was thought to have the lifting power—in 1783. At that point, manned flight became a known scientific achievement. However, steering the balloon was a greater problem and had a much slower evolution. The earliest steerable airships were at best crude and as fanciful as some of the earliest heavier-than-air monstrosities. Once hydrogen gas was used, it was adopted quickly, and longer and better-controlled flights became possible. By 1784 the balloon was already elongated in design, presaging the blimp; still development in the state of the art went slowly. In the succeeding century the “gas bags” became bigger and propulsion and steering better, but it was Count Ferdinand von Zeppelin who made the LTA chapter in history such a thrilling one.

Launching LZ-1 in 1900, Zeppelin introduced the rigid airship (dirigible) to the world. Its success was almost immediate. In war and peace the dirigible became a symbol of the brief supremacy of LTA over conventional aircraft and, not coincidentally in the 1930s, of the Third Reich over the world. Yet, almost as suddenly as the Zeppelin had burst upon the technological scene, it was gone. In the brief span between the incendiary bullet of World War I and the hydrogen “accident” of the *Hindenburg* in May 1937, there were too many fatal crashes of the leviathans to permit their continued survival.

After World War II Congress took testimony on building another dirigible. There were proposals for a ten million cubic foot, atomic-powered airship to be built for luxury passenger travel. It never got beyond the testimony stage as the airlines took over the lucrative transoceanic travel market. Today, in the United States and elsewhere, men are still at work on modern versions of the famous “blimp” of World War II. Only a few specimens remain, made famous recently by football television broadcasting. Although faced with one calamity after another in their brief history, airships simply refused to die.

Despite all that has been published about airships, Henry Beaubois proves that there is

room for yet another well-done volume on the subject. Especially is there space for his large and expensively produced book that boasts one of the finest collections available of lighter-than-air photographs, many never before available to American readers of blimps and dirigibles. Fold-out pages reveal beautifully detailed scale drawings in color and black and white of the famous airships of the early twentieth century. The accompanying text presents little that is new, but it is historically sound and complements the pictures. The brief compilation, at the end of the book, of recent attempts at revival of lighter-than-air is, understandably, a bit sketchy and does not include recent law enforcement interest in blimps for neighborhood anticrime patrols—a development noted after the publication of the book. It does, however, detail the continuing interest in LTA evidenced by Russia recently in an effort to find suitable transport for heavy or bulky items to remote regions of Siberia.

Better than in any work thus far published, Beaubois has gathered together a pictorial and textual record of the lighter-than-air chapter of the history of flight. While expensive in its production, the end result is a publishing achievement. The book can grace the coffee table or the bookshelf of the most ardent devotee of LTA. After all, there may yet be found a phoenix in the ashes of the *Hindenburg*. Obviously, there are many who persist in keeping the faith. This book is for them especially.

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Mussolini's Roman Empire by Denis Mack Smith. New York: Viking, 1976, index, notes, works cited, xii + 322 pages, \$11.95.

Of all the many political movements in Europe, Fascism still remains one of the most baffling and irrational phenomena of the twentieth century. Fascism thrived on propaganda, conjuring visions of glory and

presenting itself as the solution to all the problems of the troubled post-World War I period. In the end, through reckless adventurism, unheard of brutality, and tyranny, the Fascist leaders destroyed the new order in the space of decades versus the promised millenium of Fascist rule. Scholars are still trying to put the pieces together by asking the rhetorical question "How could great civilized peoples such as the Italians and Germans succumb to the irrational and dictatorial Fascist leaders?"

The noted Oxford scholar Denis Mack Smith provides us with a close look at the first Fascist, *Il Duce* Benito Mussolini, and the Italian dictator's dreams of a new Roman Empire. In the case of *Il Duce*, his empire was illusory, as was the rest of the Fascist program to regain past glory and solve the nation's overpopulation and unemployment problems. However, for Mussolini there were not many profitable overseas areas to conquer in order to create colonies where he could send the surplus Italian population. Still, the lies prevailed, and Fascist newspapers printed slogans such as "Italy: a population without land. Africa: a land without population."

If war was to come because of an aggressive foreign policy, it was to be viewed as a positive action. According to *Il Duce*, "War . . . puts the stamp of nobility upon the people who have the courage to meet it." However, Mussolini's military machine was hardly the incarnation of Rome's once

mighty Legions. The highly vaunted Ethiopian campaign proved the unreliability of Italian leadership and arms. Even with modern weapons and poisonous gas, the new "Roman Legion" was hard pressed to subdue the hapless Ethiopians. Still, Mussolini's swagger and bravado created the illusion of a formidable military power on the Italian peninsula. By 1941, the failure of Italian arms was complete with the Germans taking control and directing the Italian forces in places such as North Africa and Greece.

Our author details the relationship of Mussolini and Hitler in foreign affairs. As the father of Fascism, Mussolini expected the German Führer to pay due homage. Instead, Hitler often slighted Mussolini, and the Italian leader was, at times, to view Hitler as a potential adversary—especially as Hitler's star ascended and Mussolini's descended. The famous "Pact of Steel" between the two supposed Fascist brothers was a pact sown with fear and distrust.

Denis Mack Smith is one of the foremost scholars of Italian history, and *Mussolini's Roman Empire* is a well-conceived and scholarly account of Mussolini's quest for a new empire. It will undoubtedly serve as a standard by which future works will be judged. Both the specialist and the informed reader will find the book a joy.

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BOOKS RECEIVED

The books listed herein are those received since the last list was published in our November-December 1976 issue. Many of them have already been sent to reviewers, and their reports will be presented later.

I. AIR POWER

- Gerbig, Werner. *Six Months to Oblivion: The Eclipse of the Luftwaffe Fighter Force*. New York: Hippocrene, 1975. \$16.00.
- Huston, James A. *Out of the Blue: U.S. Army Airborne Operations in World War II*. West Lafayette, Indiana: Purdue University Press, 1972. \$10.00.
- James, Peter N. *Soviet Conquest from Space*. New Rochelle, New York: Arlington House, 1974. \$8.95.
- Schemmer, Benjamin F. *The Raid*. New York: Harper & Row, 1976. \$10.95.

II. AVIATION: TALES, TECHNIQUES, AND TECHNOLOGY

- Flying Magazine, editors. *Sport Flying*. New York: Scribner's, 1976. \$14.95.
- Forsyth, Frederick. *The Shepherd*. New York: Viking, 1976. \$4.95. A flying novel about the Royal Air Force in the 1950s.
- Green, William. *Famous Fighters of the Second World War*. New York: Doubleday, 1976. \$9.95.
- Moore, Patrick. *The Next Fifty Years in Space*. New York: Taplinger, 1976. \$12.95.
- Thomas, Lowell, and Edward Jablonski. *Doolittle: A Biography*. New York: Doubleday, 1976. \$8.95.
- Serling, Robert J. *The Only Way To Fly: The Story of Western Airlines, America's Senior Air Carrier*. New York: Doubleday, 1976. \$10.95.
- Steiger, Brad, editor. *Project Blue Book*. New York: Ballantine, 1976. \$1.95 paper. Popularized treatment of the USAF investigations of UFOs.

III. MILITARY AFFAIRS

- Aliano, Richard A. *American Defense Policy from Eisenhower to Kennedy*. Athens, Ohio: Ohio University Press, 1975. \$13.50.

- Barber, Noel. *The Week France Fell*. New York: Stein & Day, 1976. \$10.95.
- Best, Geoffrey, and Andrew Wheatcroft, editors. *War, Economy and the Military Mind*. Totowa, New Jersey: Rowman and Littlefield, 1976. \$14.50. A collection of essays on military ideology within armies and on the intellectual bases for armaments races.
- Binkin, Martin, and Jeffrey Record. *Where Does the Marine Corps Go from Here?* Washington, D.C.: Brookings, 1976. \$2.95.
- Bliven, Bruce, Jr. *Volunteers, One and All: Our Armed Forces since the End of the Draft*. New York: Reader's Digest Press, 1976. \$7.95.
- Camus, Raoul F. *Military Music of the American Revolution*. Chapel Hill, North Carolina: University of North Carolina Press, 1976. \$14.95.
- De McLaurin, Ronald, et al., editors. *The Art and Science of Psychological Operations: Case Studies of Military Application*, Vol. II. Washington, D.C.: U.S. Army, 1976.
- Douglass, Joseph D., Jr. *Studies in Communist Affairs*, Vol. 1. *The Soviet Theater Nuclear Offensive*. Washington, D.C.: USAF, 1976. \$1.67.
- Flood, Charles Bracelen. *Rise, and Fight Again: Perilous Times along the Road to Independence*. New York: Dodd, Mead, 1976. \$12.95. A military history of the American Revolution.
- Gallaher, John G. *The Iron Marshal: A Biography of Louis N. Davout*. Carbondale, Illinois: Southern Illinois University Press, 1976. \$15.00. A description of the life of one of Napoleon's most effective lieutenants.
- Giap, General Vo Nguyen. *How We Won the War*. Philadelphia: RECON Publications, 1976. \$1.50.
- Gillingham, Arthur. *Arms Traffic: A Selected Bibliography*. Los Angeles: Center for the Study of Armament and Disarmament, 1976.
- Gouré, Leon. *War Survival in Soviet Strategy: U.S.S.R. Civil Defense*. Washington, D.C.: University of Miami, 1976.
- Griffith, Samuel B., II. *In Defense of the Public Liberty: Britain, America and the Struggle for Independence*. New York: Doubleday, 1976. \$14.95.
- Hoehling, A. A. *Thunder at Hampton Roads: The U.S.S. Monitor - Its Battle with the Merrimac and Its Recent Discovery*. Englewood Cliffs, New Jersey: Prentice-Hall, 1976. \$9.95.
- Korb, Lawrence J., editor. *The System for Educating Military Officers in the U.S.* Pittsburgh, Pennsylvania: University of Pittsburgh, 1976.
- Kovic, Ron. *Born on the Fourth of July*. New York:

- McGraw-Hill, 1976. \$7.95. The story of a Marine veteran's struggle to reintegrate himself into American society after having been wounded and paralyzed in Vietnam.
- Kurzman, Dan. *The Bravest Battle: The 28 Days of the Warsaw Ghetto Uprising*. New York: Putnam's Sons, 1976. \$10.00.
- Lawford, James, editor. *Cavalry*. New York: Bobbs-Merrill, 1976. \$19.95.
- Legault, Albert, and George Lindsey. *The Dynamics of the Nuclear Balance*. Ithaca, New York: Cornell University Press, 1976, revised edition. \$14.50.
- Liddell Hart, Adrian, editor. *The Sword and the Pen: Collection of the World's Greatest Military Writings*. New York: Crowell, 1976. \$10.95.
- Naroll, Raoul, et al. *Military Deterrence in History: A Pilot Cross-Historical Study*. Albany, New York: State University of New York Press, 1974. \$30.00.
- O'Neill, James E., and Robert W. Krauskopf. *World War II: An Account of Its Documents*. Washington: Howard University Press, 1976. \$15.00.
- Panton, Philip, editor. *Seaford House Papers, 1975*. London: United Kingdom, Ministry of Defence, 1976.
- Potter, E. B. *Nimitz*. Annapolis, Maryland: U.S. Naval Institute, 1976. \$16.95.
- Selby, John. *The Road to Yorktown*. New York: St. Martin's, 1976. \$10.00.
- Tanner, Robert G. *Stonewall in the Valley*. New York: Doubleday, 1976. \$10.00. Another treatment of Thomas J. Jackson's famous exploits.
- 1941: *The Partnership that Saved the West*. New York: Norton, 1976. \$12.95.
- Liska, George. *Beyond Kissinger: Ways of Conservative Statecraft*. Baltimore, Maryland: Johns Hopkins University Press, 1975. \$12.00.
- Mazlish, Bruce. *Kissinger: The European Mind in American Policy*. New York: Basic Books, 1976. \$12.50.
- Owen, Henry, and Charles L. Schultze, editors. *Setting National Priorities: The Next Ten Years*. Washington, D.C.: Brookings, 1976. Essays on national problems, foreign and domestic.
- Parry, Albert. *Terrorism: From Robespierre to Arafat*. New York: Vanguard, 1976. \$15.00.
- Pranger, Robert J., editor. *Détente and Defense: A Reader*. Washington, D.C.: American Enterprise Institute for Public Policy Research, 1976. \$4.50.
- Remak, Joachim. *The Origins of the Second World War*. Englewood Cliffs, New Jersey: Prentice-Hall, 1976. \$4.25.
- Rosecrance, Richard, editor. *America as an Ordinary Country: U.S. Foreign Policy and the Future*. Ithaca, New York: Cornell University Press, 1976. \$9.75.
- Russett, Bruce M., and Elizabeth C. Hanson. *Interest and Ideology—The Foreign Policy Beliefs of American Businessmen*. San Francisco: Freeman, 1976. \$4.95.
- Salibi, Kamal S. *Cross Roads to Civil War: Lebanon, 1958–1976*. Delmar, New York: Caravan Books, 1976.
- Solzhenitsyn, Alexander. *Warning to the West*. New York: Farrar, Straus and Giroux, 1976. \$2.95.
- Stavrianos, L. S. *The Promise of the Coming Dark Age*. San Francisco: Freeman, 1976. \$8.95.
- Stoessinger, John G. *Henry Kissinger: The Anguish of Power*. New York: Norton, 1976. \$8.95.
- Taylor, Maxwell D. *Precarious Security*. New York: Norton, 1976. \$7.95.
- Toland, John. *Adolf Hitler*. New York: Doubleday, 1976. \$14.95.
- Walton, Richard J. *Henry Wallace, Harry Truman, and the Cold War*. New York: Viking, 1976. \$12.95.

IV. INTERNATIONAL RELATIONS

- Ball, George W. *Diplomacy in a Crowded World: Foreign Policy for the U.S.* Boston: Little, Brown, 1976. \$12.95.
- Crozier, Brian. *The Man Who Lost China*. New York: Scribner's Sons, 1976. \$12.95.
- Epstein, William. *The Last Chance: Nuclear Proliferation and Arms Control*. New York: Free Press, 1976. \$14.95.
- Gillingham, Arthur, and Barry Roseman. *The Cuban Missile Crisis*. Los Angeles: Center for the Study of Armament and Disarmament, 1976. \$2.00. A bibliography of the subject.
- Hurewitz, Jacob C. *The Struggle for Palestine*. New York: Schocken, 1976. \$6.95.
- Kelleher, Catherine McArdle. *Germany and the Politics of Nuclear Weapons*. New York: Columbia University Press, 1975. \$15.00.
- Lash, Joseph P. *Roosevelt and Churchill, 1939–*

V. GENERAL

- Binion, Rudolph. *Hitler among the Germans*. New York: Elsevier, 1976. \$12.00. Exploration of the psychological bases for Hitler's domestic political power.
- Gonen, Jay Y. *A Psychohistory of Zionism*. New York: Mason/Charter. \$15.00.

- Guttman, Daniel, and Barry Willner. *The Shadow Government: The Government's Multi-Billion-Dollar Giveaway of its Decision-Making Powers to Private Management Consultants, "Experts," and Think Tanks*. New York: Random House, 1976. \$10.00.
- Lacy, Leslie Alexander. *The Soil Soldiers: The Civilian Conservation Corps in the Great Depression*. Radnor, Pennsylvania: Chilton. \$9.95.
- Laqueur, Walter. *A History of Zionism*. New York: Schocken, 1972. \$6.95.
- Miroff, Bruce. *Pragmatic Illusions: The Presidential Politics of John F. Kennedy*. New York: McKay, 1976. \$9.95.
- Posner, Richard A. *The Robinson-Patman Act: Federal Regulation of Price Differences*. Washington, D.C.: American Enterprise Institute for Public Policy Research, 1976. \$3.00. Study arguing that the subject law actually interferes with competition and hurts the small business it was designed to protect.
- Richardson, Elliot. *The Creative Balance: Government, Politics, and the Individual in America's Third Century*. New York: Holt, Rinehart, & Winston, 1976. \$12.95.
- Suyin, Han. *Wind in the Tower: Mao Tse-tung and the Chinese Revolution, 1949-1975*. Boston: Little, Brown, 1976. \$12.50.
- Veit, Lawrence A. *India's Second Revolution: The Dimensions of Development*. New York: McGraw-Hill, 1976. \$14.95.
- Wheeler, Michael. *Lies, Damn Lies, and Statistics: The Manipulation of Public Opinion in America*. New York: Liveright, 1976. \$9.95.
- Wolfman, Bernard, et al. *Dissent without Opinion: The Behavior of Justice William O. Douglas in Federal Tax Cases*. Philadelphia: University of Pennsylvania Press, 1975. \$9.50.
- Worswick, Clark, and Ainslie Embree. *The Last Empire: Photography in British India, 1856-1911*. New York: Aperture, 1976. \$19.95.

R the contributors



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Wing Commander Peter M. Papworth, RAF, (Royal Air Force College, Cranwell) is Royal Air Force Advisor to the Commandant, Air Command and Staff College, Air University, and a member of the Air University Review Awards Committee. His flying assignments have been in RAF Training Command as a pilot instructor, squadron commander, and wing commander/chief instructor. His staff tours have been in Training Command, on missile staff duties, and as

Senior RAF Liaison Officer at the Royal Military Academy, Sandhurst. His interest in the subject of this article was increased by a tour on basic intelligence duties at SHAPE, Belgium. Wing Commander Papworth is a graduate of the RAF Staff College and of the USAF Air War College class of 1976.



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Captain John W. Dorough, Jr., (M.S., Troy State University) is an Air Operations Officer assigned to the Interceptor Division, Directorate of Strategic Offensive and Defensive Studies, ACS/Studies and Anal-

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Dr. Joseph S. Szyliowicz (Ph.D., Columbia University) is Professor of International Relations, Graduate School of International Studies, Denver University. He is author of numerous articles and books on Middle Eastern Affairs, including *The Energy Crisis and U.S. Foreign Policy* (editor and contributor) and the highly acclaimed *Education and Modernization in the Middle East*. He is currently Martin Professor, Harry Truman Institute, Jerusalem, Israel.



Major Bard E. O'Neill (Ph.D., Denver University) is Visiting Professor, Department of Military and National Security Affairs, The National War College, Washington, D.C. He was Associate Professor of Political Science at the United States Air Force Academy, where he specialized in Africa and the Middle East, insurgency, and American foreign policy. Major O'Neill has served with the

90th Strategic Missile Wing and the 3d Tactical Fighter Wing in Vietnam. He is the author of *Revolutionary Warfare in the Middle East*; coeditor and contributor to *The Energy Crisis and U.S. Foreign Policy* (Praeger, 1975); and coeditor and contributor to *Political Violence and Insurgency: A Comparative Approach* (Phoenix Press, 1974). Major O'Neill is a previous contributor to the *Review*.



Dr. Arthur Akers (Ph.D., University of London) is an Assistant Professor in the Department of Engineering Science and Mechanics and Engineering Research Institute, Iowa State University, Ames. For ten years, he worked for Her Majesty's Government in England, first at the Royal Naval College, Greenwich, and then at the Royal Military College of Science, Shrivenham. He held a Queen's commission and was for some years a serving officer in the British army reserve, specializing in problems of fuel supply to the battlefield.



Leland G. Jordan (M.S., Air Force Institute of Technology) is an economist with Headquarters Air Force Cost and Economic Anal-

ysis Division. Prior to joining the Air Staff he was Chief, Cost and Economic Analysis Division, DCS Comptroller, Hq SAC. While on active duty Mr. Jordan served at various Air Force bases throughout the world. He is a graduate of Air Command and Staff College and a former contributor to the *Review*.



Lieutenant Colonel David N. Burt (Ph.D., Stanford University) is DOD Director, Foreign Military Sales, for Australia, at Canberra. He completed four years with the Air Force Institute of Technology as an associate professor in logistics management, and he was also Director of the Procurement Management Program, originator of the DOD Procurement Symposia series, and of the Air Force Business Methods Research Management Center. Colonel Burt's articles on procurement and systems acquisition have been published in professional journals including the *Review*.



Chaplain, Major General, Henry J. Meade (B.A., St. John's Seminary) is the Chief of

Chaplains, USAF. After six years as a priest in the Boston Archdiocese, Chaplain Meade came to active duty as an Air Force chaplain in 1957. For twelve years he served worldwide and came to the Office of the Chief of Chaplains in 1969, where he assumed his present position in August 1974. He has received numerous awards for his service to church and community, including the Four Chaplains Award and the Civitan International Award.



Major Gary W. Matthes (USAFA; M.S., Purdue University) is a test pilot assigned to the F-16 Joint Test Force at Edwards AFB, California. He was a reconnaissance pilot in Vietnam flying the RF-4C, and interceptor pilot with Aerospace Defense Command flying the F-104, and an instructor pilot/flight examiner with Air Training Command flying the T-38 prior to attending the USAF Test Pilot School. He is a Distinguished Graduate of Squadron Officer School, and a graduate of the Armed Forces Staff College.



Raymond E. Bell, Jr., (USMA) is a lieutenant colonel in the New York Army National Guard. He is presently working on his doctoral dissertation on unions in a professional army, concentrating on the only volunteer army ever to have had a labor union—the Postwar World War I Austrian Army. Recently, he was in Vienna, researching military unionism. Mr. Bell is a graduate of the Army War College's Correspondence Studies Course.



Lieutenant Colonel Jon A. Reynolds (M.A., Duke University) is faculty member and Director of Research in the Department of History, United States Air Force Academy. Entering the Air Force in 1959, he has flown F-100s and F-105s and was assigned as an ALO/FAC to the 22d Infantry Division (ARVN). In November 1965 he was shot down over North Vietnam and imprisoned until February 1973. Upon repatriation he obtained his master of arts degree. His articles have appeared in *Air University Review* and the *Naval War College Review*.



The Air University Review Awards Committee has selected "National Military Space Doctrine" by Colonel Morgan W. Sanborn, USAF, as outstanding article in the January-February 1977 issue of *Air University Review*.

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The Professional Journal of the United States Air Force



AIR UNIVERSITY **review**

MAY-JUNE 1977

