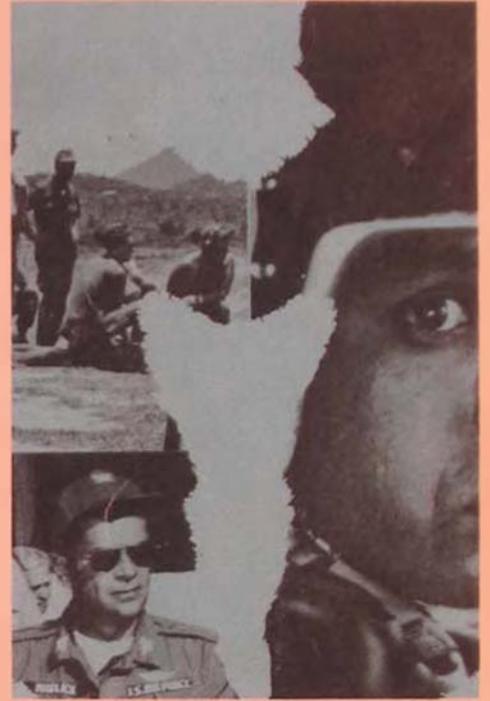
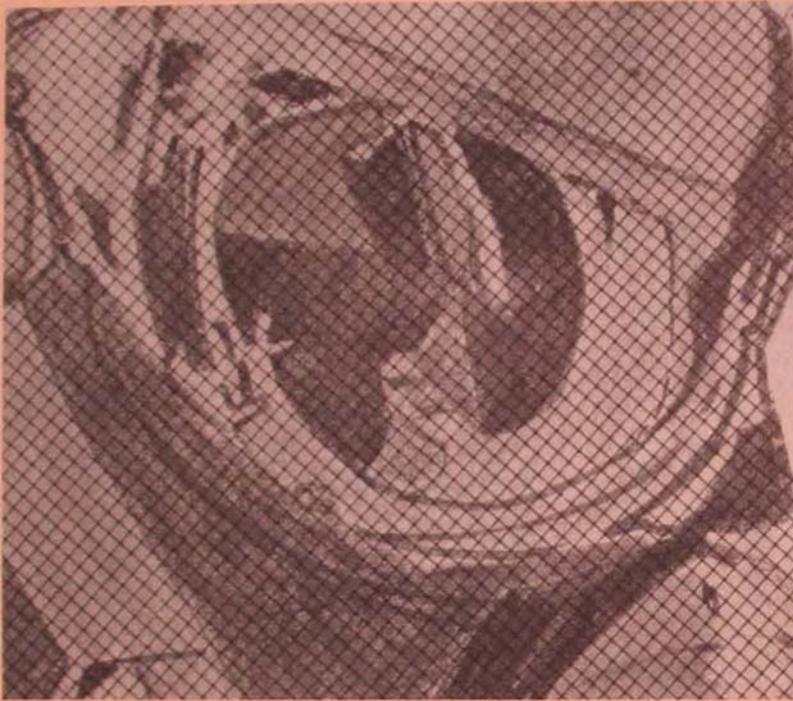




# AIR UNIVERSITY REVIEW



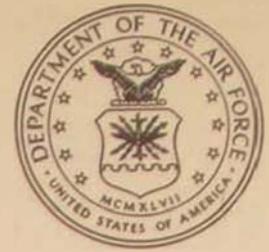
THE DEFENSE SUPPLY AGENCY... OUR SPACE VENTURE AND ROLE  
IN THE WORLD... POLLUTION IN THE ORGANIZATIONAL ATMOSPHERE

MAY-JUNE 1968



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# AIR UNIVERSITY REVIEW



THE PROFESSIONAL JOURNAL OF THE UNITED STATES AIR FORCE

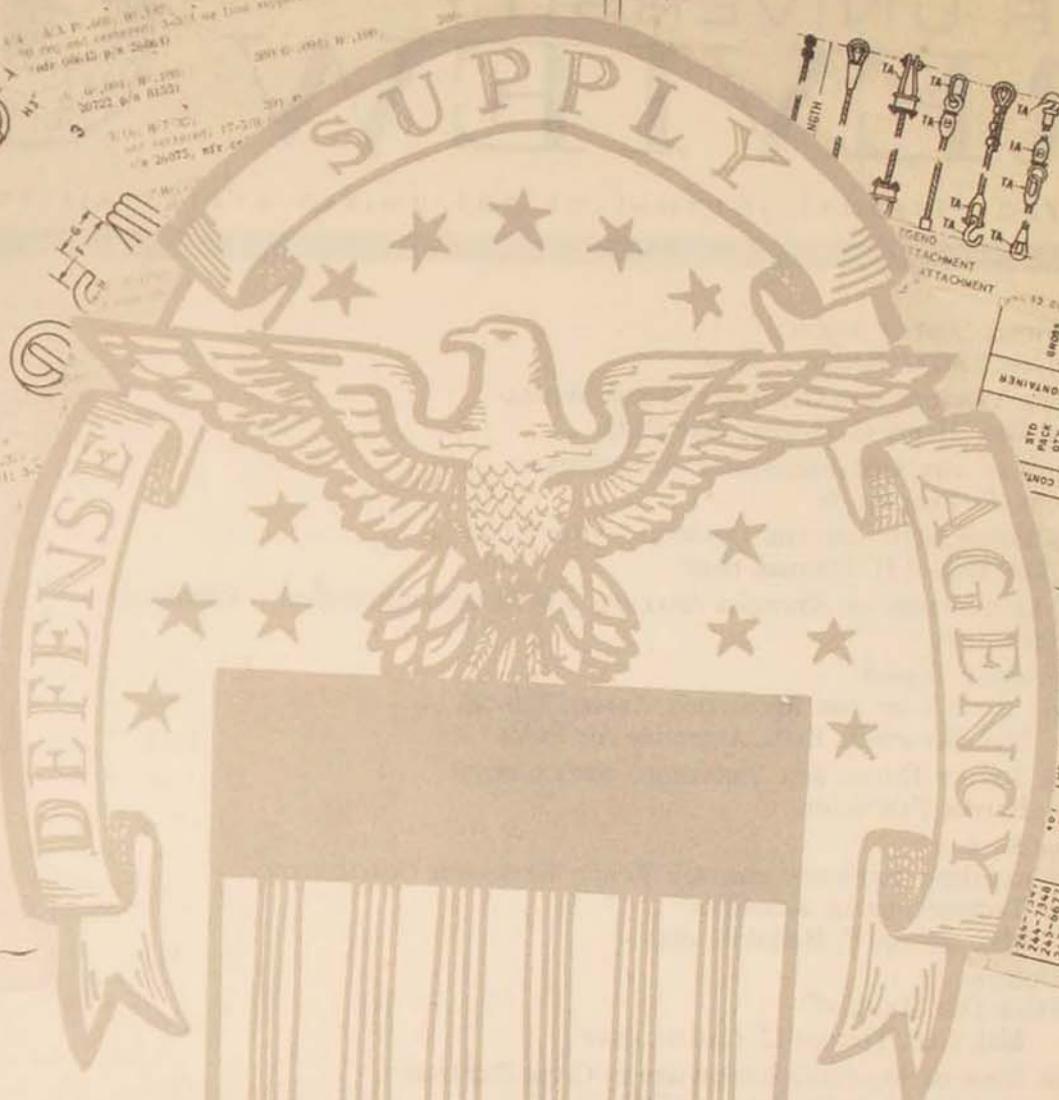
THE DEFENSE SUPPLY AGENCY . . . . .	2
Lt. Gen. Earl C. Hedlund, USAF	
OUR SPACE VENTURE AND OUR ROLE IN THE WORLD . . . . .	13
Brig. Gen. Henry C. Huglin, USAF (Ret)	
POLLUTION IN THE ORGANIZATIONAL ATMOSPHERE . . . . .	26
Jerome G. Peppers, Jr.	
THE AIR FORCE MAN AND THE CULTURAL VALUE GAP . . . . .	37
Lt. Col. Robert H. Drumm, USAF	
ON THE LIMITATIONS OF SYSTEMS ANALYSIS FOR COUNTERINSURGENCY PROGRAMS . . . . .	42
Dalip Saund	
Military Affairs Abroad	
CIVIC ACTION OF THE ARGENTINE ARMED FORCES . . . . .	53
Maj. Horacio A. Ratti, Argentine Air Force	
THE SOVIET DRIVE FOR STRATEGIC SUPERIORITY . . . . .	59
Harriet Fast Scott	
Air Force Review	
INTERACTIONS BETWEEN THE AIR FORCE RESEARCH COMMUNITY AND TECHNOLOGICAL AGENCIES . . . . .	62
Maj. George F. Heinrich, USAF	
In My Opinion	
"WHAT DID HE SAY?" . . . . .	68
Maj. Gen. Thomas G. Corbin, USAF	
THE ROLE OF MILITARY RESERVISTS IN CIVIL DEFENSE . . . . .	70
Maj. David A. Singletary, AFRes	
Books and Ideas	
WITH PREJUDICE, WITHOUT MALICE . . . . .	75
Dr. Alfred Goldberg	
WHO STARTED THE COLD WAR? . . . . .	82
Herman S. Wolk	
WHITHER GERMANY? . . . . .	86
Dr. Chester V. Easum	
STRATEGY, LEADERSHIP, AND REFLECTION . . . . .	88
Capt. David MacIsaac, USAF	
THE CONTRIBUTORS . . . . .	94

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"Just what is, after all, the full range of an officer's responsibility?" one of our contributors asks, and he concludes that "each officer must decide for himself to what degree such responsibilities" as leadership, strategy, and reflection accrue to him. In this issue of the Review, our authors weigh these and such other areas of Air Force concern as logistics—by Lieutenant General Earl C. Hedlund, USAF; space—by Brigadier General Henry C. Huglin, USAF (Ret); management—by Jerome G. Peppers, Jr.



# THE DEFENSE SUPPLY AGENCY

AN ACHIEVEMENT IN INTEGRATED MANAGEMENT

LIEUTENANT GENERAL EARL C. HEDLUND

383  
 386  
 387  
 388  
 389  
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**T**HE Defense Supply Agency, which observed its sixth anniversary in October 1967, is one of several organizational innovations that developed as a result of new techniques in management and new hardware for data processing. These improvements included the Federal Catalog System, which made it possible to identify items by a standard numbering system; the high-speed computer, which has the capability to process data rapidly, perform numerous supply management calculations at frequent intervals, and summarize the results; and the high-speed data communications network, which affords an opportunity to centralize supply management operations. Such developments permitted re-examination of earlier military logistics systems.

Conceived in this environment, the Defense Supply Agency (DSA) had two objectives set forth in its charter: first, to insure effective and timely supply support to the operating forces in mobilization, war, other national emergencies, and in peacetime; and second, to provide this support at the lowest feasible cost to the taxpayer. These objectives, in the order stated, govern all DSA operations and are the criteria against which the agency's performance is measured.

The mission of the Defense Supply Agency falls into three general areas: it is the wholesale source of designated common supplies for the entire Department of Defense; it operates a consolidated contract administration service for all military departments and the National Aeronautics and Space Administration (NASA); and it administers certain common logistic services and programs.

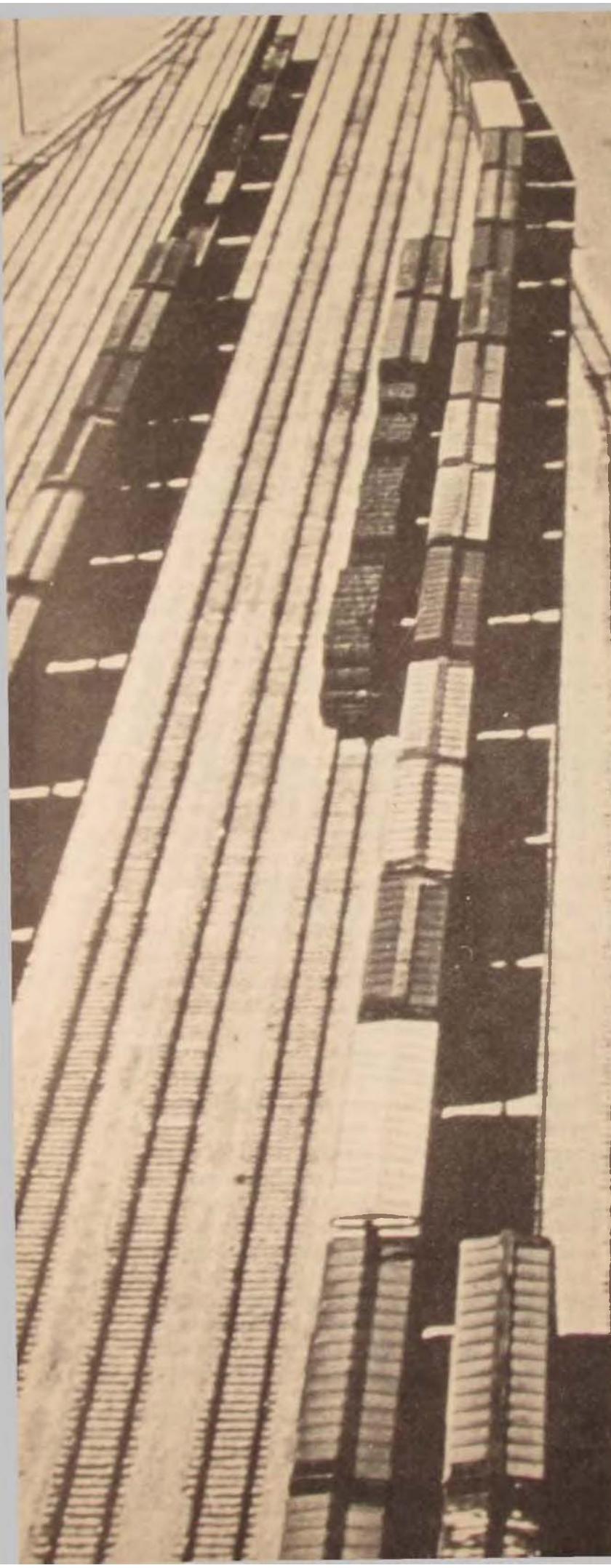
In the field of supply DSA represents a consolidation of wholesale supply functions—procurement, warehousing, and distribution—in the common-use areas of food, clothing, fuel, medical, industrial, construction, electronic, and general supplies. The agency has a work force of over 57,000 civilian employees,

who were transferred for the most part from the military departments with their missions, and more than 1150 assigned military personnel of the Army, Navy, Air Force, and Marine Corps. DSA manages an inventory of about 1.7 million items valued at \$2.9 billion, supporting annual "sales" (issues) totaling \$1.9 billion prior to Vietnam. With the increased tempo of operations in Vietnam, fiscal year 1967 sales totaled close to \$4 billion, with procurement in excess of \$6.1 billion. The agency also serves as a central procurement agency for other supplies, principally bulk petroleum, which are delivered directly to service users. Such items accounted for \$1.8 billion of the fiscal 1967 procurement volume.

DSA's supply management role is primarily that of manager of secondary items, including repair parts and consumer supplies, in contrast to the major end items of weapons and equipment managed by the military services. It supplies basic materials and great numbers of repair parts and bits and pieces used in the operation and maintenance of service-managed weapons and equipment.

It is important to note that the span of functions DSA performs for its assigned items is somewhat narrower than those traditionally performed by the military departments. The services retain control of qualitative requirements for items managed by DSA. They have responsibility for research and development and for the preparation and maintenance of specifications for all DSA items. They retain control over basic quantitative requirements through prescribed tables of allowances, load lists, and the like. They also compute estimated requirements for mobilization reserves and special programs. DSA computes replenishment requirements for wholesale stocks; decides how much to buy, how much to keep in wholesale stock, how best to distribute supplies; and ensures that the required item is available to the military service retail supply

*(Continued on page 6)*



*Up to 800 railcars daily use the marshaling yard near the entrance to Defense Depot Ogden (Utah), a field activity of the Defense Supply Agency.*

*The shipping room of DSA's Defense Documentation Center fills requests for about two million technical reports per year—a load equal to that of the postal service in a city of 35,000. . . . Military coats for special requirements are made at the Manufacturing Directorate of the Defense Personnel Support Center, Philadelphia.*





*Radio-frequency cable is among many industrial products supplied by Defense Depot Mechanicsburg.*

manager at the time the customer needs it.

The present DSA system has maintained or exceeded the high standards of supply effectiveness established by the military departments while continuing to reduce inventory investment and operating costs. The benefits of Defense-wide integrated management have been attained with minimum disruption of the services' logistical systems. DSA has focused management attention on a segment of supply that had often been neglected and has applied to it the most advanced management techniques and mechanized equipment at our disposal. Finally, DSA has ensured that total Defense assets can be applied to the most urgent immediate need, regardless of the purpose for which they were procured. There have been a number of examples of such action. Faced with a shortage of tropical combat boots, tropical combat uniforms, and tentage for the forces in Vietnam, DSA mobilized all Defense and industry capabilities and secured priority determinations from the Joint Chiefs of Staff. All available supplies of these items were funneled into that theater for distribution to the troops on the combat line in response to priorities designated by the unified commander.

DSA's supply management functions are carried out at six Defense Supply Centers, handling, respectively, construction, electronics, fuel, general, industrial, and personnel requirements. Located in five major metropolitan areas, these centers serve as inventory control points for their assigned commodities supporting all Defense customers. Here demands are electronically processed against system-wide accountable records, and release orders are issued. Financial accounting, billing, and collecting are likewise performed on a centralized basis.

The distribution system that DSA employs to move supplies from producer to user consists of seven principal and four specialized depots. The principal depots are located at Columbus, Ohio; Richmond, Virginia; Mechanicsburg, Pennsylvania; Atlanta, Georgia; Memphis, Tennessee; Ogden, Utah; and Tracy, California. They carry a wide range of DSA items and support all military installations in

an assigned geographical area. Two specialized depots handle only selected commodities: one for clothing and textiles is co-located with the Defense Personnel Support Center in Philadelphia; the other, for electronics, with the Defense Electronics Supply Center in Dayton. The Navy supply depots at Oakland and Norfolk also function as specialized depots supplying DSA items for the fleet and Navy overseas installations, and these are the chief sources of DSA material to Navy operating units.

In addition to its responsibilities for management of common supplies, DSA has the mission of administering several DOD-wide logistics service programs. Among these are the Federal Catalog, Materiel Utilization, Military Standard Data or "MILs" Systems, and Co-ordinated Procurement.

The Federal Catalog was a responsibility of the former Armed Forces Supply Support Center, one of the first field organizations assigned to DSA. Maintaining the Defense portion of the Catalog at a manageable size is a continuing task, since some 40,000 new items are submitted for inclusion each month, and about 30,000 of these are actually admitted. Many of these are spare parts for support of new major end items. There is a continuing effort to delete older parts as equipment becomes obsolete. However, many Vietnam requirements have been met by retaining older equipment in the inventory, which slows the deletion process.

Retention of older items in the inventory has also reduced the dollar value of materiel utilization in the interservice utilization program. The services have found that they could still use many items declared excess in previous years, and they have therefore not released them. DOD reutilization, much of it effected through the DSA master computer at Battle Creek, Michigan, decreased by \$320 million during fiscal year 1967 to a new total of \$1.54 billion.

The Defense Industrial Plant Equipment Center, established at Memphis in March 1963, controls items of industrial plant equipment reported by the services as idle or excess to their needs. The center currently maintains

primary inventory records of idle production equipment totaling almost 23,000 items with an acquisition value exceeding \$211 million. Service requirements are screened against these idle and excess equipments before new procurement is initiated. This idle equipment is considered part of the DOD industrial equipment reserve. The balance of the reserve, also managed by the center, consists of some 31,600 items valued at \$416 million. This portion of the industrial equipment reserve is earmarked for specific mobilization requirements and is normally not available for allocation.

The Defense Documentation Center (DDC) was established as part of DSA in November 1963, with the Armed Forces Technical Information Agency as its nucleus. Located with DSA Headquarters in Alexandria, Virginia, DDC is the central DOD repository for scientific and technical information. Information generated through contractor or in-house military research, development, test, and evaluation projects is maintained at the center for dissemination to scientists and engineers working in Defense and related fields. This service helps to prevent unnecessary duplication in scientific and engineering RDT&E activities.

In addition to services identified with specific DSA field activities, the agency has been designated as a focal point having responsibility for administering Defense-wide coordination of certain standard logistic data systems used by all the services: namely, Military Standard Requisitioning and Issue Procedures (MILSTRIP), Military Standard Transportation and Movement Procedures (MILSTAMP), Military Standard Contract Administration Services Procedures (MILSCAP), Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP), and Military Supply and Transportation Evaluation Procedures (MILSTEP).

DSA is also developing three major computerized management systems for internal use within the agency: Mechanization of Warehousing and Shipment Processing (MOWASP), designed to automate the procedures and transportation of the DSA depot distribution activities; Standard Automated

Materiel Management Systems (SAMMS), to automate DSA supply management; and Mechanization of Contract Administration Services (MOCAS), to automate the contract administration function. In support of these programs, DSA's Data Systems Automation Office is designing, developing, programming, and installing data systems based on functional requirements and is delivering detailed computer programs with appropriate documentation to the field commands on a preplanned schedule of implementation.

The third major aspect of the DSA mission involves the operation of consolidated field Defense Contract Administration Services (DCAS) for most Defense contracts and for NASA. Organized in 1965, the DCAS organization consists of a headquarters staff located in the DSA Headquarters; eleven Regions with offices at Atlanta, Boston, Chicago, Cleveland, Dallas, Detroit, Los Angeles, New York, Philadelphia, St. Louis, and San Francisco; and an Industrial Security Clearance Office in Columbus, Ohio. DCAS includes such functions as preaward surveys, security clearance of contractor personnel, administration of contracts, production and progress reporting, inspection and acceptance of materiel, quality assurance, accounting for government-owned property furnished to contractors, and payment to contractors for goods and services delivered. DCAS does not perform the procurement function itself but does assume administration of contracts in the field after they have been executed by Procuring Contracting Offices. More than 275,000 prime contracts valued at approximately \$50 billion are now assigned to the new organization for full administration, and another 120,000 are assigned for partial administration.

As a general rule, prime contracts for major weapon systems remain under the cognizance of the military service having dominant interest. Many of the subcontracts performed in support of the major weapon systems are, however, administered by the regional offices of DCAS. Other areas not included under DCAS cognizance are construction contracts under the Navy Facilities and Engineering Command and the Army Corps



*A 16,000-pound guillotine cuts worn-out aircraft into pieces for smelting to aluminum ingots, which are sold to industry by DSA's Defense Logistics Services Center. The operation, under Air Force direction, is conducted by a contractor at Tucson.*

*Defense Industrial Plant Equipment Center is responsible for developing and maintaining central records of DOD's inventory of industrial equipment and managing idle equipment. Among DIPEC storage areas is a huge underground one at Atchison, Kansas.*



of Engineers, and shipbuilding contracts administered by the Navy Ship Systems Command.

One of the most important features of the DCAS mission, and one of special interest to the Air Force, is the responsibility for insuring delivery of military materiel of specified quality. The DCAS organization is responsible for the inspection and acceptance of many major items of military equipment and most of the repair parts and supplies

required to support them. To accomplish this mission a total of almost 10,000 quality-assurance personnel are assigned to the eleven DCAS Regions throughout the United States.

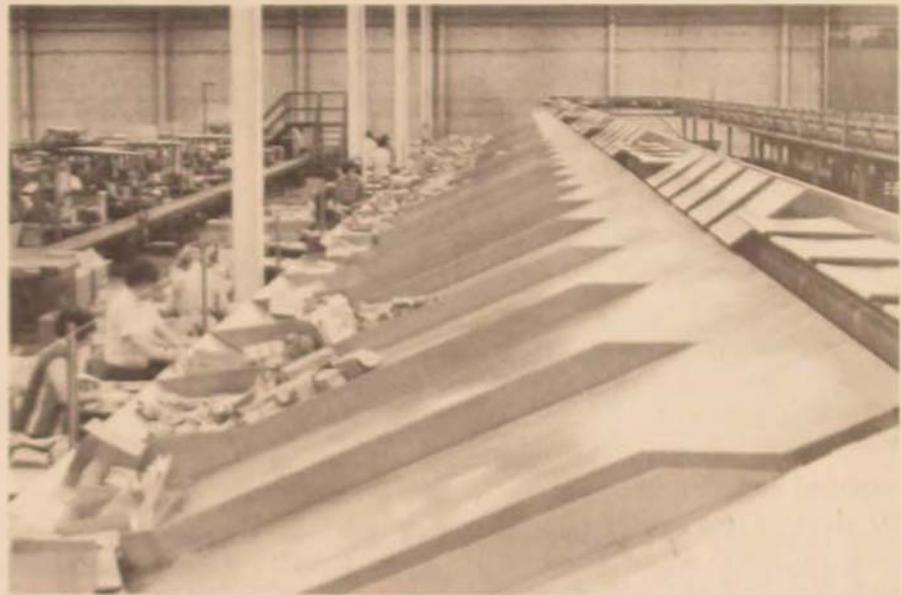
Another mission of particular interest is the provision of technical management services by personnel of the DCAS Systems Support Program. On contracts related to systems of high national priority and of special interest to the military services, the Systems Support Program provides a focal point within the



*Oceangoing vessels load material from the Defense General Supply Center, Richmond, at a nearby deep-water terminal.*



*Buyers from the Defense Personnel Support Center select beef for purchase by the military services.*



*The mechanized materials handling system at Defense Depot Ogden directs line items from filling trays into chutes for as many as 500 customers at one time.*

DCAS organization where the program manager can obtain engineering information, evaluations, and recommendations. The Systems Support personnel are a management group oriented to production engineering, with the capability to perform a wide variety of engineering tasks.

At the time DSA assumed the contract administration services mission, the importance of this function and the attention given it within the Air Force were recognized. The

Air Force had an outstanding organization and an effective system in the contract management area. DSA has noted the fine esprit of the Air Force people in this field and their excellent career development and training programs. DSA likewise recognizes the importance to the services of the proper performance of this function and is doing its best to establish and maintain the same level of excellence that has prevailed in the Air Force. To this end, in planning for DCAS, DSA

borrowed liberally from the Air Force system.

Although DSA is not organized around weapon systems in the usual sense, nevertheless it is the source of many items that are vital to the operational readiness of virtually every weapon system. Also, through its Weapons System Support Program, DSA does provide certain special management attention to those DSA items that are identified with designated weapon systems. The military services designate weapon systems for inclusion in the DSA support program, and then a distinctive DSA weapon system designator or code identification is assigned. The military services then identify DSA-managed items supporting the selected systems to the responsible Defense Supply Center. This information is updated periodically to reflect additions and deletions in the items supported. The program became operational in July 1964 with three weapon systems and 23,700 DSA-managed items.

Special data included in DSA's record of weapon system support items permit special management emphasis to be given to these items. The program has the following distinctive features:

- All weapon systems support items are centrally managed and stocked in the DSA distribution system.
- A supply management review of weapon support items is made at least every 90 days. From this frequent review DSA can pick up even minor changes in usage trends and can quickly adjust procurement quantities to match.
- Weapon systems support items are given priority in funding and procurement and are "red tagged" to expedite procurement actions.
- Special emphasis is placed on reducing administrative and procurement lead times for these items.

Since the primary purpose of a weapon systems support program is responsiveness, DSA strives to maintain a high degree of readiness to react to demands from the operating forces. The current stock availability picture shows a total of 194,354 DSA items supporting

19 weapon systems; of these, 187,679 items have stock on hand, for an availability ratio of 96.6 percent.

DSA has long been concerned about its capability to support emergency and contingency requirements of the services. Mobilization reserve stockage deficiencies existed at the time the agency was established, and the financing of additional reserves since that time had been only nominal. Shortly after the buildup in Vietnam began, the need for positive actions to cope with the surges in demand being experienced throughout the whole supply system became most apparent. DSA requested increases in operating levels and inventory investment to provide a cushion that would absorb the initial impact of further increases in demand. In fiscal years 1966 and 1967 additional funding was obtained to finance procurement of stocks to support increases in force levels and deployments.

From this description of DSA's mission, it is apparent that the agency's workload in support of Southeast Asia would increase roughly in proportion to the buildup of U.S. forces in the area. This is borne out by a comparative listing for a three-year period:

	FY 1965	FY 1966	FY 1967	Planned FY 1968
<b>Stock Fund Operations</b>				
Sales (billions)	\$ 1.9	\$ 2.9	\$ 4.0	\$ 4.0
Obligations (billions)	1.8	4.2	4.3	3.5
On order, EOP (billions)	0.5	1.9	1.5	1.2
<b>Requisitions &amp; Tonnage Handled</b>				
Reqs processed (millions)	15.9	20.0	20.4	21.6
Tons shipped (thousands)	1575	2385	2698	2062
Tons received (thousands)	1404	2567	3241	2052

Despite this tremendous increase in workload, supply effectiveness measured in terms of stock availability has held up fairly well. It declined from an average of 91.4 percent in fiscal year 1965 to 87.8 percent in FY 1966 and 86.5 percent in FY 1967, but it is currently averaging about 90 percent. Both the on-time fill rate and the stock availability rate for the past two years reflect repeated large-scale increases in demands on the system and inability to overcome the long procurement lead time in receiving materiel into the system to satisfy these demands.

When the Vietnam war started, DSA's

## DSA Weapon Systems Support Program

Weapon Systems		DSA Items	Stock on Hand	Percent
M-16	rifle	1	1	100
Hawk	missile	16,372	15,784	96.4
Iroquois	helicopter	2,880	2,729	94.8
Engine generators	missile sites	9,900	9,273	93.7
Pershing	missile	8,820	8,449	95.8
Chinook	helicopter	5,302	5,050	95.2
Anti-mortar radar		745	723	97.0
Sheridan	tank	1,510	1,442	95.5
Polaris	missile	83,768	80,666	96.3
A-6 Intruder	aircraft	10,582	10,336	97.7
A-5 Vigilante	aircraft	7,168	7,035	98.1
P-3 Orion	aircraft	7,623	7,446	97.7
Tacamo II		1,050	1,027	97.8
A-7 Corsair	aircraft	4,266	4,141	97.1
Terrier, Talos, & Tartar	missiles	24,663	24,207	98.2
Minuteman	missile	4,982	4,783	96.1
F-4 Phantom	aircraft	2,596	2,520	97.1
F-105 Thunderchief	aircraft	2,003	1,944	97.1
KC-135 Stratotanker	aircraft	123	123	100
		194,354	187,679	96.6
B-52 Strato Fortress	aircraft	nominated—no cards received to date		
C-130 Hercules	aircraft	nominated—effective 1 Nov 1967		

main problem was in clothing, but this situation has been overcome. DSA's peacetime stock levels and available mobilization reserves simply were not adequate to cope with the sharp surge in demand in the face of the fairly long procurement lead times applicable to this commodity. While DSA had to ration issues to nonpriority activities, we were able to keep up with the essential needs of deployed units and recruit centers.

Faced with long lead times and, in the case of clothing, an industry already working at maximum capacity, DSA took extraordinary measures to overcome its supply difficulties. Deliveries from existing contracts were accelerated wherever possible. Procurement specialists sought out new suppliers of critical

items in order to increase the industrial base.

DSA also attempted the substitution of commercially available items for long-lead-time military items wherever feasible. It attempted to relax noncritical specifications in order to facilitate manufacture and provided industry with advance procurement planning information by publishing forecasts of requirements.

In spite of these efforts DSA had continuing difficulty in certain commodity areas, notably clothing, in attracting suppliers with sufficient production capacity to meet its needs. The booming civilian economy made it extremely hard to place orders by use of normal procurement methods. When all other efforts failed, the agency resorted to the use

of rated/directed orders as authorized by the Defense Materials Production Act, to require capable but unwilling manufacturers to fulfill its requirements. Fortunately these actions have been successful in broadening the industrial base and correcting support difficulties.

Another problem is in applying funds to procurements in a balanced way across the commodities board so that DSA can effectively support service requirements. While it is understandable that the rapid deployment of large numbers of troops to foreign areas will result in logistical upheavals, the Defense Supply Centers and DSA Headquarters are striving to reduce or eliminate the ordering of excessive quantities of materiel as well as duplicative requisitioning.

One of the findings made by a DSA team visiting Vietnam was that requisitions often had been prepared without considering the quantities already due in on prior unfilled requisitions. This was brought to the attention

of the inventory managers and the military services' logistics staffs. As a result, many requisitions were canceled or the quantities reduced, allowing DSA to respond better to genuine needs.

IN THE SPAN of a half decade, DSA has knit together almost 60,000 military and civilian personnel into a highly responsive logistic organization, which has demonstrated its worth under the severest tests of the Vietnam war. Even in the course of an accelerated buildup of military forces, DSA continues to make progress toward its secondary goal of reducing costs through integrated management. However, today more than ever before the principal focus of the agency's effort is on giving effective support to the armed forces, wherever deployed. In this effort DSA feels that its performance has earned respect within the Defense establishment.

*Defense Supply Agency*

# OUR SPACE VENTURE AND OUR ROLE IN THE WORLD

BRIGADIER GENERAL HENRY C. HUGLIN, USAF (RET)



OUR ancestors for thousands of years have gazed on the moon and the stars as beautiful, mysterious parts of the universe in which our planet Earth exists. But now we are reaching out to them, and the solution of some of their mysteries is within our grasp.

We humans have always been the most curious of all beings. We have sought to understand our environment and ourselves. We respond to the challenge of the unknown, of adventure, and of exploration. We have often been more willing and eager to set out on new ventures than to wrestle with the mundane problems of our home environment. And sometimes the knowledge, experience, and new wealth which have come from our explorations have helped to solve the problems that we turned our back on when we ventured forth. So it may well be with space, man's greatest venture.

Our ancestors always yearned to fly. We achieved and mastered this capability in the air with the airplane in this century. Ten years ago the moment in our technological evolution arrived when the exploration of space became possible. The conjunction of knowledge, techniques, and resources occurred so that we could set out upon exploration of the heavens almost with greater confidence than seafarers centuries ago had when they set out upon the exploration of distant oceans or our air pioneers had when they set out to master flight in the air.

Much of what we are doing in space has been developed from our experience of flight in the air, and in part because of this experience our achievements in astronautics are coming at a much faster rate and in much broader scope than in aeronautics. Our great venture into space is in many ways the most dramatic, difficult, and challenging quest ever

undertaken by man, and it may also prove to be the most rewarding.

Quite naturally, there are critics, skeptics, and challengers of this great new venture, just as there are of nearly everything new and out of the ordinary. There were those who criticized Ferdinand and Isabella for spending money on Columbus's voyages. All the major efforts in man's exploration of flight, from the Wright brothers on, have been subject to criticism, skepticism, and challenge.

There are always more worthy projects than there are funds, resources, and talents to match the needs. But there is no program to meet other needs of ours that offers as much glamour, excitement, and prospect of solid achievement in the long term as space; therefore, none is so competitive as to drain away from our space venture its essential resources. This space program of ours, far from being a waste of resources, is likely to prove the soundest, most worthwhile, and, in the long run, cheapest—because of the dividends it will pay—of all major ventures undertaken by man.

Most of us are now diverted only momentarily by news of another spectacular space launch from Cape Kennedy or of astronauts walking in space. We find ourselves more and more accepting as ordinary our incredible achievements in space. Do we really comprehend the vast scope of our space venture and its potential impact on our society and our role in the world?

This quest in space is requiring tremendous scientific, engineering, physical, and financial resources. Yet it will cost us less than one percent of our gross national product and involve less than one-half of one percent of our labor force. But its impact is progressively to affect all of us and in fact the whole world.

To better appreciate the scope and depth of this undertaking, we should judge the

plans, purposes, achievements, and potential values of our space program in the context of the present world environment and our role in the world.

### The World Environment and Our Role in the World

The security and future well-being of our nation depend in large part upon a combination of our political wisdom, economic strength, military strength and our will to use it, technological competence, and the image we project. Our space activities contribute to each of these essential factors except the first.

Our primary goals are for a peaceful world where we and all other people can live secure from aggression, either direct or indirect by subversion; where diversity can flourish, with all people living under a government of their own free choosing; and where rising expectations of a better life have prospect of fulfillment.

But these goals of ours are now unrealizable because of age-old greeds, animosities, and excessive nationalism which subvert them.

Due also to these age-old negative factors, the United Nations is disappointingly weak, and there is little prospect that it can be significantly strengthened in the immediate future. It is wholly beyond our power as a nation to strengthen the U.N. appreciably because of the contrary objectives and obstructionism of Soviet Russia and the irresponsibility and self-centeredness of many of the new nations in the world—and some of the older ones, such as France.

To preserve our future as well as the future of others who now live in freedom, we must keep strong politically, ideologically, economically, technologically, and militarily.

We did not seek this pre-eminent role of power and responsibility in the world; we were projected into it by the combination of the resources of our land, the talents and industriousness of our people, our system of individual liberty, freedom of opportunity, and the incentive of rewards from our free enterprise system, along with the decline of

such older nations as Britain and France and the lack of many of our blessings in Soviet Russia. Since we did not seek this role, the mantle of responsibility which goes with it rests uneasily on our shoulders. Like many parents and community leaders upon whom responsibility devolves, we chafe under our role and have difficulty in accepting it maturely. Yet, like parents and community leaders, we cannot turn back the clock to our national adolescence, nor can we shirk our responsibilities unless we are prepared to see other nations with quite different standards and objectives—many of which are inimical to ours—take over the world and us with it. Thus we have no rational choice but to fulfill responsibly the role into which we have been thrust. So we must explore the frontiers of space because we have the capability to do so. If we do not, Soviet Russia will do it ahead of us and thereby may be able to dominate the world—to our peril and the peril of other people who now live in freedom.

We cannot avoid the fact that we are one of two superpowers in the world today competing in many fields. The other, Soviet Russia, despite her present relative quietude, is basically expansionist and committed to turn the world her way. Through the political wisdom of our policies, our military and economic strength, and the will to use this strength, we have so far succeeded in keeping the Soviets from achieving their purposes either by open aggression or by their promotion of subversion. We are now faced with the Soviet policy of peaceful coexistence, which in their definition means outdoing us without open warfare by all means feasible. In their view this includes trying to create the substance or, if not the substance, the illusion of a superior system to which the other nations of the world will be drawn by power or by coercion. And space is obviously one of the major fields which Soviet Russia has picked for competition.

We have survived as a nation for the past twenty-five years through our technological superiority and the ability to project our strengths where they were vital to our national security. For twenty years our signifi-

cant superiority in strategic power has been the main deterrent to general war and the main insurer of our security. Today space represents a new arena of capability that is potentially as important as, and perhaps even more important than, previous arenas, including flight in the air. As we have been secure in the past only by excelling in our military, economic, and technological capabilities, so we can be secure in the future only if we also excel in this new arena.

We must recognize that leadership in technology is a prime requirement of our future as a major nation with our way of life. We are in a highly competitive technological age, an age in which technology is advancing very rapidly. We cannot avoid casting the space venture in a seriously competitive atmosphere—an extension of our confrontation and of our competition for survival and for the respect, if not necessarily the allegiance, of the peoples of the world.

Yet, if we were the only nation in the world or the only advanced major nation, we would certainly have undertaken the exploration of space simply because the time for it had come through scientific and technological development. Whenever he has become able, man has tackled the unknown. But had there not been strong competition from Soviet Russia, our space venture would undoubtedly not have been undertaken at the pace and with the scope that it has been. (In the long run, though, our exploration of space may well be less costly and more fruitful for having been pursued at the pace we have set.)

### **Achievements, Purposes, and Commitments**

The space age was dramatically opened on 4 October 1957 by Soviet Russia's launching of Sputnik I, weighing 184 pounds, into orbit around the earth. A month later Sputnik II, weighing 1120 pounds and containing a live dog, was successfully orbited. With these two satellites the Soviets pulled off a political, psychological, and technological coup that was to have profound implications. Their

brilliant success immediately altered the image in which the Soviets and we had previously been regarded. Many people in the world were led to believe that the Soviets had outdistanced us and that their system was superior to ours in applying science to technological development. Further, their achievements gave the impression that the Soviets were ahead of us in missile development and accuracy and that therefore the balance of strategic power had changed in their favor; thus our previously accepted strategic military superiority was brought into serious question. The psychological consequences were doubts and disarray among our allies and an increase in admiration and respect for the Soviets throughout the world. And the Soviets did their best to capitalize on these changed attitudes.

Further, the Soviets became dazzled by their own achievements. As a result they overrated their actual strength to the point where they became bolder and more threatening over places like Berlin. Only with our successful confrontation over their sneak move of missiles into Cuba in October 1962 did we end the dangerous illusion of Soviet superiority. Thus it was made clear that our security—in fact the world's security from the risk of general nuclear war—rested upon our maintaining a significant superiority over Soviet Russia in every major field of power. Space was clearly a new field in which adequate effort was required on our part.

We, too, had launched a satellite development program in the early 1950s, but it was short on funds, interest, and priority. Two months after the Soviets launched their first Sputnik a much-publicized effort of ours, Project Vanguard, failed in an attempt to place a 3½-pound sphere into orbit. Finally, on the last day of January 1958, our first successful spacecraft, Explorer I, weighing 31 pounds, was successfully shot into orbit.

Within a year after the Sputnik launchings we had set up the National Aeronautics and Space Administration and started to develop a broad-based, scientifically oriented space exploration program. In the late 1950s, however, our space program was still a rela-

tively modest one, and its objectives seemed to be much more modest than those of the Soviets. Further, a great deal of valuable time had been lost, and the initiative rested for a long time with the Soviets; it was not to be until after 1962 that our achievements would significantly surpass those of the Soviets, to start the swing of the political-psychological balance back to us.

Our space program figuratively "got off the ground" in 1961. After the one-orbit flight of Cosmonaut Yuri Gagarin, President Kennedy set for the nation "the goal, before this decade is out, of landing a man on the moon and returning him safely to earth."

This great venture has been strongly supported by the Congress and the American people. In pursuit of this goal, we have made giant strides in space. In many ways we have outdistanced the Soviets, and we have restored in large part the image of American technological leadership and dynamism throughout the world. Yet our competition with the Soviets in space remains just as vital as ever, even though it appears currently to have subsided.

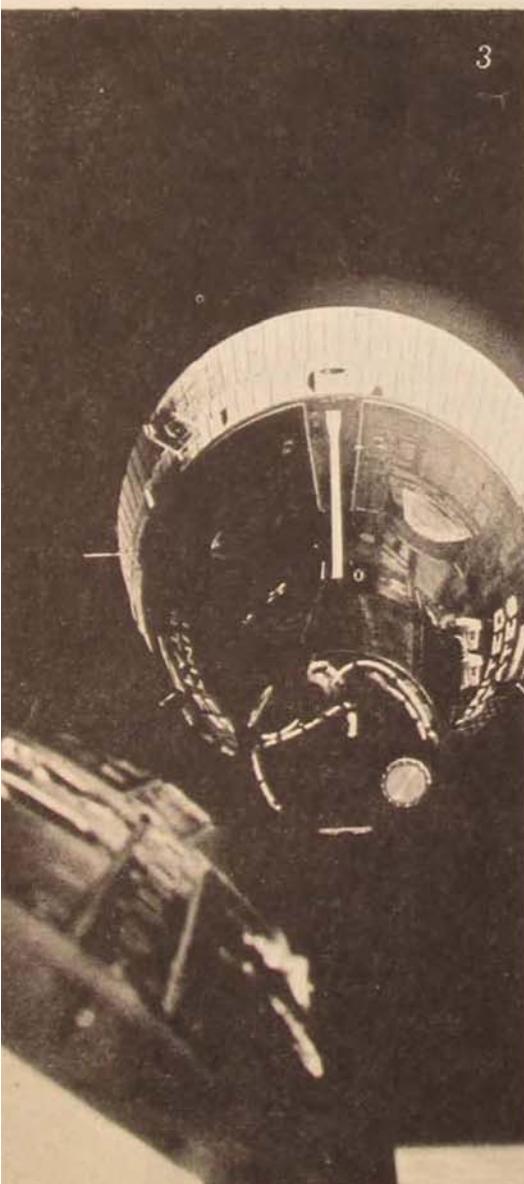
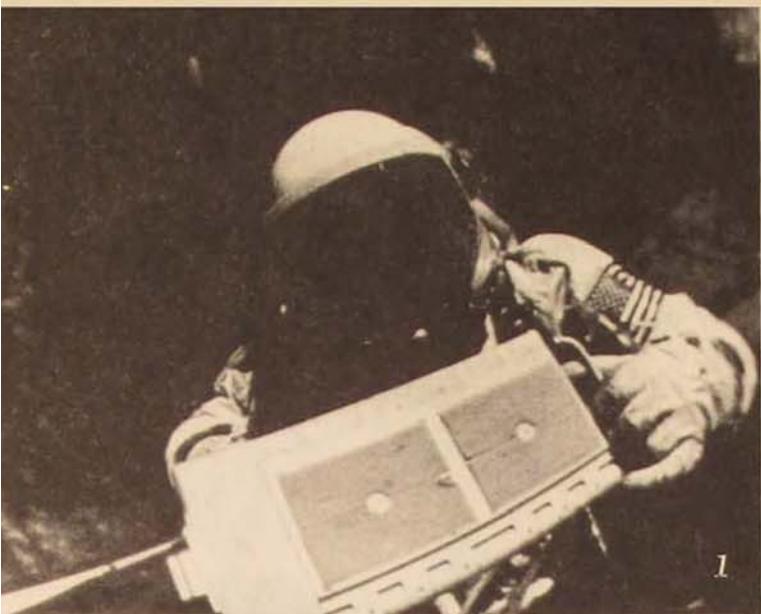
After the Cuban missile confrontation the Soviets apparently accepted for the time being the realities of our strategic missile and bomber superiority. They have relaxed the pressures in Europe and have occupied themselves primarily with trying to deal effectively with the disintegrating relationships with Red China and within the Communist movement around the world, as well as trying to handle their own serious internal problems. But it is hard to believe that the Soviets have given up their long-range goal of surpassing us in power and influence in the world. They still talk about and apparently believe their ideological dogma of turning the whole world Communist. To do that, they need not only transcending power but also the aura of success and a superior system. The illusion of this they had for a few years after the first Sputnik, and they now seem to be striving again for the illusion or the reality: they have recently begun deploying an antimissile system, and they are building and emplacing a much larger intercontinental ballistic missile force. Yet the Soviets know that if we respond as effectively

as possible we can prevent them from upsetting the strategic balance in missiles or anti-missile systems. So what other field can they turn to? Is it not still space? May they not hope that space will still provide them the best hope of a breakthrough and, thereby, of beating us in power and prestige?

In the past few years the Soviets have markedly increased their expenditure of resources on space work; yet their achievements are not nearly as spectacular as our recent ones. This leads one to suspect that they are striving mightily for some significant space development which would give them the most power or prestige or both.

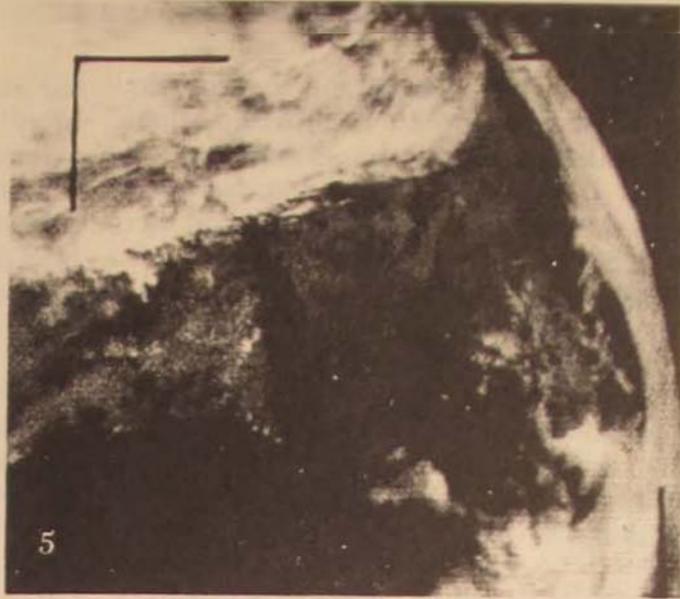
In Soviet Russia, most of the developments of space technology have been for military purposes, and many domestic references by Soviet leaders to space accomplishments have directly related them to Soviet military power. Clearly, their space activities have been an integral part of their overall military program, this despite the fact that in their propaganda they claim that their space work is solely for peaceful uses and that ours is solely for military purposes. The Soviets are simply not wealthy enough, nor are they so oriented, to spend their somewhat limited resources upon scientific developments for the benefit of mankind. Almost all their efforts in major fields have been related to the building of Soviet power and influence; they strive in almost everything they do for political and psychological advantages.

Therefore, the soundest expectation is that the Soviets are continuing to place the best of their technological resources into achieving a major breakthrough in space which will give them political, psychological, and, hopefully, strategic advantages over us. So, in all prudence, we cannot ignore the fact that a good part of our effort in space is related to our competition with Soviet Russia for superiority in the world, which so vitally affects our future. We must not lose this race. There are no prizes for second-best in this world struggle. A position of second-best to Soviet Russia could mean for us, at the most, a loss of our way of life, or, at the least, a hazardous existence.



## The Space Scene

*A walk in space during the last Gemini flight (1) . . . Hurricanes observed on 14 September 1967 by Environmental Science Services Administration's weather satellite (2) . . . Gemini re-entry spacecraft (3) . . . Surveyor V's own foot and footprint on the lunar surface as televised after its 10 September 1967 landing (4) . . . Tiros photograph of the south coast of Australia taken on 21 January 1966 (5) . . . The U.S. Gulf Coast from Gemini XI (6)*



This may seem a hard and cynical attitude. It is. But we should remember that there are still much more greed and selfishness in the world than compassion and cooperation. We should lead in compassion, in assistance to the needy, and in holding out our hands in friendship. Yet life, liberty, and the pursuit of happiness still come basically from security for our land and people, and this security comes from strength, foresight in keeping this strength, and a clear, demonstrated will to use that strength if necessary. These well-tested factors apply in the realm of space. And wishing it were different will not make it so.

The Soviets and we, through the United Nations, have agreed, along with the other U.N. members, that outer space will be used only for peaceful purposes. Under this agreement we cannot place weapons in space. It does not preclude the development of capabilities for reconnaissance, inspection, and verification of the nature of objects which are placed in space by others. And this agreement also does not preclude our developing missile capabilities based on earth to knock out of orbit any weapons that might be placed there by the Soviets or any other hostile power. Therefore, we must continue to develop the capability to destroy or negate any hostile threat that might be placed in space, irrespective of the U.N. agreement. Naïve trust in another nation's intentions and actions has led to national disasters, from the Trojan horse to the Munich agreement.

Our space effort is now larger and more fruitful to science on a broader basis than the spectacular exploits of Soviet Russia. The scope—although not the quality—of our achievement was reflected statistically at the end of 1967 by our having successfully launched 514 spacecraft, of which 267 were still in orbit, whereas Soviet Russia had launched 252 spacecraft (less than half as many), of which 63 (less than a fourth as many) were still in orbit. Yet, regardless of our lead, nothing can erase the fact that Yuri Gagarin, not John Glenn, was first to orbit the earth.

Our space activity is now reflecting well

our role of pre-eminent power and responsibility in the world. In this role we need to maintain pre-eminence in space. We need to continue our broad-based program of space exploration. And we need to succeed in our goal of being first on the moon. The first man on the moon will probably be the most famous man of this century, if not of this millennium. Who remembers the second man to cross the Atlantic after Columbus? Who remembers the next one to fly the Atlantic after Lindbergh?

### Potential Values and Dividends

For all our effort, resources, and long-term commitments, what specifically are we really going to gain from space? What are the actual values of the space program to us as a nation and a people? What has been achieved so far, and what is in prospect?

The foremost value will be the preservation of our way of life, our freedom, and the stature and prestige of our nation in its unavoidable pre-eminent position in the world. Space may well be the key element in the future of the world and the key element in our nation's future. If we are to remain great, if we are to be true to the values, the goals, and the ideals for which we stand, we must continue to accept the challenge of space with an effort commensurate with the greatness of the challenge and with our broad-based, remarkable capabilities.

But beyond our security and prestige, a major value of our space program will derive from the experience our government-industry team is gaining in marshaling and managing on a nationwide basis a complex of resources consisting of highly developed equipment, installations, and skilled people. The rapidly expanding experience from this venture is running deep through our national life. It will pay great dividends as we tackle other great ventures of our society, such as the war on poverty, the renovation of our cities, the reversal of the pollution of our environment, and the exploration and tapping of the vast

food and mineral resources of the oceans.

We are profiting from our space achievements in other tangible ways, too. Our meteorological satellites have brought us near to a quantum jump in capability to forecast weather around the world. The geodetic satellites have surveyed our earth with more accuracy by far than was possible by any other means. New sensors in satellites are developing the capability to scan the earth for minerals and to survey crops and forest lands. Our scientific satellites are just beginning to acquire a great deal of new knowledge about our solar system, the sun, the moon, the planets, and the energy that comes from outer space, all of which will help to increase significantly our understanding of this earth we live on and the properties of the universe which affect our environment.

The communication satellites are on the verge of creating a revolution in the spread of information around the world. Within a few years, all the people of the world can be instantaneously in contact through radio and television. No longer should closed societies under totalitarian regimes be readily capable of keeping their people from knowing what the rest of mankind is doing and thinking. The effect upon captive peoples and their leaders can be profound. The potential gain for freedom, for diversity, and for the free competition of ideas should be immense. The political, psychological, social, and economic impacts of this development may well be world-shaking.

In early prospect are satellites for navigation aids to shipping and aircraft and for control of these means of transportation on a regional or worldwide basis.

In the process of creating satellites to do these tasks and to put men into space, we have also developed many new processes and materials and have gained much new scientific knowledge. Microminiaturization of electronics is one tremendous development. New materials for coping with the heating problem on the re-entry of satellites have already been used in common household items. The biomedical instrumentation of man in space is contributing to the understanding of human

physiology. The building of rocket motors and structures for the rockets and their payloads has resulted in new products and new manufacturing processes.

Space has proved to be a vast new frontier for exploration and a great new laboratory for scientific investigation. Our scientific discoveries are changing many theories that could not be tested previously, and these changes will affect our knowledge of the environment in which we live, with inestimable value to us.

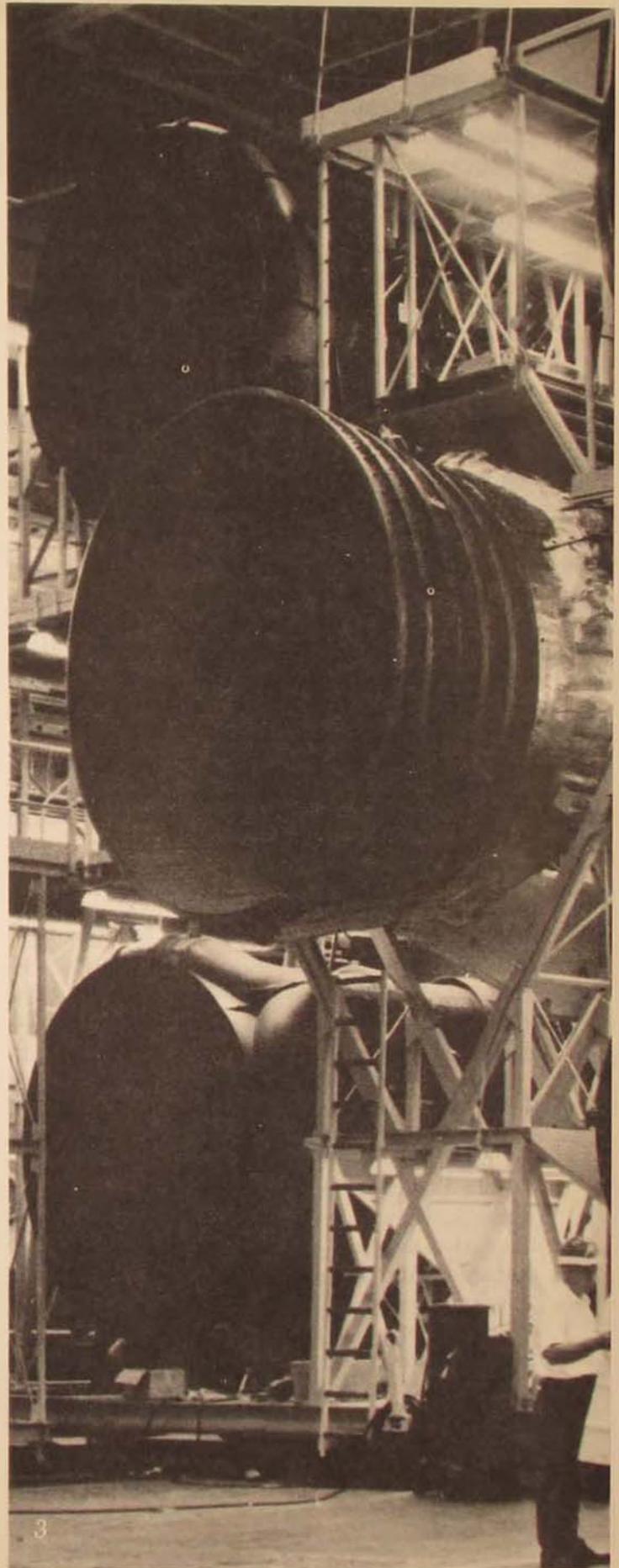
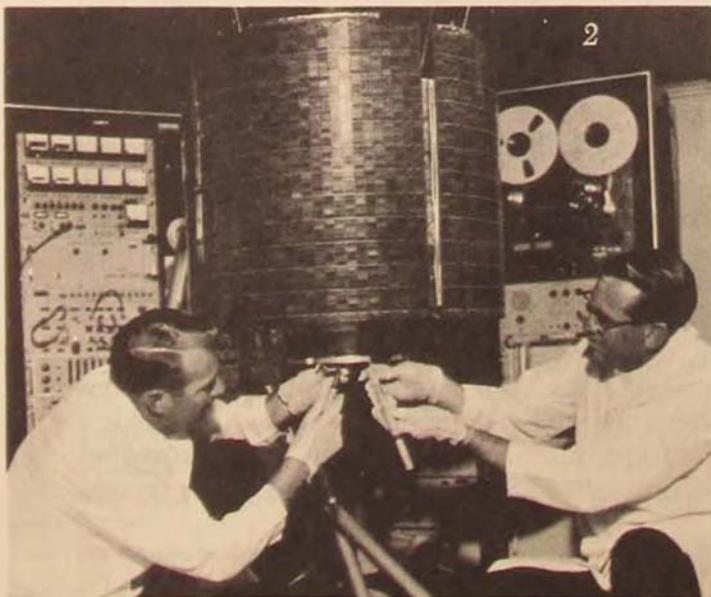
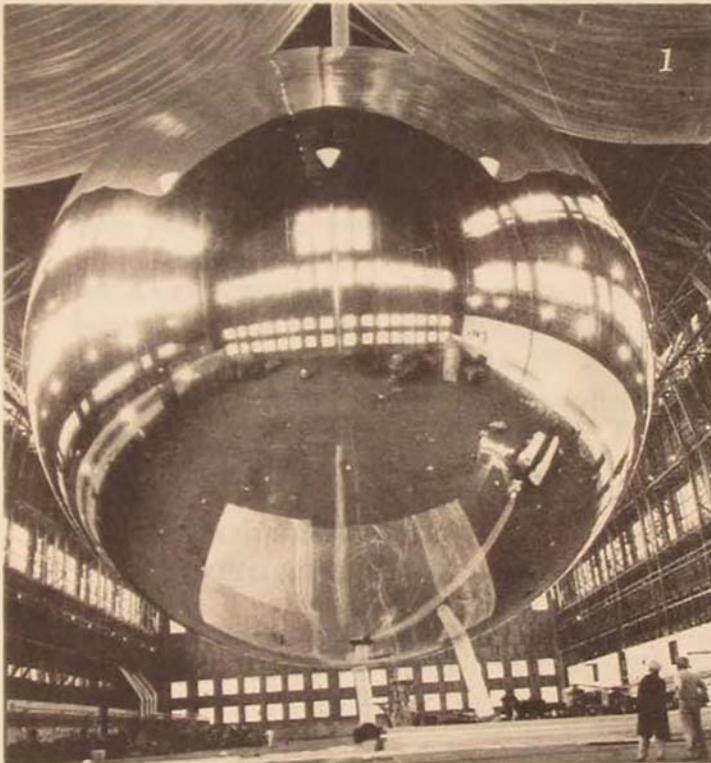
Our human urge to explore the unknown and our drive to satisfy our scientific curiosity in the search for answers to national needs provide incentives which converge in our national space venture. And this venture is already having profound effects on the scientific, technical, educational, industrial, and military aspects of our life. Yet our exploration of space is still in its infancy; its effects are going to multiply. The money, time, and resources we will devote to it may well rebound a thousandfold to our benefit and to the benefit of all mankind.

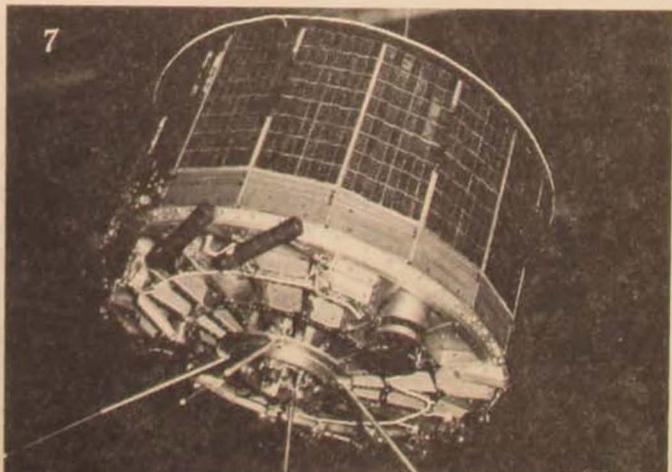
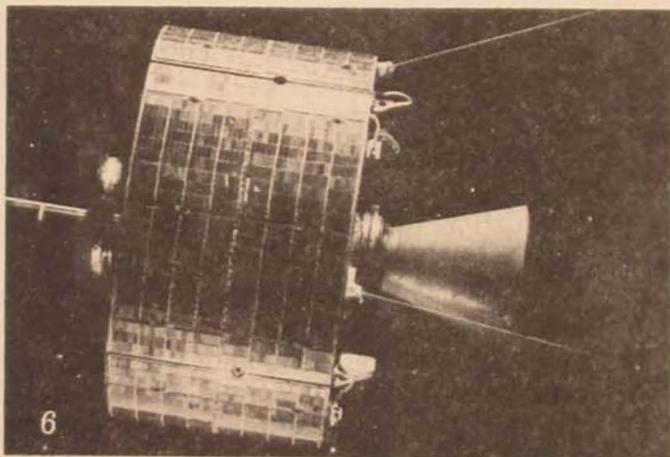
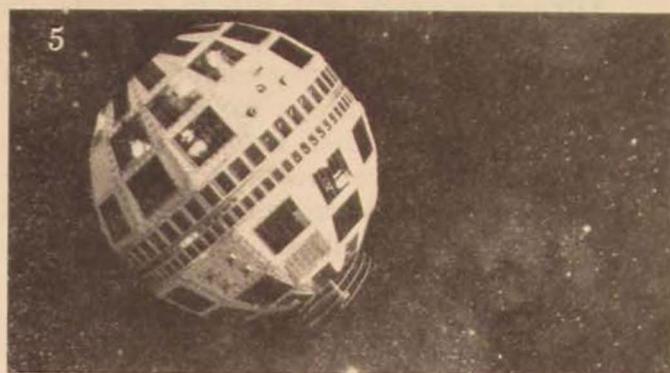
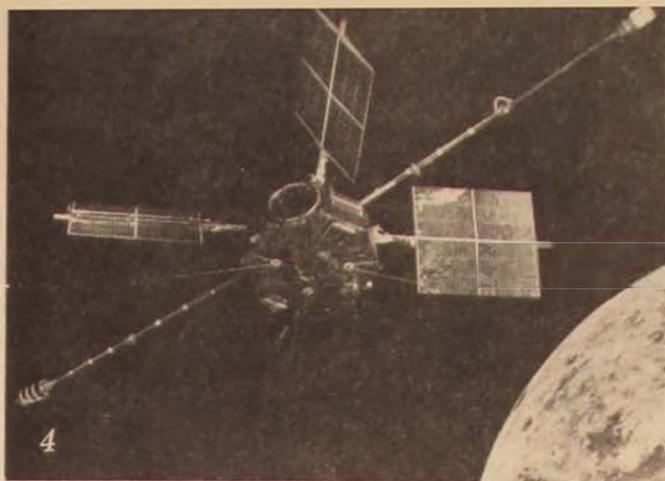
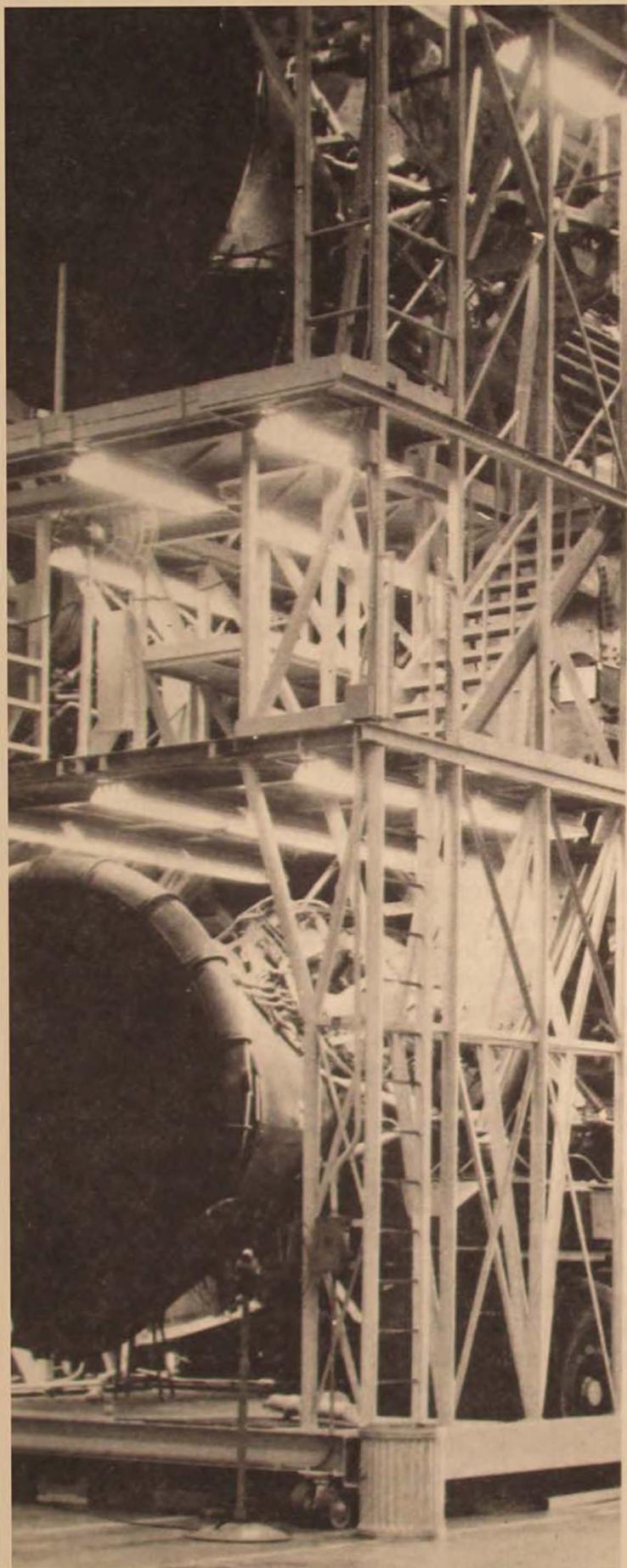
### Potential Impact on International Cooperation

A great need of our time is for mankind to surmount the age-old causes of conflict and war: greed for other people's territory, racial and ethnic animosities, and excessive nationalism. The U.N. does many useful things but has been a disappointment in not fulfilling its purposes, because of the conflicting objectives of many nations that have subscribed to the lofty ideals of the U.N. charter but have not abided by them. Yet in the last twenty years there has been a slowly growing sense of interdependence, and international cooperation in many fields has developed through U.N. agencies, regional alliances, and bilateral action. Technological developments have played a major role in this growth of international cooperation. For example, nuclear weapons have markedly dampened careless or reckless drifting into war and thereby have promoted cooperation. Space exploration and related

## Space Hardware

*Passive Geodetic Satellite, PACEOS, of the National Aeronautics and Space Administration (1) . . . Early Bird (2) . . . Nozzles of the five engines of the Saturn V first stage (3) . . . Interplanetary Monitoring Platform (IMP-E) (4) . . . Telstar, superimposed against a starry background (5) . . . Syncom C, synchronous orbiting communication satellite (6) . . . Television Infrared Observation Satellite, Tiros, for weather research (7)*





developments may result in putting strong pressures on mankind, especially on those who live in closed societies with expansionist ambitions, to change their outlook and cooperate for the benefit of all.

In the execution of our space program we have done a great deal to promote international cooperation. The Soviets and we are cooperating in the exchange of some information, although not yet to the extent that we have proposed and hoped for. We have undertaken cooperative sounding rocket programs with twenty other countries and cooperative satellite programs with Britain, Canada, Italy, Germany, and the European Space Research Organization. We have established mutually beneficial relationships in space work with about seventy other nations; these include nations that have provided facilities for our tracking and instrumentation stations. Our sending experienced astronauts on educational and goodwill trips to many places abroad has promoted a feeling of common interest in our space activities, as well as projected a fine image of this country.

We have tried to share as widely as possible with other nations' scientists the results of our space discoveries in order that they may profit in their research from our new knowledge. Further, our meteorological, geodetic, and navigation satellites are providing information of benefit to people throughout the world.

The commercial communications satellites that we are in the process of launching under the Communications Satellite Corporation will create a service with a network of satellites that will be offered to many nations; already fifty have joined as potential users.

In many ways our space explorations and achievements should assist our role in the world and promote the attractiveness of our way of life to the rest of mankind. Hopefully, too, our achievements in space will help mankind bridge the political, social, and ideological gap between the vistas which technological developments are opening up and the archaism of many of man's attitudes and institutions. Space may well help close the gap between science and society by aiding people

to fully recognize their interdependence.

Robert Ardrey, in his book *The Territorial Imperative*, develops a thesis that man is basically a competitive territorial being, that war in the past has provided a natural outlet for man's principal drives, and that competition in space may be a useful way to channel this competitive drive into relatively peaceful channels—when nuclear weapons have made major war unprofitable and irrational. If he is right, our competition with the Soviets may, in itself, be serving a vital function.

OUR UNAVOIDABLE pre-eminence in the world requires us to play our role responsibly or else see our society decline. This role involves leadership in scientific exploration, technological development, and steps to insure that no other nation, by a breakthrough, endangers the security of our nation and those dependent upon us.

Missile boosters, guidance systems, and other technological developments have made possible the exploration of space, the greatest unexplored frontier. It is there. It must be explored, and we must lead the venture. As President Johnson has said: "The fate of the free society—and the human values it upholds—is unalterably tied to what happens in outer space, as humankind's ultimate dimensions."

Our leadership in space is now linked to our leadership in the world. Such leadership should be broad-based, but it also must include leadership in the most dramatic accomplishments. The most dramatic of all is to put a man on the moon. That will be regarded as mankind's most stupendous scientific and technological achievement in this century and probably in history. The process of achieving it will give benefits to society in many fields, most of which we cannot now conceive; and these alone will justify the effort and the costs many times over.

The overriding objective of our man-on-the-moon effort is a psychological one—Americans, products of a free society, will have performed mankind's greatest feat. The value of this is incalculable for energizing our own society and, equally important, for

the respect, confidence, and admiration which it will generate throughout the world.

Human nature is sufficiently basic in the values it cherishes to be attracted to the leader, to the winner, to the one with outstanding skills, devotion, and persistence to excel. Outer space is now our testing ground and our field of opportunity. Man may be infinitesimal compared with the sweep of the universe, but our intelligence and skills applied with wisdom can unlock the secrets of space and enable us to adapt even better to our environment and play our role in the world responsibly.

Our reaching out for the stars can inspire our greatest vision, courage, and ingenuity and can lead to a better era of peace and prosperity on earth. But this can happen only if the exploration of space is led by free men who will apply the benefits for man's betterment and not for his enslavement.

*Santa Barbara, California*

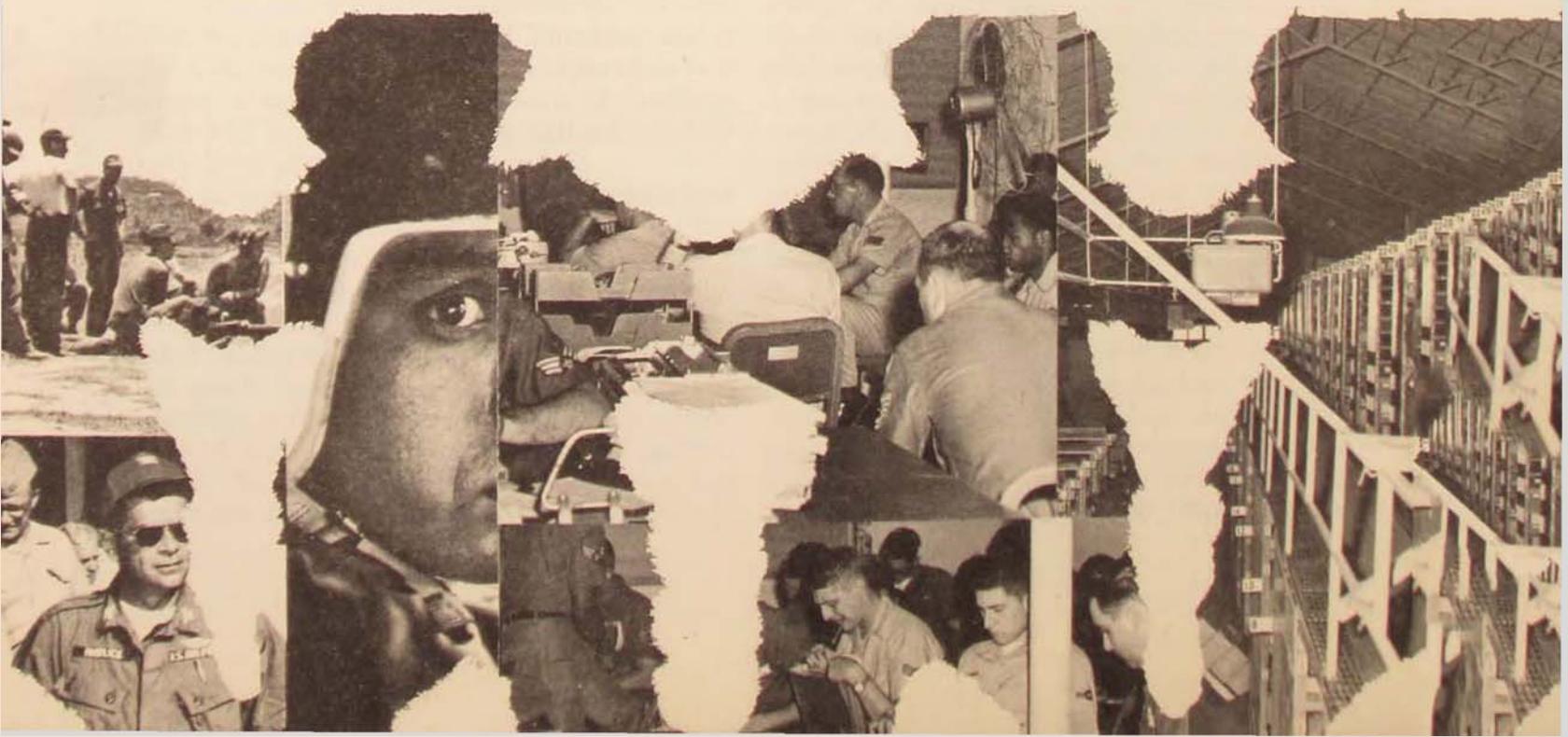
**Acknowledgment**

The photographs accompanying this article were furnished by the National Aeronautics and Space Administration.



# POLLUTION IN THE ORGANIZATIONAL ATMOSPHERE

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**A**N IMPORTANT subject in the world today is air pollution. Nations, states, and municipalities are working on hundreds of approaches to solve this problem. Some people say that the world's human population is slowly poisoning itself out of existence through continued pollution of our air supply. The threat is receiving increasing attention at all levels, and undoubtedly a sane and logical answer will be found.

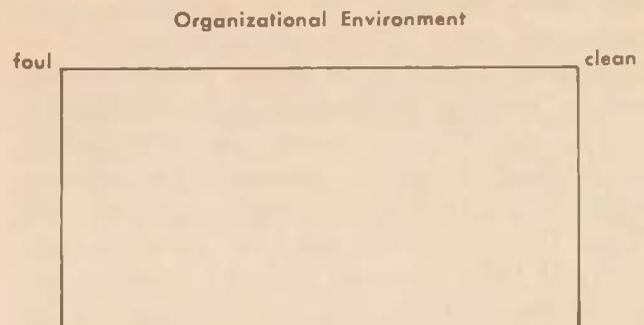
How many people, though, are concerned today about pollution of the organizational atmosphere or environment in which we work? Is it possible that our management "industry" is spewing pollution into the working climate at a rate beyond our clean-up capability?

Every organization has an atmosphere or environment. This atmosphere is to a large extent conditioned by the actions and philosophies of those who run the show. In our civilian economy these people are called managers. In our defense establishment they are called commanders, directors, or managers. For simplicity, we shall refer to them all, whether in civilian enterprise or government, as managers.

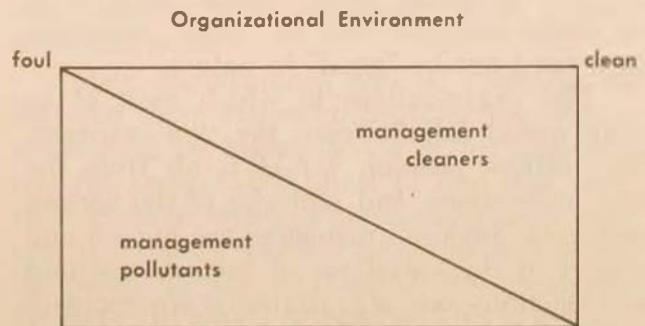
The manager sets the tone—creates the atmosphere—for his organization by the things he does, the requirements he establishes, the policies he sets, and the way in which he does these things. According to an old adage, "There is no greater fertilizer than the boss's footsteps." In other words, the boss's attention and concern enhance or inhibit any action in any organization. His interest acts as a fertilizer; his lack of interest acts as an inhibitor.

Thus, the actions and the interests at each level of management create an atmosphere. These actions and interests can be pollution-free or they can be pollution-prone.

The organizational environment may fall at either of two extremes, foul or clean, or somewhere between. Such extremes might be shown in block form as follows:



The relative position of any organization could be established by comparing the degree of "management pollutants" with the degree of "management cleaners" in the organization's operation. We could then show the "pollution block" thus:



Therefore, an organizational environment in which pollutants outweigh cleaners would be positioned to the left, tending toward

"foul." The "clean" environment, positioned to the right, would be one in which the cleaners outweigh pollutants.

Pollutants are those things which hamper, constrain, restrict, or otherwise limit human development or the exercise of intelligent logic in action. Cleaners are those things which encourage initiative, creativity, human dignity, and professional craftsman-like performance.

I would readily acknowledge that few if any organizations would fall at either extreme of the block. I would further acknowledge, and just as readily, that organizational position in the block would vary, depending upon current mission pressures and other factors. In fact, the organization would likely move up and down the slant line as conditions, pressures, and other stimuli are experienced. The movement would be in rather limited range, and an "average" position could be established.

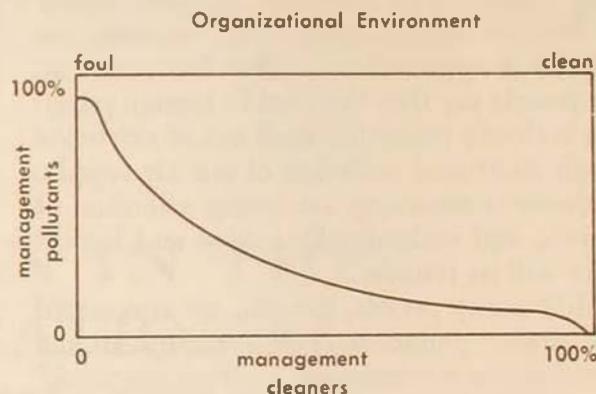
In actuality, of course, no organization would likely be on the extreme left or extreme right. A penal institute might approach the "foul" because of the need for absolute control and little personal freedom. Another organization near the "foul" might be one of the strictly disciplined religious orders. We might conclude, then, that all "foul" organizations need not be "bad" in nature. An organization approaching the ultimate "clean" might be a medical research facility in which there are few organizational constraints and there is maximum individual freedom to pursue the research goal. Another nearing the "clean" might be a hippy commune in which personal freedom is almost totally uninhibited. Here we might conclude that all "clean" organizations need not be "good" in nature.

The organizations in which most of us work would fall between the two extremes. The relative position would result from the acts, impressions, and attitudes of the various managers. Since all managers are human and subject to the variations of human emotions and reactions, our organizational environment will vary from day to day. Again, an "average" location can likely be determined.

Management environment is further varied by the local interpretation and application of definite limiting factors. Certainly, legal rul-

ings and Public Law determine some limits of manager actions. Moral values, ethical considerations, and spiritual backgrounds of our society impose further limitations. Thus, the manager's impact on the organization, while of considerable scope and strength, is not without some applied and implied control. Even so, the manager determines in which direction, within these control limits, the organization will move: toward "foul" or "clean."

In view of the fact that the manager does not have full control over the environment, we might alter our "pollution block" to look like this:



In this block, no organization reaches either extreme: note that the more put into the cleaners, the less effect from the pollutants. And this is my aim to this point: additional management attention and concern are needed if the organizational atmosphere is to be cleansed.

#### *the indicators*

There are indicators that may be used to measure the organizational atmosphere. Most of them are controllable by management and, therefore, are a likely reflection of the manager's beliefs and inclinations. They relate to the degree of cleanliness in the management atmosphere. They can show the need for investigation and action if the manager is not satisfied with his position in the block.

Seven primary indicators apply to all organizations. The degree to which they apply

might be used as the measure of atmospheric pollution. None is completely go no-go, all black or all white. Even so, general statements may serve to permit organizational self-analysis, and that of itself may be worth the total exercise. No organization will remain unchanged by a careful, conscientious, in-depth review of these indicators:

- Policies
- Procedures (process instructions)
- Rules or directives
- Instructions
- Duty assignments
- Areas of responsibility
- Communication.

In this discussion extremes will be emphasized in hopes of providing an adaptable measure. It is understood that peculiar and specific needs of individual organizations may dictate certain use of an indicator which is not indicative of the manager's personal philosophy. That is, the manager may have little leeway in one or more areas because of requirements of higher management. In these instances the manager must be even more diligent in the indicator areas over which he does have control.

It is not the intent of this article to encourage a manager to do anything he would not normally do, except perhaps analyze his organization's atmosphere. If this analysis shows the manager that he can help clean his organization's atmosphere, he would be expected to act—logically within the limitations of his authority and the needs of his organization.

#### *policies*

Policies establish settled courses of action to be followed. The quantity of the organization's policies and the amount of detail in them constitute a measure of the atmosphere. The extreme left on our scale would represent detailed policies in great profusion. The far right atmosphere would contain few policies, and those would be broad in scope, containing little detail.

Most of us have worked in organizations approaching both ends of the scale. We have

been in units where everything is covered by policy, sometimes in sickening detail. Not only were all the possible major events covered by policy but so were all the unlikely events. In this organization the policy file, or manual, grows visibly because each problem, no matter what size, results in a new or revised policy publication. The "book" becomes so stifling that individuals feel they need clearance and guidance before they can accomplish even the most basic task. Creativity, initiative, and innovation are subordinate to following the pattern of set policy. It is in this type of organization that people develop a "sheep complex" and follow their leaders with no thought except, perhaps, a hope for salvation through reassignment.

The difference in the atmosphere of the two extremes is usually quite obvious. At the opposite pole from the "detailed and many," the "broad and few" present a different picture. Here we find a basic trust in people and in their wisdom and inherent desire to do the right thing for a successful association. The policy guidance is limited in quantity, and that which exists relies to large degree upon logical interpretation and application by the people. The atmosphere is clear and clean. The people sense the trust and confidence, and they act accordingly. Of course there are occasional "goofs," but these do not result in new policy even though they may require discussion between manager and subordinate. Both elements (the leader and the led) learn from this, and policy may be—and likely is—established, even though it is neither spoken of nor related to in such terms.

Most organizations will be maneuvering between these extremes. Some policy will be established by higher levels of management, and the organization must fit into that guidance. Even so, within a given structure, a manager determines whether or not he will add to the policy already established. He determines the detail to which he resorts. This is his area of management control in which he can affect his organization's atmosphere. The wise manager will avoid the trap of extensive policy documents because he will recognize the probability of fouling the environment.

When the manager feels that many or more detailed policies are required, a basic communication fault may exist. There is a possibility that the manager's urge for policy relates to his people's inadequate response in some effort area. Perhaps this inadequacy results from the manager's failure to achieve adequate and satisfactory communication of goals or objectives to his people. Perhaps, too, the inadequacy stems from a deeper source of trouble—an organizational atmosphere that makes the people feel unneeded, unimportant, or useless. If either of these conditions exists, an increase in policy quantity or content will not correct the situation but, indeed, may worsen it.

#### *procedures*

Procedures (process instructions, if you prefer) are developed to describe a particular way in which management wants something accomplished. They are needed, to some degree, in all organizations beyond the most simple or basic. The need is for a plan of activity (the procedures) by which management may control or affect progress toward meeting the mission need.

In terms of this article, the "foul" atmosphere would be one in which the manager creates and imposes an array of local procedures added to those directed by higher management. These are generally actions which the manager hopefully calls "guidance" or "control." They are often unneeded and more often are used as disciplinary traps when the manager is dissatisfied but can think of little else to do. The people normally recognize these as unneeded, normally do not observe their requirements, and almost always consider them as irritants.

These local procedures often contain very specific details as to who does what, when, and how. They may be classed, as they frequently are, as examples of red tape and needless impositions which force activity into inefficient channels. Almost always they are effective when followed; that is, they do achieve the stated end. But they rarely do this easily or efficiently. They form one base for

what is commonly considered as bureaucracy at its worst. They are sometimes the result of small people with large jobs.

The worst part about this sort of management action is that it hangs on through changes of managers and after a bit assumes the sainthood of tradition or custom. At this point the procedure becomes almost untouchable, and real bravery is required even to question the subject, let alone challenge it. The horror is that these things then become bigger than the people, and control passes from the human manager to the inanimate paper and its hallowed tradition.

In the "foul" atmosphere we find these items unquestioned—even defended—by the manager even though he may never analyze the need or the result. At its worst, we find the procedures still being followed, directed by management, even though the original need no longer exists or has been radically altered. These are the tradition-bound resource expenditures which return little gain in mission capability. The people may—and usually do—recognize the futility and needless expense of this directed activity, but they are unable to convince (maybe even unable to communicate with) management about it. Management continues its way down the well-worn rut without ever considering the reason or, even worse, the cost.

A manager, eager to help clear the organizational air, can do so by a hard-nosed approach to these local procedures. Investigation and a stern demand for proof of need can go a long way toward changing the environment. Such a step requires an alert and curious mind, plus a free and active communication flow through which the people can suggest or recommend.

Obviously, all procedural pollutants are not of the manager's own doing. Some of them impact upon his organization from lateral elements. Some impact from higher management. These, too, require consideration and evaluation. Each manager must insure that he, like his people, provides to the next higher element those recommendations and suggestions which could help clear the air.

Some procedures are vital; some are de-

sirable; some are foolish. No large or complex organization will be completely free of them. The manager's challenge is to insure that all those in his organization are vital and desirable and that they all bear the close analysis for current need.

#### *rules or directives*

Rules attempt to relate responses that have been effective in the past. They should permit the alternative of another response should conditions change. The need for this alternative flexibility must be obvious and acceptable to everyone in view of the relative rarity of recurrent problems under identical conditions. Yet, the usual view of the rule is, "There! That solves that problem now and later!"

Rules are necessary in any organization, no matter what its goal or mission. The manager's task is to determine what rules have to be established and to recognize and act when a rule is no longer needed or when it requires change. Rules of wise management give purpose and direction to people but are flexible enough to allow these people to respond rapidly and effectively to changing situations. Less wise management permits rules to remain unchanged regardless of changing conditions and fails to recognize the situation as the organization slips into blind ritual.

Discussion with many managers indicates they personally prefer an assignment with few restricting rules or directives. They prefer a low quantity of broadly stated rules such as those in the "clean" area. Yet these same managers unhesitatingly state they do not feel the people working for them can effectively produce under the same type of guidance. Thus, although *they* want limited rule or direction, they want to provide more quantity and greater detail in rules for their people. The atmosphere comes to contain pollution agents, and the degree of pollution is determined by the wisdom of the manager.

Managers are also employees. If they thought of this occasionally, perhaps more care, thought, and attention would go into their actions. They are employees of a special

type, with special considerations, but employees just the same. The manager at one level is a worker (employee) for the next higher level. He experiences the same frustrations, pleasures, fears, needs, and wants as any other employee. The things that annoy him or reward him will be very similar to those affecting others. Why, then, should the manager not consider his personal reactions when he is considering or evaluating a rule or directive? Why should he think his subordinates will react or respond any differently than he under similar stimuli?

Evaluation of rules must consider the general tone of the rule or directive. Those in the "foul" zone will be predominantly negative in nature. They will contain positive guidance in such negative phrases as: "You will not——," "It is forbidden to ——," etc. These rules will be explicit and exact in prohibitions and negatives and will either ignore or only broadly reference the positives, the things that should be done. As a result, the rules in this environment will restrict action, limit freedom, and choke initiative. Subordinates will be found in perpetual struggle with them. Morale, esprit, and enthusiasm will be less than desired. People will fear to act, except as directed, because failure will likely cause punitive or degrading actions. Even worse, failures, even minor mistakes, will likely result in additional rules. The "foul" atmosphere therefore serves as its own breeding pond, and the restrictive, negative rules beget more of the same.

#### *instructions*

Instructions furnish direction. They are similar to orders or directives except that generally they are verbal and relative to the job of the moment. We all receive instructions continuously throughout life. Our memories of parents, teachers, and contemporaries are tinged with our reactions to their instructions. The content and the method of expression affect our attitude and our response. It is probable that instructions form one of the major building blocks of our personality and our career.

Each time a manager gives an instruction

he creates a part of his organizational atmosphere. If he goes to extreme detail, he limits the range of action possibilities of the recipient. Thus, he must learn to know his people and their individual capabilities and knowledge so that he may tailor his instructions.

A major fault in instructing people is to assume that the same detail is necessary for everyone. One would not, for example, give the same flight instructions to a Lindbergh as to a new pilot student. Capabilities, experience, and backgrounds differ widely, and instructions must consider each in its proper light. Yet so often this is forgotten and a person is offended by overinstruction or penalized by underinstruction.

Another fault of a manager is to rely upon the authoritarian instruction in which he directs, demands, or orders. No one likes to be ordered to do anything. People more readily accept instructions couched in palatable terms, even though the instructions are no less positive than an order might have been. But, here again, the manager often forgets and falls back upon his "manager status" and resorts to an order that so-and-so be done. Sometimes, in his impatience or haste, these orders become rather ridiculous instructions. A prime example is the early air base commander whose instructions to his pilots, by order, said, "From this date, there will be no more crack-ups!"

It should be plain that the "foul" atmosphere will be one in which instructions are detailed and specific. The normal situation is one in which each job assignment is accompanied by complex, explicit, time-consuming instructions about "what" and "how" with less attention (probably considerably less) to the "why." The instructions are given regardless of the experience of the worker and without consideration of previous accomplishment of the same job. The intent, again, is to insure that goals are met. The cause of the depth of detail is likely a mistrust of the people or a basic insecurity feeling which the manager attempts to alleviate by displaying his great knowledge.

In most organizations it would be as bad to experience no instruction. The people would stumble and fret in indecision which could be extremely expensive in terms of mission accom-

plishment or goal capability. Yet, some people really do need very little instruction other than the "what" and some good background for the "why" to answer the normal human curiosity. The effective manager recognizes those who need little instruction and those who need more. He provides to each that which applies. This is not easy. It requires conscious attention and study and a methodical approach to learning individual capabilities and needs. The effort is rewarding in better personal relationship, an increased respect on both sides, and improved management effort. After all, the manager's job is to arrange to get things done through people. This understanding of people, together with tailored attention to their needs, will do just that, with a great big plus: improved and increased cooperation.

#### *duty assignments*

Each person in an organization was hired, or assigned, for a specified job accomplishment. It should go without saying that each job is essential and important. Therefore, so should each person be. Experience indicates that while jobs may be considered important and necessary, many people do not consider themselves important in their jobs. The difference may contribute to retention problems and poor organizational morale.

Some people refer to the job description as the greatest hoax and fable in history. A review of randomly selected job descriptions in one's organization might cause him to think this way also. Flowery phrases and high-sounding words are found in all, from menial task to top-drawer executive position. In addition, job titles often give an impression that differs widely from the actual on-job performance requirements. One lecturer on this subject tells of a change in title from "undertaker" to "mortician" to "grief therapist," and he asks, "Is the next step to be 'professional boxer'?" What, really, is the job, and how can it be simply described? Is a "milkman" any more effective as a "bovine products distributor" or would that merely foul the environment again?

The problem, of course, is not merely the job description or job title. It could be said

the name is not the thing. Performance is what counts. If the man on the job knows what is expected of him and has the capability to accomplish it, we can expect production if we provide the means. The secret of the difference between enthusiastic professionalism and reluctant amateurism is probably the way the jobholder feels about his duty assignment. In the organization on the "foul" side of our scale, we are likely to find duty assignments of such restricted nature that the people feel them to be dull and routine. They lack the motivation of challenge and probably approach each effort from a viewpoint of personal security rather than pleasure in accomplishment.

Work or duty assignments should be aimed at mission accomplishment. The mission, in all its ramifications, must be known to all the people in the organization. Knowledge of mission requirements and confidence that the manager is assigning jobs for that accomplishment will go a long way toward adding to the will of the people. It is suggested that if the manager is not convinced of job assignment importance, the people surely will not be. If the manager is convinced but his people are not, he has failed to accomplish part of his management function. If he fails to convince the worker of his (or the job's) importance, it is not beyond probability that the job or position may be superfluous to mission requirements.

A high degree of "want" exists in the job environment. People want to belong to a successful organization. They want to feel important to that organization. They want to know they are actively involved in a successful group effort. They want to be recognized for the capabilities they possess. When these wants are not recognized or not met by management, esprit de corps falls and the individual's feeling about the job becomes dull, listless, and discouraged.

Every effort of management to increase the challenge of the job, within reason, will result in greater personal performance and all the good that goes with such increased involvement. One simple test is to observe the organization's pattern for reporting to and departing from the job. When challenge is

missing from the duty assignment and the environment is more "foul" than "clean," we note on-time arrival and on-time departure; very little voluntary overtime will be noted. Few, if any, will be motivated to "see the job through." After all, "They only pay me to do what I'm told, no more." Further, the people may feel that extra effort will be looked upon with suspicion and motive may be questioned.

#### *areas of responsibility*

There is an old adage, "Everybody's responsibility is nobody's responsibility." It means that if responsibility is too widely spread, people are apt to count on "the other guy" to do what has to be done, with the result that no one does it. There is some natural truth in this. Unfortunately, many managers have taken it so literally that every possible responsibility is painstakingly defined, detailed to great degree, and explicitly assigned to one specific individual. In this environment, close to our "foul" scale, the elements of teamwork, cooperation, and coordination find the going very rough. If they exist at all, they do so in spite of management rather than because of it.

People like responsibility or accountability if it is properly placed and not beyond their capability for control. They do not like it when it is too narrow or restrictive or when it is too broad for fulfillment. Inadequately assigned or defined responsibility leads to a self-protective atmosphere in which each person jealously insures his own clean hands but passes all else because all else is "Joe's job." Voluntary commitment to assistance of another is rare under these conditions, and the will-to-do falters. We have all seen organizations in which necessary work remains undone until the boss specifically assigns it. Why? More than likely, responsibilities were ill-assigned and no one felt he had reason to assume the job requirement. This, too, approaches our "foul" area.

Some managers mistakenly feel that every person must have a detailed responsibility assignment. They feel that work flow—at least, work assignment—then becomes almost au-

tomatic and administrative procedures are streamlined. While this may actually result in smooth administrative functioning, it generally leads to little active and voluntary coordination above the minimum required for individual job completions. It is possible that more broadly assigned responsibilities, coupled with assurance that each employee knows and understands the organization's goals, will foster active coordination in addition to cleaning the atmosphere. Under these conditions the people know there is probably some overlap of functional responsibilities, and they know they must coordinate in order to fulfill their job responsibility and progress to achievement of organizational goals.

We all want to feel important. If our responsibilities are broad and we have adequate authority to fulfill them, we know we are important and we act with the common good in mind. Our every effort is aimed at organizational success because we feel the organization is ours and its success will reflect in our success. The motivational influence of such a climate is tremendous.

Managers are never successful alone. They succeed only through the efforts of others. It would seem, then, that managers would work at all times in all ways to insure that the efforts of others are contributing to successful and optimum organizational accomplishments. It would further seem that managers would be constantly studying the people who work for them to insure that the organization's atmosphere is always conducive to effective, efficient personal effort toward mission accomplishment.

#### *communication*

Serious management students recognize that within all formal organizations there is an informal organization. The formal is easily viewed in the organizational charts. The informal may be felt but not seen. It is often not recognized even by those who keep it going. The informal organization is formed by the personal relationships which exist within the formal, and it usually establishes a separate status grouping from the official hier-

archy. The individual feelings within the group as to who is important, who is the unnamed leader, who has the job knowledge, etc., establish this ghostlike structure. It is in this informal structure that the individual finds an identity and relates to the whole organization. The health of the informal organization has much to do with the organization's success in meeting its goals.

A major factor of the informal organization is communication. Knowingly or unknowingly, the leaders of both the formal and informal organizations do communicate. The freedom with which they communicate will generally determine the efficiency of the organization as a whole. Attempts to channel communication or restrict it to certain people or positions are stultifying. This frustration creates a real, sometimes permanent, bar to peak effectiveness and efficiency.

Successful management (effective and efficient accomplishment of established goals) demands communication, coordination, and cooperation. The latter two, to large degree, depend upon the first. We might conclude that a prime ingredient of successful management is communication. The successful organization will provide for downward, upward, and lateral communication because all are vital and essential. A sure sign of a "foul" environment is restricted communication in any direction. Any manager who feels that he must insure only a clear channel for downward communication is creating a major problem for his organization and adding to the environmental pollution. It is extremely important that we provide for, permit, and encourage upward and lateral communication as well as downward, so the informal organization may live and participate productively.

An indicator of pollution in the communication function is the degree to which management insists upon channeling. This is not an argument for uncontrolled communication but merely a plea to prevent the delay-producing, stifling insistence that all communication must go, position-to-position, through a labyrinth of channels before action results. This, often, is a major complaint against the tradition-bound manager who sometimes is re-

ferred to as "military-minded." Those managers in the Defense agencies, and in all government agencies for that matter, must constantly be alert to prevent a slip into this trap under the guise of control. Again, this dictum is not aimed at acquiring a controlless communication process. It is aimed at asking managers to insure that unneeded, restrictive, and unimaginative processes, procedures, policies, and rules are eliminated.

We should encourage the passing of information for job performance freely from person to person. The person who needs information to do his job should be able to obtain it from the person who has it with minimum intermediate steps or processes. Therefore, for informational purposes, we should encourage person-to-person contact with little regard to position or rank within the organization and minimum requirement to "stick to channels."

#### *organizational traits*

The manager's actions cause two types of results. One is production toward meeting the organization's mission. The other is impact upon the organization's atmosphere. In this article I have discussed the second result, with the thought that it affects the first to some extent. Let us now briefly review the traits we might find in organizations at the two environmental extremes earlier established.

On the left of the block we find an organization operating in conformity to a rigidly defined set of rules, processes, policies, and instructions. It may be described as hidebound and tied to tradition. It would be the type of unit in which the people seriously state, "There's no reason, it's just policy." There is resistance to the new or different. Ideas are looked at with suspicion. A very low degree of creativity exists. There is a tendency toward stagnation of thought and detached relationship to the unit by the people. Task failure is feared, and the reward for failure is punishment. Little concern exists for the growth of the people, and their development to greater capability is slow or nonexistent. The people continue to work because they either have no

choice or they value security more than personal involvement and satisfaction. The total picture is unpleasant and undesirable. Fortunately, few organizations are this far to the left. But there are many which approach the extreme in some of the indicator areas described. Managers in these units must act or face the probability of ultimate failure should individuality, initiative, or creativity ever be required.

On the right of the block we find an organization in which the people display an avid eagerness to work. Their lives are wrapped up in their jobs. Innovation and creativity are present in all activity. The organization is free to accept and react to change with less reluctance to leave the traditional. Task failure is not condoned but is understood and used as a learning and growth opportunity. The whole organization is concerned with insuring the development of each individual, and organizational capability is steadily increasing. Involvement is great, and everyone has a sense of vitality and participation. Unfortunately, not all organizations can be this extreme in total. Some must, by virtue of the mission, be purposely held more to the center. But most organizations could move more to the right than they are presently positioned and gain immeasurably by the action.

Management would do well to heed the following encouragement:

Use leadership and managerial skills to the fullest. Create the clean atmosphere which encourages people to grow and develop.

#### *the key*

The key to changing the organization's environment or atmosphere is the manager. He can change only if he wants to change. It may frequently happen that he wants to change but lacks the idea, the thought, needed to energize his action. It may be that he is not aware that a change is needed or that a change might be beneficial. It may be that he is not fully aware of the things currently "bugging" his people and those which irritate or inflame them. It is to this possibility that we now address ourselves.

Change is brought into being by action on an idea. Ideas are the lifeblood of progress, and ideas will be the moving force of the future just as they have been the moving force of the past. Thus, every manager must be constantly alert for ideas from any source.

Ideas have no value unless they are acted upon. To get action, the idea must be communicated. Therefore, the wise manager always insures that in his organization there is free communication, permitting anyone to present his ideas or thoughts to someone who can do something with them.

Obviously, not all ideas are good and not all ideas are currently useful. Even so, all ideas merit attention and logical evaluation. This, perhaps, is the biggest attitude problem facing the manager and his organization—and the one requiring the most continuous emphasis and attention.

A common tendency is to hastily—too hastily—listen, incompletely evaluate, and quickly reject ideas, particularly those which do not seem “big” in scope. Often one tends to rely on roadblocks or negatives when he listens to or reads an idea presentation. A most difficult chore is the establishment of a positive attitude toward idea evaluation. One may, of

course, finally decide to reject the idea (in total or in part); but he owes it at least a logical, positive evaluation prior to that action.

Suppose the Wright brothers had rejected the idea of flight through the “It’s been tried before” approach? Suppose the Manhattan Project had stumbled against the “It’s too big for us” roadblock? Suppose the inventor of the hula hoop had listened to “It’s not really practical.” These common objections to ideas are usually given before the idea has really been evaluated. One wonders how many really earthshaking ideas have failed to materialize because they never made it through the jungle of resistance.

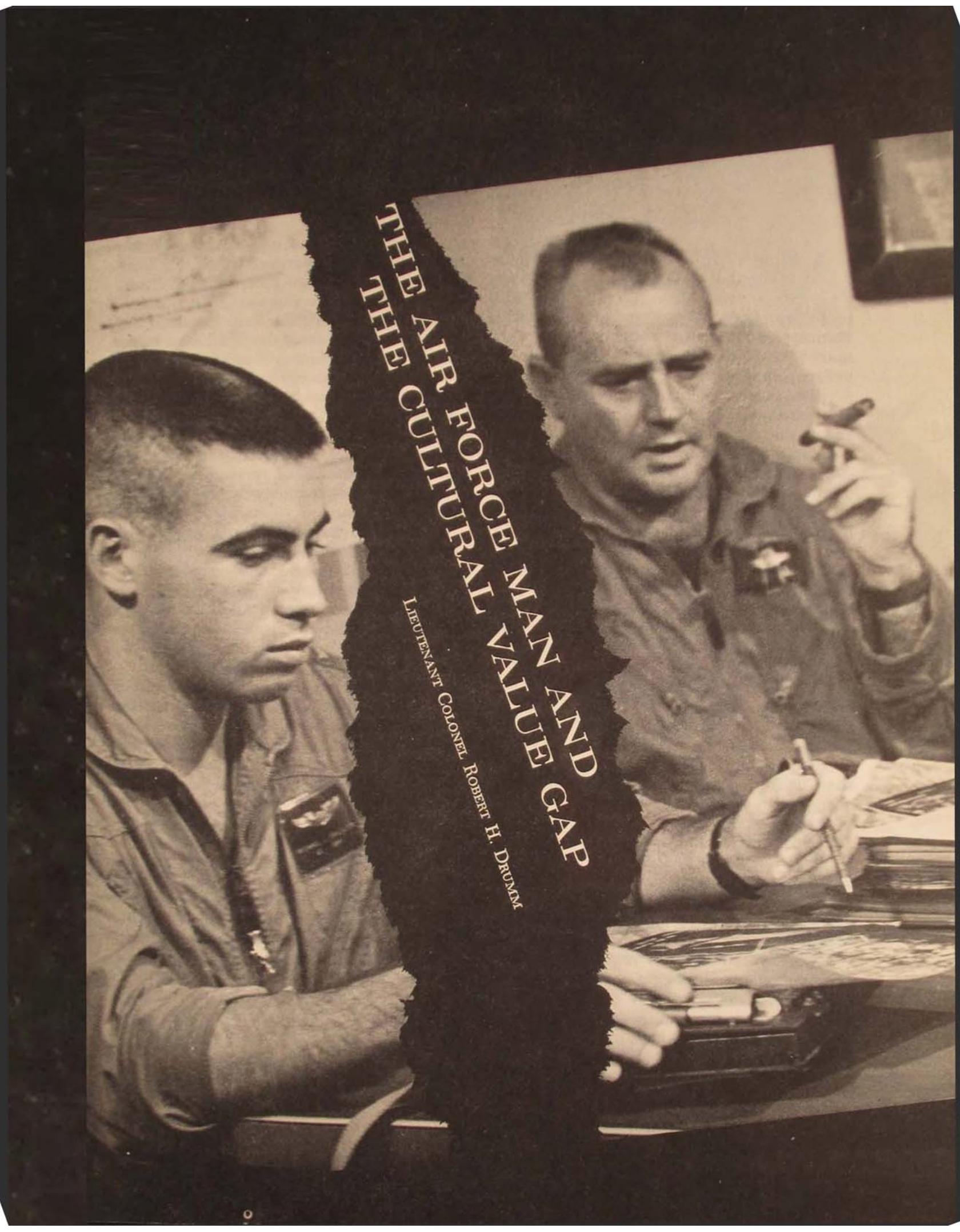
The point is this: There is a very good probability that any organizational environment can stand management review and cleaning. Ideas are necessary to do this. As a manager, one must realize that he is not the only thinking man around, and he must provide the climate which encourages idea development and the atmosphere which permits sound evaluation and management action.

It is up to you, Mr. Manager! Where in the scale is your organization now located, and what are you going to do about it?

*Air Force Institute of Technology*

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THE AIR FORCE MAN AND  
THE CULTURAL VALUE GAP

LIEUTENANT COLONEL ROBERT H. DRUMM

**A**IR FORCE personnel left over from World War II and the Korean War view with alarm the values and attitudes of younger officers and airmen of the Vietnam era. This article attempts to provide insight which may assist the reader to gain understanding of this "emerging generation."

The current cultural value gap between older and younger Air Force men is not new and is not restricted to the military. Similar gaps have been occurring for centuries. However, past military generations did not encounter the sharp technological and cultural change, in a short period of time, experienced by the current younger generation of officers and airmen. Because of the slow technological and cultural maturation from one generation to another, past changes were difficult to perceive. Traditionally any disparity in values, if recognized at all, was attributed to a struggle between generations for influence and independence.<sup>1</sup>

If this condition has been around since early civilization, why is it so remarkable today? I do not believe it is a matter of whether change has or has not occurred; it is more of an accelerated change during a short time frame compared to the rather slow change of the past.

Accelerating knowledge and technology are major contributing factors. As one author so aptly put it, "It is small wonder that the world's information, which is doubling with each generation, has grown far beyond the capacity of any individual to comprehend it all."<sup>2</sup>

This acceleration has provided technical breakthroughs resulting in more and better production of higher-quality goods at a lower cost. The production output and its resulting profits are distributed to more and more people.

Just what does this have to do with the

dramatically shifting personal values of officers and airmen in the late 1960s? A partial answer may be seen in the genesis of our cultural value system in the United States. The values dominant during the first century and a half of American history were formed within an agricultural economy based on a demand for more goods than could be supplied. The population was largely made up of pioneers and immigrants. It was widely scattered in small communities. In those days the military man lived from payday to payday, looking forward to minimum comforts and basic necessities.

These conditions, which to a large extent no longer exist, formed group perceptual patterns and values which were considered acceptable behavior of the day. Civil, military, and moral law were based upon this acceptable behavior. The majority of the population supported these laws, and they became the cultural guide for a given period.

Today, material goods are supplied in such large quantities that our economic system basically no longer supports the scarcity theory.<sup>3</sup> A military man's pay, like that of his civilian counterpart, is determined by the pressures of an affluent society.

The problem of developing an individual identity under such conditions is overwhelming. An insidious kind of value gap has developed between those values which the younger man can identify with and measure himself by and the opportunities and challenges available to him for achieving this identity. This disparity has generated large numbers of individuals who struggle to develop a feeling of commitment to something worthwhile and to the achievement of self-worth.<sup>4</sup> In this contemporary mode, competition for the basic necessities of life is de-emphasized.

For centuries the achievement motive driving the military and civilian man was to

gain sufficient wealth, power, or position to secure desirable material goods that historically were in short supply. The higher the achievement, the more an individual could accumulate scarce items that were not readily available to everyone. Values based on this concept generated perceptual sets and thought patterns such as "To work is good and to work even harder is better."—The Protestant Ethic.<sup>5</sup>

In today's social/cultural environment, two distinct sets of values appear to be operating: traditional values and emergent values. Traditional values, those which are subscribed to by older officers and NCO's and which developed during the scarce-commodity/scattered-population era, are "Puritan morality," "work success ethic," "achievement orientation," and "rugged individuality." In contrast, the younger officers and airmen lean toward emergent values, which appear to be "moral relativism," "sociability," "immediate gratification," and "group conformity."<sup>6</sup>

When conflicting views are held by older and younger military men, their ability to communicate is greatly restricted. In addition, their desire to cooperate toward a common purpose is sidetracked by the communication conflict.

This gap between today's older and younger military generations appears to be greater than at any other time in civilized history. One set of factors causing this condition is the changing emphasis on the personal/social needs of the contemporary military man. These needs, as set forth by Maslow and others, are:

1. Physiological (thirst, hunger, sex, etc.)
2. Safety (security, health, etc.)
3. Social (identification, affection, etc.)
4. Egoistic (prestige, success, self-respect, etc.)
5. Self-fulfillment (desire for personal growth, self-actualization, etc.)<sup>7</sup>

Traditionally these needs are presented in a hierarchy. Figure 1 depicts this hierarchy and indicates the relative importance (value) of these needs.<sup>8</sup> Under this concept, physiological needs are basic, and self-fulfillment needs (which are never completely satisfied) are the highest and not important until lower needs

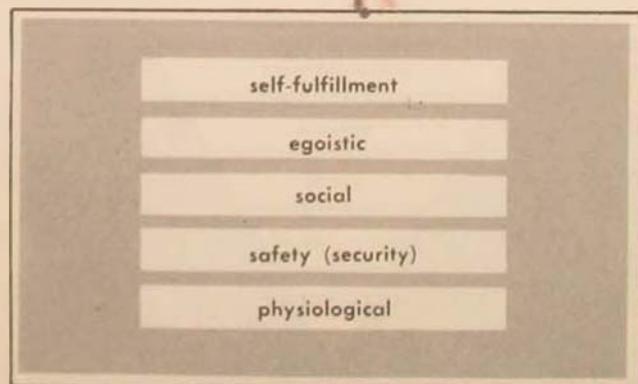


Figure 1. Psychosocial needs hierarchy format indicating degree of importance (value) to older generation

are satisfied. According to McGregor, "Man is a wanting animal—as soon as one of his needs is satisfied, another takes its place in an unending process from birth to death." He also says, "A satisfied need is not a motivator of behavior."<sup>9</sup>

With the cultural change from scarcity of goods to plenty and sociological advances which provide the same relative availability of goods to nonachievers and achievers alike to satisfy lower needs (i.e., welfare programs to provide food, clothing, medical care, and other basic needs), this pattern of psychosocial needs may change structurally. (Figure 2)

Figure 2. Psychosocial needs hierarchy format when the lower needs are satisfied, depicting needs that are possibly important to middle or transitional generation



If the apparent value gap continues to expand, the hierarchy of needs influencing the future military man may eventually form a pattern of diminishing lower needs and expanding higher needs. (Figure 3) Under this hypothesis, man would devote more and more energy to ego satisfaction and self-fulfillment: the emerging ethic. If overwhelming emphasis is placed on higher needs and they are then thwarted, the new crop of young officers and airmen may revert to behavior that is irrational compared to the military standard of the day. External needs compensations would then emerge similar to such civilian compensations as the "hippy" movement, drugs, and bizarre dress (at least when viewed from the norm). Although the younger military generation may be heading toward the upper level of the needs configuration, the factors causing this change may also have an effect upon the older military generation. The older generation (people over 35 years of age), because of strides made toward the good life, may be receiving needs satisfaction approximating the configuration shown in Figure 4.<sup>10</sup>

The cultural value gap is also reflected in current philosophical systems. Emerging existentialistic philosophy, similar to the emerging change in contemporary military man's needs hierarchy, is also saturated with the individual's intense awareness of his egoistic and

Figure 3. Psychosocial needs hierarchy format when the satisfaction of lower needs is guaranteed for the most part by the social structure to the emerging generation

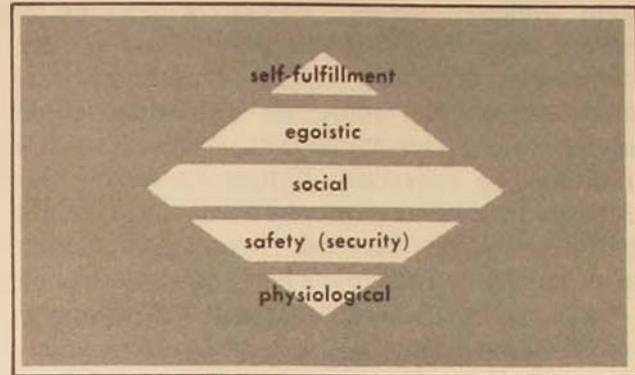
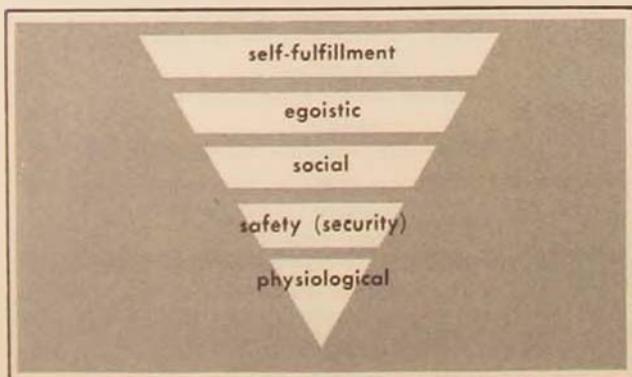


Figure 4. Psychosocial needs hierarchy modification of older generation due to gains made toward the good life

self-fulfillment needs. It is loaded with the individual's subjective view of reality.<sup>11</sup>

Some contemporary writers interpret emerging existentialism in the form of assumptions, which may be useful in understanding the emerging military man's views. These assumptions are:

1. The individual is responsible for his own actions.
2. Man must regard his fellow men as objects of value and as part of his own concern.
3. Man exists in a world of reality.
4. A meaningful life must remove as much threat from reality as possible, both physical and psychological.
5. Every person has his own heredity and has had experience unique to himself.
6. Man behaves in terms of his own subjective views of reality, not according to some externally defined objective reality.
7. Man cannot be classified as "good" or "evil" by nature.
8. Man reacts as a total organism to any situation.<sup>12</sup>

Where does all this discussion lead? It appears that the current upheaval is generating a new culture that is evolving ahead of its time.

Before 1970 over fifty percent of the U.S. population will be under twenty-five years of age. This fact indicates that our young Air Force will get even younger. The attitudes, perceptual sets, morals, and commitments of

this younger majority demand to be understood. A bridge of understanding across the generation and cultural value gap is imperative to our future military posture. The older military generation's needs and attitudes contrast with those of a younger military generation who know only an affluent society, a growing welfare state, and a rapidly accelerating technology. Whether we like it or not, this younger group will inherit the Air Force.

The main effort to reconcile this value gap is the responsibility of the older Air Force generation who form today's leaders. This older generation must realize that emancipation from tradition requires additional foresight on their part to anticipate the consequences

likely to flow from change. It is the responsibility of this leadership to encourage creativity and at the same time maintain restraints on immature, short-term desires to the extent necessary to assure the rights of others and to conduct the important day-to-day tasks of the functional military establishment.

This is not a hopeless or unreasonable task for Air Force senior officers and non-commissioned officers. After all, the younger generation when faced with today's overwhelming situation, like their forefathers, appear to be just as frightened as they were by life itself—or inebriated by its sudden discovery.

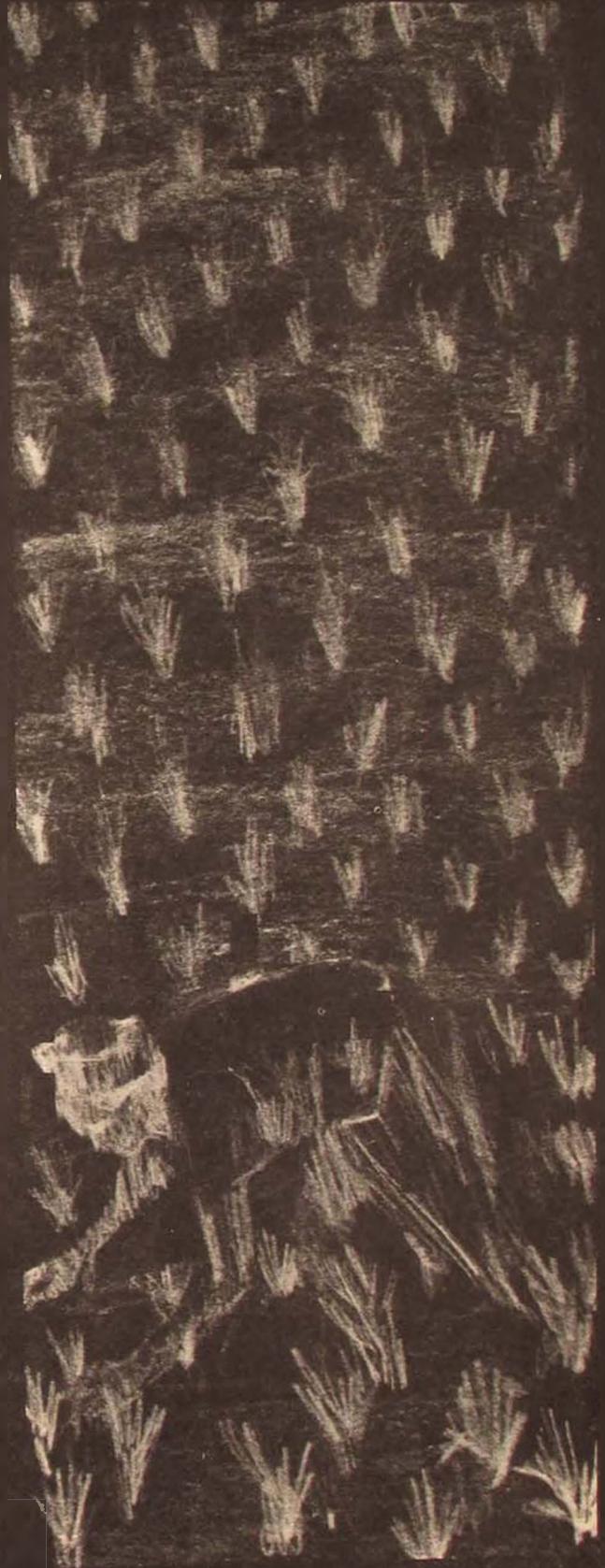
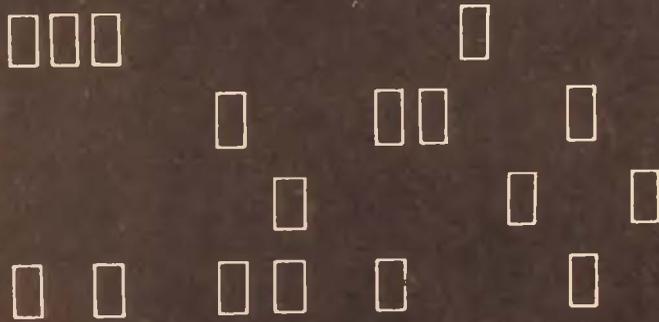
Warfare Systems School

#### Notes

1. Donald H. Blocher, *Development Counseling* (New York: The Ronald Press Co., 1966), p. 117.
2. Robert W. Sarnoff, "Communications: The Knowledge Industry," Commencement Address delivered at Washburn University of Topeka, 5 June 1966, *Vital Speeches of the Day*, XXXII, 21 (15 August 1966), 671.
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4. John R. Seely, Jr., "Guidance and the Youth Culture," *Personal Guidance Journal*, 1962, No. 41, pp. 302-10.
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6. George D. Spindler, "Education in the Transforming American Culture," in Blocher, p. 119.
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8. Abraham H. Maslow, *Motivation and Personality* (New York: Harper & Row, 1954), pp. 80-106. Cf. Charles D. McDermid, "How Money Motivates Men," from *Business Horizons*, Winter 1960, pp. 94-100, in Max D. Richards and William A. Nielander, *Readings in Management* (2d edition; Globe, Arizona: Southwestern Monuments Assn., 1963), pp. 409-10.
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10. *Officer Motivation Study—New View*, Hq United States Air Force, Assistant Chief of Staff, Studies and Analysis, Vol. II, reprint, 1 April 1967, p. A-62.
11. Blocher, p. 21.
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ON THE LIMITATIONS OF  
SYSTEMS ANALYSIS FOR  
COUNTERINSURGENCY  
PROGRAMS

DALIP SAUND



IN A recent issue of *Air University Review*, Major Joseph P. Martino presented the thesis that counterinsurgency problems might profitably be attacked by use of the systems analysis approach.<sup>1</sup> The article broached some of the problems with which I became involved during a recent field study of cross-cultural interaction problems in northeast Thailand while living for some months in communities in an incipient insurgent district. While the suggested approach through systems analysis deserves further exploration, in this article I shall attempt to analyze its applicability and limitations in the counterinsurgency situation with which I am acquainted.

Not having had any prior experience with systems analysis, I attempted first to gain some ground on Major Martino and found that most works dealt with the mathematical techniques of systems analysis and related methods. However, I did find a RAND report which treated the philosophy, history, and methodology of systems analysis at a more general level,<sup>2</sup> and in my cursory comparisons I found nothing inconsistent between this report and other works consulted. I state this only to make explicit the basis from which I discuss Martino's thesis.

Martino presents and illustrates his thesis by analyzing the insurgency problems of a hypothetical country, East Emergia, in terms of an ecological system. East Emergia is presented as a typically tropical, newly emergent nation in which insurgency had broken out or could break out in the rural areas, where significant modernization had yet to take place. Martino takes into account four interacting subsystems: a typical rural peasant community and its relevant social and physical environment, insurgents operating in the area, the established government, and the United

States insofar as we are involved with East Emergia. The focus of the analysis is the rural community in general and its propensity to support or not support insurgency activities in particular. The rural community is treated as a white box in the sense that analysis can be applied to the processes whereby inputs (the actions of the other subsystems which affect the community) are processed and transformed into outputs (the actions of the community which affect the other subsystems). Martino takes fleeting glances into the interiors of the other subsystems, but for all practical purposes he treats them as black boxes for which there is some input-output relationship of unspecified internal structure and process.

Strictly speaking, the white box concept includes analogous models of internal structures and processes which may be very different from those of the real system but which yield the same input-output relationship. However, when one considers that the object of systems analysis is not only to evaluate alternative courses for policy-decision purposes but also to generate new alternatives and that we do not yet possess analogous models which have a high degree of reliability (of the type used, say, in analog computers, where direct analogies can be constructed for mechanical systems based on the identical form of the mathematical equations describing certain electronic and mechanical processes), the danger of using internally dissimilar white boxes becomes clear. We can never be sure whether our model is analytic or merely descriptive. Martino, wisely, did not attempt to simulate in his hypothetical analysis; he presented data and processes of the type which might be expected in an actual Emergian community.

At one point Martino notes that "a complete model, including the monsoon rains,

would have to include the earth and sun as well." This statement contains an implicit recognition that he is dealing with one vast integrated system which, to continue the logical extension, includes the whole universe. By excluding the earth and the sun, he is saying in effect that the constraints he must live with (such as limits of his ability to carry off an encompassing analysis within a reasonable time allotment) and the degree of accuracy demanded by his questions can be brought to a satisfactory balance by ignoring certain variables. This is, in fact, the same problem faced in any exploratory, analytic discipline. We are forced to divide up the complex whole, by space or classes of phenomena or what have you, into smaller units that we can handle. If the first level of dissection is not enough, we continue the subdivision process until we come within the range of our capabilities of comprehension and analysis. The particular questions we are asking, whether they be those of the philosopher, historian, humanist, scientist, or public policy maker, dictate how and where the scalpel will cut. But the principles are always the same: carve away that which is irrelevant to the questions asked; carve until the remainder is of handleable size.

Returning now to the matter at hand, we find that Martino gravitated toward ecological questions to ask of the rural Emergian community. Had he treated the Emergian government as a white box, his questions would have concerned fiscal balance, political structure and power relationships, national policy, and the like. Though the general method for all is the same, there is a heterogeneity of the specific questions asked and, therefore, of the kinds of relevancies that the scalpel must separate. The requisite surgical techniques will vary for each subsystem.

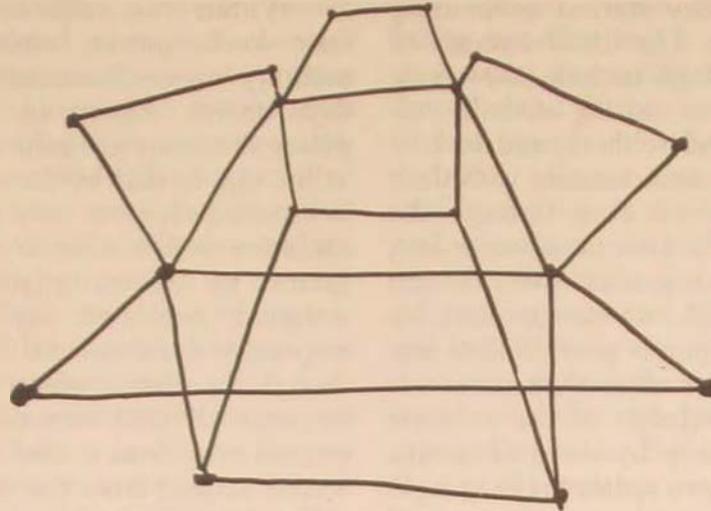
This is, in fact, one of the unique aspects of systems analysis, that while the basic method of systematic pragmatic paring down to essentials is in common with existing disciplines that also seek to develop a rational and coherent picture of the world around us, a systems analyst is faced with the problem of integrating into one scheme a body of data

relating to variables that are not ordinarily handled as a whole by any of the established disciplines. Where the historian, the economist, or the physicist must handle large masses of data, the questions they ask are rooted within their respective disciplines, and the methods of processing to arrive at meaningful and reliable answers have largely been worked out by those disciplines. However, even though the larger questions the systems analyst attacks are not the same, he can find areas of overlap with these disciplines and enlist the aid of appropriately trained men to employ their respective methods to answer part-questions. In a sense, he subcontracts out part of his production and later assembles the parts into a usable whole package.

The question Martino poses for the East Emergian rural community is: What kinds of actions impinging on the community will reduce its propensity to contribute to insurgency efforts? This question is presumably set in the context of some larger question of national policy which has generated other part-questions to be asked of the other black boxes of his system, but for the moment let us consider only his immediate problem. There are two avenues of attack. First, we can examine the array of resources at our disposal and ask how we can employ them to meet our objectives of deterring insurgency activities. In this approach, our white box analysis would have to select those resources that would most efficiently meet the objectives. But such an approach assumes an *a priori* knowledge of the community we are going to operate on and the dynamic processes pertaining thereto. It also makes an implicit *a priori* selection of resources. A second approach would be to look at the problem from the point of view of the community, try to learn its dynamics inductively, and *then* ask what resources we have and how we might apply them to effect the desired objectives. In this way, not only do we avoid making *a priori* assumptions but we also do not preselect our resources. Furthermore, we are left freer to suggest new alternatives, one of the tasks of the systems analyst. Martino used the former approach. To show the contrast, I shall use the latter.

Data of conditions presented here are taken from northeast Thailand and are not hypothetical. They are, however, not unrelated to East Emergia, since Martino himself spent

18 months in Thailand and acknowledges his reliance on Thai data by calling the capital of East Emergia "Groongtape" (Krung Thep), the Thai name for Bangkok.



THE VILLAGE of Ban Na is an ordinary peasant community located in central Sakon Nakhon Province. Typical of surrounding villages, Ban Na is a largely self-sufficient rice-producing community of some 1300 persons. The village proper is situated on a slight rise in the middle of lowland paddies, which slope gently down to a brook that marks the village's northern boundary. On the other three sides, the paddies are bounded by forest. Most villages in this area are accessible only by very poor cart tracks that become totally impassable during the rainy season. That was the case for Ban Na until two years ago, when an all-weather road was constructed linking it to the main district town, which is itself on a new major gravel highway.

The primary occupation of all but one of the village's 189 families is rice agriculture. This other family operates Ban Na's only shop, which it opened several years ago. As far back as the older people can remember, there has always been at least one shop in Ban Na. The shopkeeper deals primarily in cash but does let some credit. He says he must be careful not to appear stingy and by now has learned who the untrustworthy villagers are. They are

known to the village as a whole, and other villagers do not resent his withholding credit from the bad risks. The shop measures roughly 15 by 20 feet and stocks such items as cloth, cotton thread, kerosene, simple lamps made from beer cans, batteries, flashlights, transistor radios, a few simple cosmetics, nails, candy, tobacco, cigarettes, candles, medicines ranging from bottle root potions to the latest antibiotics, brassieres, pencils, and writing tablets and books for the school children.

Of the 189 families, 172 own their own land, holdings ranging from 2 to 35 acres. There is no absentee-landlordism in Ban Na, and those families that do not have land are transitional—newly formed, newcomers, those who have just lost their land, etc. Most of the peasants have many relatives in the village, but kinship bonds are not strong and are not an important factor in village organization. One should lend rice to a relative in time of need without charging interest and perhaps help him in giving a feast or when he is short of help at harvest time, but these are not binding obligations. Each family makes its own friends and rises or falls on its own merits.

The entire population of Ban Na is

Buddhist, and the village supports one temple (*wat*) with its complement of half a dozen monks and a dozen novices. Until two years ago several teachers who staffed the village school also lived in Ban Na, but when the new road was built they started commuting from the district town. The disadvantages of their living in the village include the costly duty of acting as host to visiting officials, vulnerability to thieves and robbers, and lack of social companionship commensurate with their official status. The school goes through the fourth grade, and all children must, according to law, complete all four grades. Even though the literacy rate is high, no one in Ban Na subscribes to a newspaper or periodical of any kind, and written matter other than posters is very rarely seen. Knowledge of the external world is gained primarily by word of mouth or through the dozen or so radios in the village.

The Thai central government is organized around a dozen ministries, each of which is assigned specific functionally related responsibilities. Ministries are broken down into departments, also along functional lines. Internal administrative control of the country is assigned to the Ministry of Interior, and under its Department of Local Administration Thailand is divided into 71 provinces, each of which is governed by a governor appointed by the department. Provinces in turn are subdivided into about half a dozen districts, each under a district officer who is directly answerable to the governor. Governors and district officers have staffs of officers from other ministries and departments that have local responsibilities. In Ban Na's district this staff consists of officers for education, health, police, forestry, agriculture, livestock, tax, community development, post and telegraph, and land. Each of these officers, including the district officer, has his own departmental organization, but this district level is as far as the civil-service-staffed national administration extends. The district is divided into *tambon* (communes) of about twenty villages each. Each village elects its own headman, under the supervision and with the approval of the district officer. The village headmen in each *tambon* elect one of their number to be *kam-*

*nan*, the head of the *tambon*. Headmen and *kamnan* receive small salaries but are not civil service and are not rotated from their own communities. Organizationally, they are under the district officer and answerable to him.

Within the civil service organizational framework, power, authority, loyalty, and mobility are predominantly vertical within the departments. Power and authority to make policy decisions are concentrated very heavily at the top, so that by the time the district level is reached there is very little room for local initiative or flexibility in official duties or programs, by American standards. Duties are assigned, regulated, and monitored by the respective departments. The net result is that, though the district officer has nominal authority over all civil servants in his district, his control over them in real terms is less than one would suspect from the deference and respect shown him. The duty of the subordinate is to serve the superior in a compliant, obedient manner that is not conducive to the upward flow of ideas and suggestions. In short, the Thai governmental system, which has markedly changed during the past century, has incorporated many Western administrative and ideological elements, but it remains basically a Thai system designed to meet Thai needs.

The role of *kamnan* is a minor one; the effective point of articulation between villager and government is through the village headman. In Ban Na he is a middle-aged man, rather wealthy by village standards and interested in seeing his village "develop." It is through him that the district officer passes on directives and information, and through him the village communicates its needs and problems. Actually, the headman does not possess any appreciable power by virtue of his position, and his salary is barely enough to pay for the expenses of playing host now that the teachers have moved away. He does not have under him a salaried staff or even a structured village government with clear lines of authority. When he looks outside the village he sees a hierarchically organized governmental structure which cascades down through layer after layer until it lands on him. But when he looks

around him in the village he sees only peers who are not obliged to take his orders or share his burden. The peasant of northeast Thailand is a champion of his individual rights and prerogatives. He often fools the stranger by his acquiescence to overwhelming external power, which is misinterpreted as a sign of weak spirit but is rather a sign of peasant pragmatism. The stratified Thai social system does not extend into the village because concentration of power and wealth ends short of that point, the village having more the characteristics of an egalitarian society of individualists. The headman has his feet planted in two different systems, and to a large degree his success is a function of his ability to tap to two different tunes at the same time.

The peasant tends to retain the techniques and methods handed down by his forefathers but not because he has an aversion to innovation or new technological implements. One can see many examples of adoption and integration from the modern world in Ban Na—radios, cloth, antibiotics, insecticides, bicycles, an engine rice mill, to name but a few. However, Ban Na is a homogeneous village; the villager sees his secular tasks and problems in specific, concrete terms and does not have to bridge conceptual gaps by reverting to abstractions or generalizations when discussing or analyzing his problems with friends and neighbors. Furthermore, he has not had an education that provides him with a general technological background such as most Americans have. The result is that the peasant evaluates new ideas and things not in terms of abstract concepts and theoretical projections but in terms of the concrete specifics of his world as he sees it. Until an innovation is shown to have very real and practical advantages for him, he is not attracted by it.

For example, since the peasant is deeply concerned about the death and suffering brought by disease that threatens his family and neighbors, he focuses his attention on the manifestations of sickness that he sees. In searching for cures he does not refer to complex concepts of causes and mechanisms of diseases and medicines as is commonly done in Western countries. To be sure, he knows

about germs, viruses, and antibiotics; but he does not indulge in vague and impressive pronouncements about them as is done by the American, who understands them no better but depends on a doctor to effect his cure. The villager carries out his greater responsibility for effecting a cure by simply getting and using the antibiotics, which were introduced about fifteen years ago and can be purchased openly and cheaply from most shops. But the villager also uses magical divining and curing, spirit curing, local root medicines, and countless elixirs, potions, and powders also purchased in the shops. The apparently incongruous mixture of medical and nonmedical practices is no enigma to him, though, since he sees each kind of sickness and ailment as a discrete entity requiring its own particular cure. He has no higher unified theory of medicine requiring him to bring all his practices under one abstract rubric. He is guided by empirical pragmatism. For fevers and infections he uses penicillin or streptomycin because he has learned by experience that for these ailments these cures work. And that is simply that.

Ban Na's year is broken down into three major seasons: the rainy season from June through September, the cold season from October through February, and the hot season from March through May. Rice is planted in May or early June, and its care demands the full attention of the peasant until it is harvested in October or November. The rains in the northeast are irregular, and the peasant is constantly threatened with drought or flood—sometimes both in one season. The cold season is the most relaxed and pleasant. There are many festivals and a great deal of social visiting as the roads are dry and travel can be resumed. Most families grow gardens near the brook and collect fish from the receding ponds and drying brook. The hot, dry season is devoted mainly to preparing for planting rice.

For four years running, Ban Na has not had a good harvest. This year (1966) the rains started very strong and some paddies were destroyed or badly damaged by flood. But by September the rains had stopped and most

of the rice suffered from drought. The villagers measure their rice by the *myn*, a volumetric unit roughly containing 12 kilograms or about 25 pounds of paddy rice. It takes about 100 *myn* to feed three people for the year. The village thus needs about 43,300 *myn* for its own consumption. The yield this year was 37,579 *myn* or some 6000 *myn* short. Last year, when there was a severe drought, the total yield was only 15,007 *myn*. Ban Na is now an importer of rice. As one might suspect, not all were hit to the same degree. This year, 16 percent of the families had a yield of less than one-half of their own consumptive needs; for last year 73 percent of the families were in this category. The possibility of their earning enough during the cold and dry seasons to buy the needed rice is nearly hopeless. Such a family, after it has exhausted its ability to borrow from relatives or friends and to buy with what money it could earn or gain from the sale of livestock, has two choices: either beg, or borrow from merchants. To beg, one must be suffering and the children sick and crying from hunger. In a village like Ban Na, a family has no chance to fool its neighbors if it has been negligent or lazy, and most people detest the irresponsible just as we do. No one has starved to death yet in Ban Na, but those who are diligent are looked on with much more sympathy and suffer less. This is beside the matter of pride, with which most peasants are well endowed. As for borrowing, it is done by selling rice futures. The rice merchants in the district town as well as many teachers buy futures at the going rate of 45 for 13, which gives the merchant a profit of 246 percent on his investment within a few months. If the peasant cannot pay at harvest time, the interest jumps 100 percent, and he pays 90 for 13 the following harvest.

This northeast region is the poorest and least developed in Thailand. These factors, plus the region's proximity to Laos, its large forest areas that are thinly or underpopulated, and the poor communications system, have contributed to making it the prime target area of Communist insurgency. In order to head off insurgency, the government has entered into a program of development which has

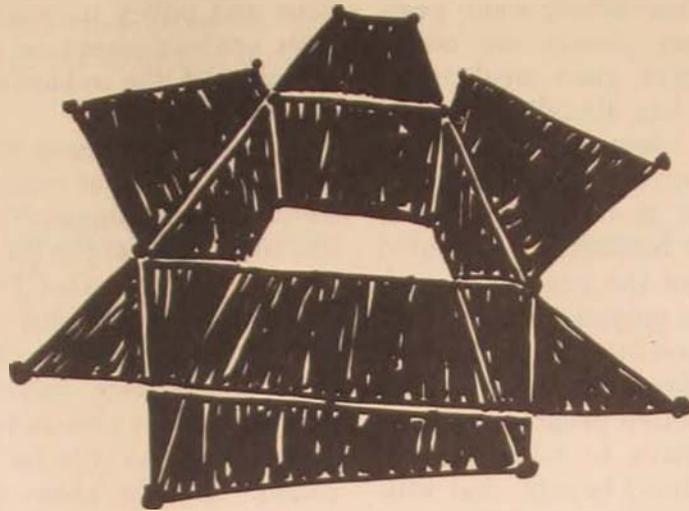
been carried out through the administrative organization described above, but it has also incorporated the army and a new separate governmental organ called Accelerated Rural Development (ARD). Transportation and communication facilities are being vastly improved, and the road to Ban Na as well as the major road through the district town are products of the ARD program. These roads have a vital effect on villages like Ban Na, since they greatly increase the mobility of the people and make it practical for them to produce for distant markets.

Aside from policing and military efforts aimed directly at the insurgents, the army has also entered into development programs through its Mobile Development Units (MDU). Some of these units are more or less stationary and direct their effort toward developing model villages and establishing basic services, such as health centers, to attract the surrounding population to come and see the progress in the hopes that they will be stimulated to self-help. Other units, truly mobile ones, cover areas encompassing perhaps 200 villages and concentrate their efforts on more modest development programs in a few of them. Ban Na is one of this latter group of villages, and its MDU program has been very successful. The MDU unit has been careful to engage only in programs selected by the villagers themselves and has limited its involvement to providing transportation facilities, which are beyond the capabilities of the villagers, and to using its power as a basis for organization for communal action, which is largely lacking within the village itself.

Development programs implemented through the established local governmental agents have been rather uneven in quality. The kinds of problems found at the district level are just what one might expect when a large, efficient, and long-established administrative system begins to adjust itself to carry out new functions. Local officials will have to implement new programs involving knowledge, relationships with the local population, and procedures that are not entirely consistent with prior conditions, and some officials will react more effectively than others. The follow-

ing example should not be taken as necessarily typical of all such programs, which are in

fact often quite successful. It is presented because of its similarity to Martino's thesis.



TWO YEARS AGO the district agriculture officer (DAO) gave some commercial fertilizer to a peasant in a neighboring village in order to demonstrate its value. The program of fertilizer introduction was conceived and directed by higher authorities, and the DAO could not or did not know how to carry out the program effectively. He did not instruct on the proper use of the fertilizer or follow up the experiment, and the results were very poor. Consequently, the peasants now think that commercial fertilizers, collectively called *pui*, are of no use. But the peasants do recognize the power of natural fertilizers, which they call *foon*. They say that when it rains the *foon* is washed down from the village into the bordering paddies and that is why paddies near the village are the best, provided they get sufficient water. If the rains are very good, the *foon* causes the rice to grow too high, and the wind blows it down before it can be harvested. When the value of *pui* was explained by comparing it with *foon*, the peasants pointed out that perhaps if they used *pui* all their rice would grow too tall and be blown down and much of the crop lost. They went on to point out that their main problem was

water anyway: if they had enough water their crops would be good, and they wished that attention were focused on the important water problem. The district officer recognizes the two main problems of his district as water first and roads second. He has cooperated with the community development officer in helping construct small dams and roads, but their combined resources are extremely limited. Consequently, most effort is in teaching better methods of raising chickens, using insecticides, etc., which activities are of value and accepted by the peasant in general but are nevertheless secondary. Rather than force fertilizers onto the peasants because we think they could be of value, perhaps we ought to take a closer look at the people directly involved—the peasants and the governmental agencies that deal with them—to learn what their needs, ideas, and limitations are, and then use our efforts to fill the gaps in potentially productive programs. Without this closer look, we really don't know what's going on.

While these data are not complete enough to serve as a basis for a full analysis of coindirected activities, they are sufficient to show the kinds of considerations that must be taken

into account in designing and planning an effective and efficient counterinsurgency program of the type Martino proposed. Martino's *a priori* assumption that the introduction of fertilizers would be positively received and utilized is not supported by these data, which show on the contrary that among some peasants, at least, fertilizers clearly are not a strongly felt need. In fact, their weak introduction can serve and has already served as an irritant. This is not to degrade the potential practical value of properly used fertilizers to the peasant. The point to be made here is that the introduction of fertilizers is intended to affect the condition of the peasant in such a way as to decrease his propensity to aid and abet insurgency, and therefore his perspective is of vital importance. Even if a different goal were involved, any effective program of local modernization would have to take into account the peasant's values, beliefs, and attitudes as well as the organization and character of those institutions that would play a part in introducing and regulating the new materials, ideas, and techniques.

Let me make clear that the thrust of my attack is not that fertilizers will not work among some peasants. Such an attack could and should be rejected as senseless, nitpicking, and quibbling. The point is that Martino made the *a priori* assumption that fertilizers would have a positive response because he *had* to make that assumption. He had to make it because systems analysis cannot handle the complex, nonquantifiable variables concerning peasant values, social structure, governmental-peasant relationships, etc., that must be taken into account if a rational plan of preventive COIN action is to be followed. And the situation would have been the same whether Martino had selected water, better rice varieties, medical aid, roads, or what have you as the focus of the program.

Herein, then, lie the critical limits of systems analysis as a tool for COIN planning. Every analytic system must make assumptions about the phenomena on which it operates, and no such system can produce an analysis any sounder than its assumptions. Systems analysis requires that variables be very clearly

defined and subject to some kind of objective and discrete measurement. COIN activities, on the other hand, involve a much higher order of social and cultural phenomena which are not yet amenable to rigid delineation and quantification. Therefore, basic COIN evaluations and policy decisions cannot utilize systems analysis except as a supplementary tool in some of the subanalysts' areas where its conditions are met.

Rather than leave the question here with the conclusion that systems analysis is at best of very little value in COIN planning, I should like to go on to argue that as a practical matter it is of negative value. Consider that nowhere did Martino even hint that the fertilizer assumptions and other related variables which he supplied were themselves at all critical. He gives us no clue as to how they are ascertained, and one is in fact tempted to the conclusion that he chose his variables for no sounder reason than that they were the ones that fit his systems analysis method. From the standpoint of COIN planning, as opposed to systems analysis, the fact that graphs of agricultural yield versus rates of insurgency recruitment or food consumption rates of peasants can be drawn or tallied is of far less interest than the process by which one identifies these as the critical variables. Yet Martino's paper reads very well. Given his assumptions, he argues his case cogently and shows how significant results can be produced. To one unable to challenge his seemingly plausible assumptions, his plan appears sound and workable. Herein lies the manifestation of the negative value of systems analysis for COIN planning: because systems analysis is such a neat and simple method of organizing apparently insoluble problems, it carries with it the temptation to bypass messy but vital aspects of the problem areas which it cannot handle. The dangers of systems analysis are perhaps greatest when presentations are made to administrators who are susceptible to seduction by quasi-rigorous analyses and who are too often uncritical of underlying assumptions.

IN CONCLUSION, I have argued that Martino's proposed use of systems analysis for guiding

COIN efforts in such places as his hypothetical East Emergia does not show promise when related to concrete data from a real situation that must have loomed large in Martino's analysis. I have tried to show that the failure of his analysis lies in the inappropriate use of the systems analysis technique, which cannot handle the kinds of variables that must be

taken into account in planning COIN programs. Finally, I argue that the use of systems analysis carries with it real dangers unless those who use its results are well aware of its limitations.

6570th Aerospace Medical Research  
Laboratories (AFSC)

#### Notes

1. Joseph P. Martino, "Systems Analysis and Counterinsurgency," *Air University Review*, XVII, 6 (September-October 1966), 23-33.

2. E. S. Quade (ed.), *Analysis for Military Decisions* (Santa Monica, California: The RAND Corporation, 1964).

### Major Martino replies

Professor Saund's major points seem to be as follows:

1) Systems analysis forces one to make assumptions *a priori* about the problem because otherwise one cannot perform the analysis. It is much better to study the real problem and find genuine solutions which are culturally acceptable.

2) The problems of COIN are too complex and unquantifiable for systems analysis.

3) Systems analysis is dangerous because it can make a convincing case for an erroneous answer.

#### My comments:

1) This assertion, I believe, arises from an incomplete understanding of what systems analysis is. It is simply not so that systems analysis starts with a set of assumptions about the problem and grinds out answers which may have no relation to reality. A proper systems analysis will include alternative cycles of studying a problem in its real setting, then modeling the problem, making assumptions where necessary. It is essential that the model

be tested against reality during this repetitive process. It was impossible to demonstrate this cycle at work in my article, both because of length limitations and because the article was tutorial in nature, rather than an actual case study. Thus my choice of fertilizer as a solution was not forced by some inner necessity of systems analysis but by the fact that I wanted to illustrate how to make a trade-off between two approaches and had to choose something as a concrete example. In a real situation, many approaches would be analyzed, to assure that they were in fact genuine solutions and to see which of the genuine solutions had minimum cost. Cultural acceptability is merely one of the many criteria against which a proposed solution must be tested, as part of the analysis.

2) I agree they are complex. So are most problems. This is not a justification for failing to quantify those things which are quantifiable. Hitch, in Quade, p. 329 (Saund's note 2), discusses this point in more detail. One of the major purposes of my article was to indicate that many more aspects of COIN are quan-

tifiable than one at first might suppose. By appropriate sampling techniques, it is possible to estimate the impact on insurgent recruiting rates of such things as income, income change, etc. Since these things can be quantified, they should be. Otherwise it is impossible to tell how our limited resources can be applied most effectively. If increased income turns out to have only a minor effect as compared with something else, effort spent on increasing income would be wasted.

3) I feel this argument is not valid. Almost any method can be used, consciously or unconsciously, to support an erroneous case. One of the virtues of systems analysis is that the case it makes is explicit and open to examination by others. Witness, for instance,

that Professor Saund was able to isolate in my example the critical point about whether fertilizer was in fact the bottleneck limiting rice production. Had some less explicit argument been used for (or against) fertilizer, or water, or whatever was proposed as the solution, it would have been very difficult, if not impossible, to determine whether a changed assumption would force a change in the final solution.

I do not believe Professor Saund has made a case against systems analysis in COIN applications. He has made a case against bad systems analysis. I agree with him in this, not only for COIN but for all other applications.

JOSEPH P. MARTINO  
MAJOR, USAF

# Military Affairs Abroad



## CIVIC ACTION OF THE ARGENTINE ARMED FORCES

MAJOR HORACIO A. RATTI, ARGENTINE AIR FORCE

**I**N countries that have relatively little influence on world affairs in comparison with the larger countries of the world, one of the subjects which creates much disagreement concerns the necessity for and strength of their armed forces. The subject is more controversial in light of the fact that many of these countries have had no armed conflict for many years and do not have any foreseeable problem of this kind which they would be capable of resolving by means of force. Undoubtedly, from the first point of view, to maintain armed forces in time of peace is a very expensive burden to any country, and it is more critical in those countries that have economic and other urgent problems.

Armed forces, in order to be worthy of the name, must keep up to date from the technical and operational point of view, and this at present is very expensive. The purely military action of the armed forces in peacetime does not appear to provide immediate concrete results. Unfortunately this seeming failure does provide ground for the ideologies that would be pleased with the extinction or debilitation of these forces. Lately, in many

election campaigns the vogue in political slogans has been to promise more schools instead of barracks, in disregard of the fact that each barracks, besides its role of arms in defense of the country, is actually a school where useful skills are taught and illiteracy is attacked.

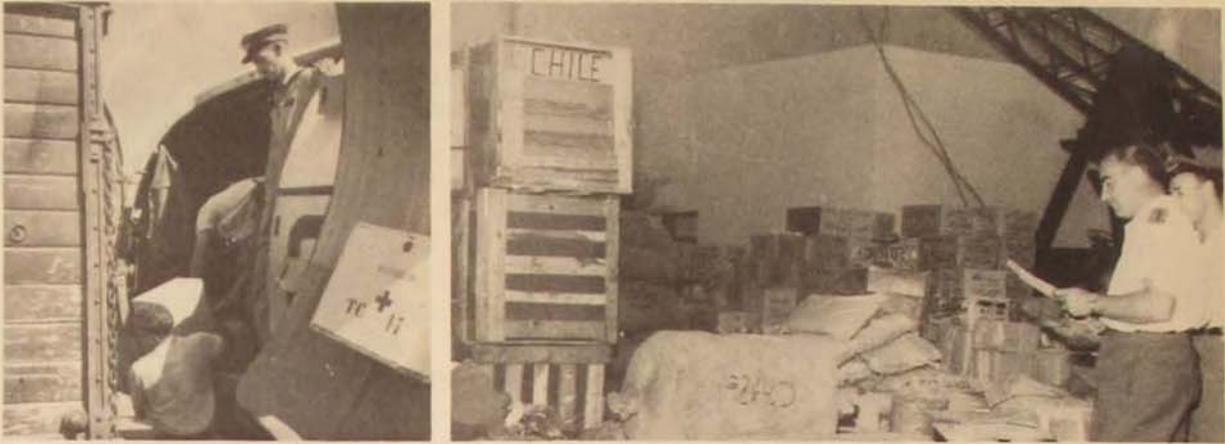
Many theories exist concerning this problem, and there are many different projects that could be argued as providing adequate solutions. What one cannot argue is the necessity of the existence of armed forces in countries which suffer social and political changes as a result of normal evolution and in which the armed forces act as a factor of order and moderation.

Although the principal purpose of this article is not to judge the necessity of the armed forces or the strength they must attain in countries which have not yet arrived at a high level of development, I want to point out that I consider their existence well justified, when employed in defense of the freedom and sovereignty of these countries.

But parallel to the specific military aspect exists another one of active contribution that the armed forces put into practice every day.

*(Continued on page 58)*

*Civic action of the Argentine Armed Forces extends from semitropical north . . .*





*. . . to the antarctic region at the southernmost boundaries of the Republic.*

Through lack of communication and the austere procedures of military men, this aspect has not had the general recognition it should have. I am referring to the civic action of the armed forces, which encompasses many different tasks, all of them directed toward improving community life by means of concrete and immediate objectives. It is well known that to keep the armed forces at a high level of operational readiness requires technical and operational capabilities, as well as considerable human effort. If these capabilities and efforts can give, at the same time, immediate results in benefit to the community, it is possible to obtain a working combination in this aspect. Men and machines fulfilling their specific tasks of military training in peacetime also give back active benefits to the people. In the Argentine Republic this double application of the armed forces has been accomplished for many years. The large expanse of Argentina's territory and the limitation of some of its resources have resulted in some regions' not keeping pace with the rhythm of development of the principal zones. At the same time that one finds modern urban centers such as Buenos Aires and well-developed provinces like Córdoba, he can find territories such as the Patagonia where there is a lack of an appropriate infrastructure, communications, schools, power plants, bridges, and other basic works.

Because of their special nature, the armed forces are in a good position to aid in fulfilling many of these needed tasks without undue expense. Their organization and adaptability and their noncommercial aims have enabled the armed forces to accomplish many varied objectives of national interest throughout the spectrum of common welfare. Among these accomplishments have been the establishment of new air routes to distant regions which initially are not economically feasible for private airlines; the supplying of manual labor for harvesting crops; the construction of bridges, roads, and telephone lines; free medical assistance to indigent people; launching of rockets for scientific studies; free teaching of young people on technical subjects; technical and scientific research at a high level; and primary

instruction of the illiterate portion of the population. All these tasks and many others are well planned in order to obtain the best possible results. At the same time care is taken neither to interfere with other commercial interests nor to limit the initiative of other private sectors when those sectors are capable of accomplishing these tasks. That is, the civic action of the armed forces is executed to fill a vacuum in designated aspects of the national structure—a vacuum caused by insufficiency or nonexistence of other public or private organizations.

A few examples will give an idea of the magnitude and importance of these works and their effect, direct and indirect, on the civilian community.

*General.* The various units and organizations of the armed forces in Argentina have as their standing duties:

- a. To provide elementary instruction to illiterate soldiers during the period of their compulsory military service.
- b. To provide medical and dental care to the civilian population residing near military installations.
- c. To teach manual skills to the soldiers during their period of active duty.
- d. To provide transportation by air or surface to people with serious health conditions, such as mercy missions, emergency evacuations following disasters, etc.
- e. To support public or community libraries (the Air Force counts on 1,500,000 volumes for this purpose).
- f. To provide voluntary supplementary aid to public schools. (Almost every military unit sponsors a primary school and furnishes various types of assistance.)
- g. To contribute materials and surplus equipment to technical schools.
- h. To award incentive prizes to outstanding students of primary and secondary schools.
- i. To provide free transportation by air or surface for students of primary and secondary schools, to visit historical sites and other places of general interest.

*Space research.* The National Committee of Space Research (CNIE), the Institute of Aeronautical and Space Research, and the

General Supplying Agency of Aeronautics (CMGA) are organizations where civil and military people work together in this new area. In the international field, these agencies have relations with the Committee on Space Research (COSPAR) of the International Council of Scientific Unions, with the International Academy of Aeronautics (IAF), and with the Inter-American Committee on Space Research (CIEE). Since 1962 Argentina has taken part in an international plan of meteorological investigation. In collaboration with the United States, France, Japan, India, Pakistan, and Australia, several rockets were launched with complete success. Many of these rockets were made in Argentina by the National Agency of Aeronautical Research and Manufacture (DENFLA), which is a civilian/military institution.

*Industries.* DENFLA participates in a wide range of scientific and technological activities. Military and civilian personnel form a compact team and consequently accomplish their tasks with great success. This agency contributes not only to the development of the aeronautical industry itself but also to other activities of great utility to the country. It has built motorcycles, cars, rockets, tools, and many other products of national design.

*State Airline.* In order to take progress to very distant areas of the national territory and assist the development of important centers in the interior, the Secretary of Aeronautics created in 1940 a special promotional airline, designated State Airline (LADE). Its principal mission is the opening of airways to those places not attractive for private air transport. The planes, personnel, and maintenance are supplied by transport units of the Air Force.

From 1940 until 1964 LADE accomplished 12,768 flights, flew 72,193 hours and over 11,538,125 miles, and transported 315,141 passengers, 703,965 pounds of cargo, and 191,190 pounds of mail. The moment these air routes become feasible and attractive to civilian airlines, they are readily turned over to private enterprise.

*Education.* Each one of the big bases and agencies of the Air Force runs a school where youths from 12 to 17 years of age are taught

technical subjects. In addition, they are given general instruction in the basic sciences and the humanities. Not only are these schools free but the students get an allowance for transportation, books, etc. When they finish the courses, many of them enter the Air Force as technicians, and others go to work in private factories. These schools are a very convenient solution for young people who have neither the capacity nor enough resources to follow other careers.

*Passive Air Defense (DAP).* A passive air defense organization exists in several countries; in the Argentine Republic it is a branch of the Air Defense Command. Although many civilian volunteers are involved in performing the numerous tasks related to the passive defense of the population, the structure of the organization is formed by military men in active service or who have retired. In spite of the fact that this agency has been created to serve during wartime, it fulfills many duties during peacetime. Its activities take place all over the country, contributing with labor, means, and resources in order to prevent, reduce, or repair the effects of floods, earthquakes, or other phenomena. It collaborates with other Latin American countries in problems of similar nature.

*Air traffic control.* Near Buenos Aires there is an early-warning and control operation center which centralizes information from several radar stations. This system was installed to provide air defense control to the city and is operated and maintained by the Air Defense Command. Although its primary mission is military air defense, the system also has the capability of providing general air traffic control for the capital city. This results in the dual benefits of creating close and positive collaboration with civilian aviation organizations and, at the same time, of keeping military personnel trained in air defense tasks.

*Construction.* The specialized units of the Army have done many different kinds of jobs in recent years:

a. Collaboration in the construction of several polyclinics, small power plants, irrigation works, etc., saving the nation an amount

equivalent to \$2,500,000 in U.S. money.

b. Installation of approximately 2000 miles of telephone lines.

c. Construction of approximately 250 miles of roads.

d. Construction of 50 bridges.

VIEWING these facts and figures, one can appreciate, in general, the magnitude of the benefits that the civic action of the armed forces has produced in the last few years by means of accomplishments of national interest. To these accomplishments can be added another one which cannot be evaluated in figures but which has a very real and positive subjective value, nonetheless. I am referring to the understanding and mutual help derived from the contact between people in general and members of the armed forces. This understanding by the public is perhaps the most valuable and appreciated outcome of the armed forces' civic action, in that it helps to offset or diminish those negative effects created by such factions as antimilitary and other reactionary groups.

Being a part of the Army, Navy, or Air

Force grants one the immense and unique privilege and honor that a man feels when he is serving institutions of such great merit and historical significance: the privilege of participating in daily sacrifice for one's country, in the widest sense of the word. This privilege and the recognition of their countrymen constitute the austere prize which military men desire for their own.

Our armed forces are not, nor do they see themselves as, forces of privilege. Ever since the wars of independence, they have been marking their path with concrete works for the common welfare. Members of the armed forces come from all levels of our society, and this gives them a special and natural sensibility towards the problems of the people. In a simple and silent manner they fulfill greatly diversified tasks with sacrifice and with love and devotion for their fellow men.

This special character of the men of the armed forces has made possible the success of their civic action, so that many benefits have accrued to the nation.

*Buenos Aires, Argentina*

# THE SOVIET DRIVE FOR STRATEGIC SUPERIORITY

HARRIET FAST SCOTT

**I**N THE FALL of 1967 the United States Secretary of Defense informed the public of Soviet fractional orbiting bombardment systems (FOBS). The very few Americans who had read the 1967 edition of *Soviet Rocket Troops* were not surprised.\* According to this book, Soviet military leaders had already advised their public:

. . . into the armaments of the troops constantly come new kinds of weapons and combat equipment, among which are orbiting rockets, small caliber solid-fueled intercontinental rockets on self-propelled launchers, and also fully automatic complexes of strategic rockets, characterized by exceptionally high reliability and combat readiness. (p. 5, 1967 ed.)

While military and civilian leaders in the United States were seeking a letup in the nuclear arms race, the Soviets were stating:

A remarkable novelty is the solid-fueled rocket of intercontinental and medium range on self-propelled launchers. Not one army in the world has a similar effective weapon. Such strategic rockets constantly change their position and cannot be reconnoissanced and destroyed by the enemy. . . .

Our stationary launch installations also have remarkable qualities. They are carefully camouflaged from air and space reconnoissance and are reliably protected from nuclear strikes. . . . Especially indicative of the might of our rocket troops is the fact that they can launch from underground, not one rocket, but can give a rocket salvo. (p. 100, 1967 ed.)

For those interested in antiballistic missile

\*P. T. Astashenkov, Soviet Engineer Colonel, *Soviet Rocket Troops*, ed. General Colonel V. F. Tolubko (Moscow: Military Publishing House; first edition, 1964, 234 pages, price 37 kopeks, initial printing 30,000 copies; second edition, 1967, 344 pages, price 67 kopeks [about 75 cents], initial printing 11,000 copies).

Colonel Astashenkov is the editor of the Soviet aerospace magazine *Aviation and Cosmonautics*. General Colonel Tolubko is First Deputy Commander in Chief, Strategic Rocket Troops. In January 1966 there was considerable speculation in the United States concerning the purpose of Tolubko's visit to North Vietnam.

systems, this official publication of the Soviet Military Publishing House informs that

One of our antirocket complexes includes long-range pilotless interceptors. During practice shots, with the help of such antirockets, the warheads of ballistic rockets were accurately intercepted while flying at cosmic speed. Still more effective are other Soviet antirockets. They can destroy warheads of ballistic rockets at enormous distances from protected objects. (p. 226, 1967 ed.)

It is seldom that one has an opportunity to compare two editions of a book on such a vital topic, with such an interesting period of history taking place between publication dates. For in 1964, when the first edition appeared in Moscow bookstores, Khrushchev was still in power. The second edition appeared after the regime of Brezhnev was well under way and after new guidelines had been established at the meeting of the XXIII Congress of the Communist Party of the Soviet Union in April 1966.

What are the significant changes that have taken place in the Soviet Armed Forces between 1964 and 1967, as reflected by these two editions of *Soviet Rocket Troops*?<sup>2</sup> The 1964 edition had asserted:

Speaking in 1960 at the Fourth Session of the Supreme Soviet of the USSR, N. S. Khrushchev has stressed that in contemporary conditions war will little resemble previous wars. Now war will begin differently, if it begins, and unfold differently. In conditions when states have means of delivering nuclear weapons over thousands of kilometers, war will begin first of all in the depths of the belligerent countries. In this, there will not be one capital, not one major industrial or administrative center, not one strategic region, which will not undergo strikes not only in the first days, but even in the first minutes of the war. (p. 191)

This same paragraph was in the 1967 edition, with but one change in the first part of the first sentence:

Our press has stressed that in contemporary conditions war will little resemble previous wars. (p. 278)

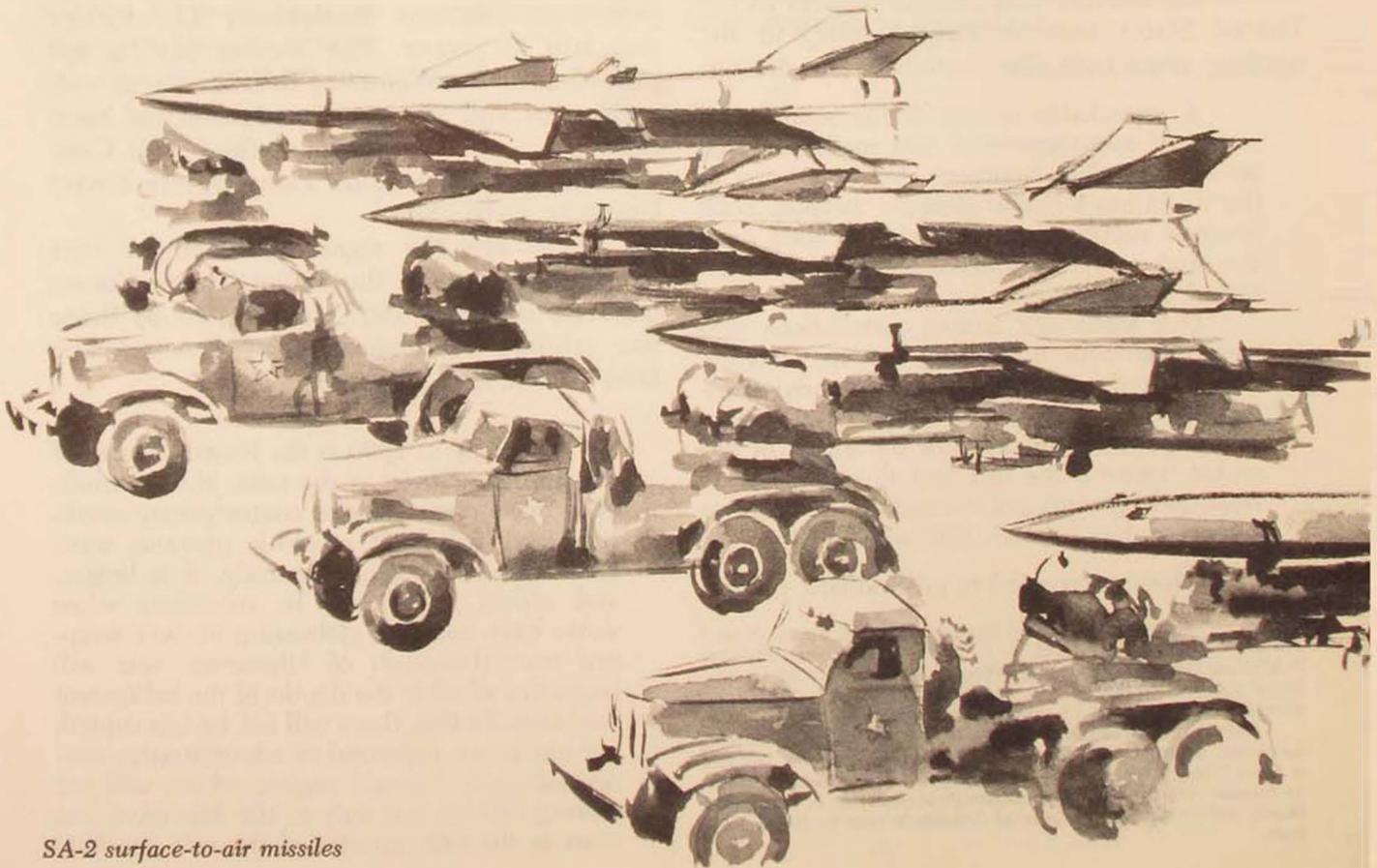
The Soviets have reason to be so sensitive to Mao Tse-tung's accusations that Brezhnev and Kosygin are, in fact, following a policy which can best be described as "Khrushchevism without Khrushchev." No basic change in doctrine and strategy is reflected in the two editions of *Soviet Rocket Troops*. The statement is made in the first edition:

Under the leadership of the Communist Party, a genuine technical revolution has taken place in the Soviet Armed Forces. (p. 2, publisher's note)

The second edition continues the explanation of this revolution and its impact upon the posture of the Soviet Armed Forces.

The major organizational change in the United States armed forces after World War II was the establishment of a separate Air Force. The Soviet Union, however, has formed five services: Strategic Rocket Troops, Aerospace Defense Troops, Ground Forces, Air Forces, and Naval Forces. Each of these five services (Vidi) has its own commander in chief. The Strategic Rocket Troops, created in 1960, always is referred to as the "main service," and its commander in chief, Marshal of the Soviet Union Krylov, takes precedence over the other commanders. The next service, Aerospace Defense Troops (PVO), provides protection against manned aircraft and missile and space attacks. The antimissile component (PRO) is referred to as the most important part of the Aerospace Defense Troops. The anti-space component (PKO) is mentioned with some frequency.

It sometimes is assumed that the Strategic Rocket Troops is the only Soviet service con-



SA-2 surface-to-air missiles

cerned with rockets. In fact, however, the "revolution in military affairs" has resulted in the other four services being reorganized to give a central place to their own rocket capabilities. For example, the defense against manned aircraft in the Aerospace Defense Troops is based primarily upon the famed SA-2 surface-to-air missile, which is now well known in the United States as a result of its being supplied to North Vietnam. (In the Soviet Union the SA-2 likely would carry a nuclear warhead.) The antimissile and anti-space components of the Aerospace Defense Troops also are armed with nuclear missiles.

The Soviet Ground Forces have a Rocket Troops and Artillery Branch which provides their tactical nuclear missiles. The tactics of the Soviet infantry and tank units are based primarily on tactical nuclear weapons, which would be fired by the Rocket Troops and Artillery Branch. (p. 180, 1967 ed.) The rockets, many of which are mounted on self-propelled carriers, would not be effective weapons when using only conventional explosives.

The Soviet Air Forces also utilize rockets. Aircraft of long-range aviation would launch air-to-ground rockets well outside the opponent's air defense network. Air-to-air combat is fought with air-to-air rockets, armed with conventional warheads in North Vietnam but probably nuclear-armed over the Soviet Union.

The submarine, carrying nuclear-armed missiles, is the main strike force of the Soviet Navy. Surface ships also are armed with nuclear missiles.

This technical revolution is one major aspect of the Soviet revolution in military affairs. There are three stages to the revolution: the first was the development of the nuclear weapon; the second, the combining of the weapon with the missile; and the third stage, which still continues, is the use of cybernetics in command and control, both of

weapons and of personnel.

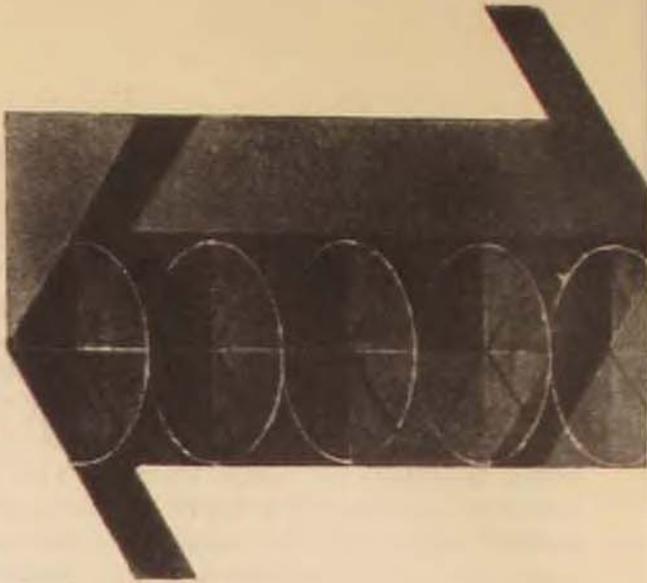
Both editions of *Soviet Rocket Troops* carry identical paragraphs on the Soviet concept of a future war if nuclear powers are involved:

With the nuclear rocket weapon present, the content and order of direct preparation of the armed forces for war has changed. The great range of action of strategic rockets excludes the necessity of moving them to the border, and permits carrying out strikes from the place of their permanent basing. This raises the danger of the surprise unleashing of war by the aggressor in contemporary circumstances and dictates the necessity to maintain constant readiness to frustrate and repulse a surprise attack by the enemy. . . .

The presence of rockets influences the cooperation of various services of the armed forces. It is well known that the firing means of ground forces in the past had a range of 20 kilometers into the depth of the enemy location. From this it is clear what sort of fire support, for example, they might give to fleet operation. Now it is a different matter—the ground troops and fleet can mutually support each other "with rocket fire" at a distance which is very significant and incomparable with anything in the past. (p. 192, 1964 ed.; p. 279, 1967 ed.)

This book should be studied carefully by those who make or influence foreign and military policy in the United States. Our military leadership now is going to those officers who have had recent experience in Southeast Asia. Concerned with a technologically inferior opponent, these officers may fail to see the significance of the Soviet drive for strategic superiority in all aspects of warfare, with emphasis on nuclear weaponry and missiles. If strategic superiority does pass to the Soviet Union, or if even parity is reached, dare the United States risk a limited war on the Asian mainland, or elsewhere?

McLean, Virginia



# Air Force Review

## INTERACTIONS BETWEEN THE AIR FORCE RESEARCH COMMUNITY AND TECHNOLOGICAL AGENCIES

MAJOR GEORGE F. HEINRICH

IT IS well accepted that our future military security depends to a large extent on the continued rapid advancement of our technology. It is generally recognized that the advancement of technology is strongly related to the quality and relevance of the basic and applied research being performed. So it would seem appropriate to examine the problems involved in the interactions between the research community and the technological agencies<sup>o</sup> and to describe the programs designed to promote effective interactions.

First I shall describe three simple models of the interaction between science and technology and discuss problems inhibiting effective interactions. Then I shall describe the Air Force, Atomic Energy Commission, and Na-

<sup>o</sup>The research community includes the scientists engaged in basic and applied research; the technological community includes those engaged in exploratory and advanced development. Within the framework of the Air Force, basic research responsibility is assigned to the Office of Aerospace Research; technological development responsibility is assigned to the Air Force Systems Command. It should be recognized that the distinction between commands is not an abrupt interface: AFSC laboratories do perform research in addition to their exploratory development work, and OAR laboratories do perform some exploratory development work in addition to their research.

For the purpose of this article, "research" is understood to include both basic and applied research. To appreciate the confusion concerning the distinction between basic and applied research, see M. D. Reagan, "Basic and Applied Research: A Meaningful Distinction?" *Science*, Vol. 155 (1967), p. 1383.

tional Aeronautics and Space Administration programs designed to relieve these interaction problems. The Air Force programs are used by various components of the Air Force agency charged with performing research, the Office of Aerospace Research (OAR); the NASA programs have been developed by the NASA Office of Technology Utilization. Finally, I shall describe a program developed by an individual component of OAR, the Office of Research Analyses (ORA), and analyze it in terms of the shortcomings brought out by the discussion of the simple models.

### *interaction models and problems*

Simple models have been used in many disciplines to gain understanding of complex phenomena. For example, the field of economics has made extensive use of models, and this may explain, in part, the advancements in understanding and the resultant better ability to control economic processes. It must be recognized that there are drawbacks to using simple models, as they can never completely describe or explain complex processes or interactions. However, models can be used to gain understanding of the dominant characteristics of a complex process, which is an important

first step in the understanding of any complex phenomenon.

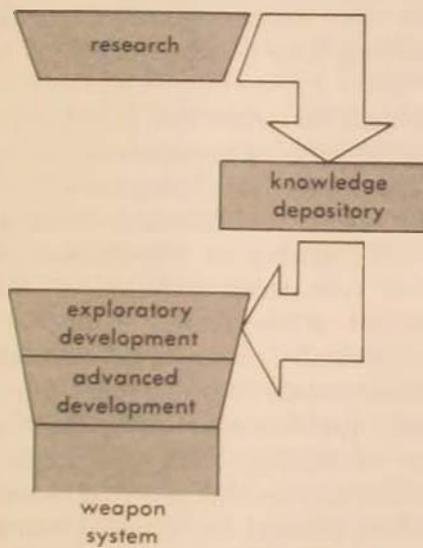
Let us consider three models of the interactions between research and technology, all shown in Figure 1. When these models are analyzed in light of current events, many problems inhibiting smooth and effective interactions between the research community and technology centers become evident.

Model A assumes that the results of research flow into a knowledge depository. The knowledge depository consists of books, journal articles, and technical reports. This depository is available for use by the technologists when they run into problems with

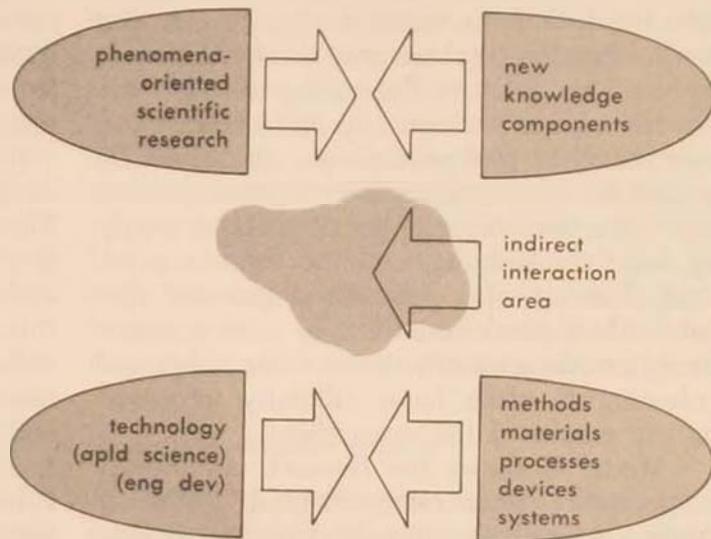
their current technology or in their attempts to improve their technology.

Model B, which is similar to Model A, is the more nearly correct model and shows that research feeds a pool of knowledge which is drawn on by groups or agencies performing exploratory development, advanced development, and systems engineering. Furthermore, Model B recognizes that additional knowledge is added to the pool or reservoir of knowledge at each of the stages (i.e., exploratory development, advanced development, and systems engineering) and that the research community draws on this pool of knowledge as well as the technological agencies. This model was

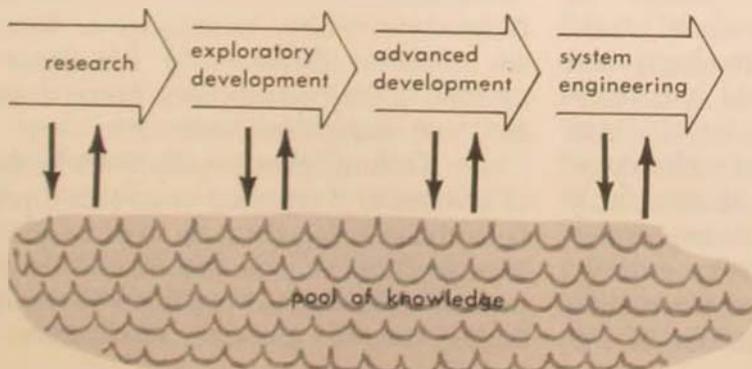
Figure 1. Interaction models between the research community and the technological agencies



Model A - simple depository model



Model C - interaction model for research and development



Model B - complex depository model

originated by Shapero.<sup>1</sup> It has received additional support from the recent report of the Materials Advisory Board.<sup>2</sup>

Analysis of Models A and B, in light of the increase in money, people, and agencies engaged in research and development, reveals that there are many problems associated with an effective working of the interaction process. These problems include:

(a) The explosion in the number of journals, reports, and books. For example, the United States currently accumulates more than 100,000 government reports each year, plus 450,000 articles and countless books and papers.<sup>3</sup> Technical people are overwhelmed by the number of publications and can hardly hope to stay abreast of all research advances in their field.

(b) The delay in the publishing of new research results. The interval between significant theoretical or experimental results and the publication of these results often exceeds a year. This delay is due to the time it takes the researcher to write up his results in a form suitable for publication, the time required for the judging or refereeing of a paper, the time to make the corrections resulting from the judging, and the time to print.

(c) The use of a different jargon and special mathematical formulism by each research discipline. As a result, systems engineers and technologists often have difficulty interpreting the results of the researchers.

Model C shows the research community as primarily phenomena-oriented. In other words, research is aimed at better understanding basic phenomena and developing models and theorems that describe these phenomena. As shown by the model, research has little direct interaction with technology. As stated by the originator of this model, technology usually feeds upon technology, and phenomena-oriented science feeds upon phenomena-oriented science.<sup>4</sup> There are indirect interactions between research and technology; advances in one area will almost invariably be transferred to the other area through processes that resemble symbiosis. The main problems imposed by the lack of direct interaction concern timeliness, lack of recognition of sig-

nificant research, and the relevance of research to furnishing military technologists with solutions to important problems.

An examination of Model C in light of the increase in R&D effort reveals that the same problems for effective coordination exist that were previously described for Models A and B. These problems are proliferation of publications, delay in publishing of results, and jargon or formulism used by a particular discipline or phenomena-oriented group. In addition to these problems, new problem areas exist:

(a) Certain aspects of a particular phenomenon are often understood only by the researchers examining the phenomenon; the researchers gained this understanding through the media of personal communication, unpublished reports, or unpublished talks before learned societies. This type of communication network within the research community virtually excludes the technological agencies from understanding important aspects of a phenomenon.

(b) The problem of when to inform the technological agencies of a research advance. The research community does bring new work to the attention of the technological community. However, the timing or significance of this disclosure of new work is based on the value judgment of a researcher. Since researchers are primarily phenomena-oriented and not systems-oriented, there is some question as to their qualifications to make the value judgment of timing, since the importance of the advance or discovery depends upon its impact on present or future systems.

(c) In a manner similar to (b), technologists often come up with new instrumentation or techniques that would be of assistance to researchers. These techniques or instruments are often available for a significant period of time before researchers become aware of and start using these new tools.

(d) Technologists usually work in the world of systems and complex interrelated processes. It is difficult for them to express their problems in terms of phenomena and therefore to express technological problems in terms meaningful to the research community. Better

problem definition by the technologist, in terms meaningful to researchers, could assist the research community in its search for more relevant research projects.

*attempts to solve the interaction problem*

All these problems have been recognized, and some steps have been taken to alleviate them. Considering non-Air Force agencies first, National Aeronautics and Space Administration and the Atomic Energy Commission both have active programs designed to facilitate and encourage the applications of their research by other organizations, both government and private industry. Both the AEC and NASA have information retrieval programs similar to the DOD program (the Defense Documentation Center system) that are aimed at alleviating the problem of the publication explosion. Both NASA and the AEC have "coupling" offices established at their research centers. These coupling or application offices were established to serve as a bridge between the centers and industry. There are also other AEC and NASA programs that involve the use of symposiums, topical or state-of-the-art reports, consultation services, and advisory boards; all these programs play a part in accomplishing effective interactions.

Several actions have been taken by the research agency of the Air Force, the Office of Aerospace Research, to alleviate the interaction problem between the research community and the technological agencies. Like AEC and NASA, OAR has established research application offices at the laboratory level. These application offices are staffed by experienced field-grade R&D officers, who have the responsibility of determining potential users of OAR research in the various Air Force development and technological centers. As a collateral action, OAR encourages its scientists to spend an appreciable part of their time coordinating or consulting with other agencies, primarily Air Force Systems Command units.<sup>2</sup>

One of the elements of OAR, the Air Force Office of Scientific Research (AFOSR), has initiated a "colonizing" effort, which consists of

organizing annual symposiums of researchers concerned with the examination of a particular phenomenon.<sup>3</sup> Since these symposiums allow the technologists to update themselves in one phenomenon area in the period of a few days, this colonizing effort promises to be very fruitful in terms of interactions between the research community and the technological agencies, in addition to furthering an effective and high-quality research program.

Another program, with the aim of stimulating effective interaction between the research community and the technological agencies, is the research analysis program of the Office of Research Analyses. The research analysis program includes two types of studies: research-application studies, concerning determination of the cost-effective use of a recent research advance in a future weapon system; and technological-barrier studies, to indicate what advances are required in order to make future aerospace systems more cost-effective. Thus, research analysis is defined as the determination of cost-effective applications of the results of accomplished or ongoing research and the identification of promising opportunities for mission-relevant research. Let us now consider the methodologies of both research-application and technological-barrier studies and how these studies address the problems of effective interactions.

*research-application studies*

Research-application studies have their origin with an advance in a particular research area. The first step in a research-application study, as shown in Figure 2, is to employ the results of this advance in a component of a conceptual system necessary to perform a continuing or future Air Force requirement. The conceptual system is then compared with alternative (existing or proposed) ways that have performed or could perform the same function. An engineering analysis is performed to determine the effectiveness parameters. Specific missions are proposed, and the comparative systems are analyzed in terms of their effectiveness. Finally, the systems are priced and compared with the previous results to

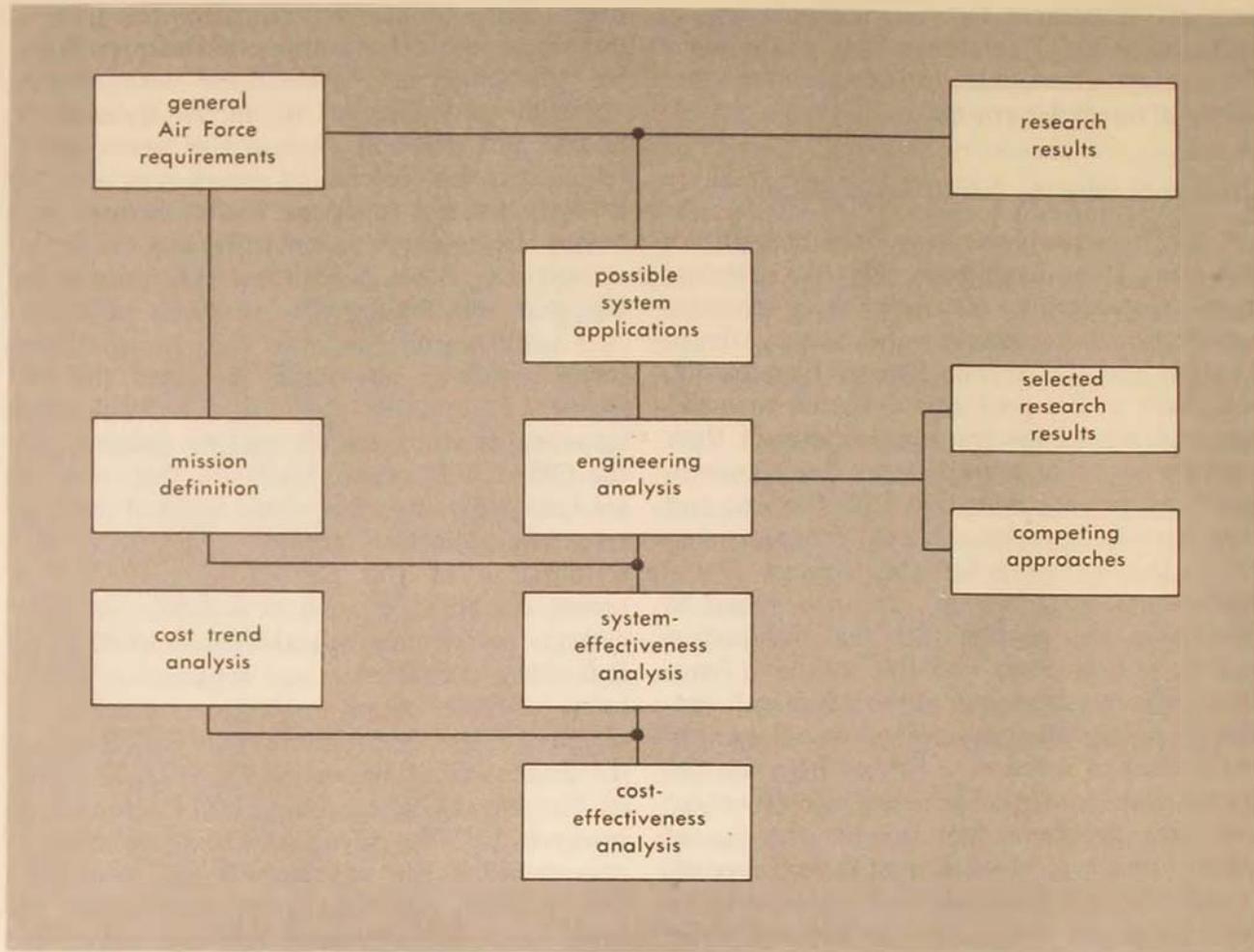


Figure 2. Research-application study methodology

determine their cost effectiveness.

In application studies, the analyst works with the researcher in order to conceptualize a component or subsystem, using as a basis the phenomena under investigation by the researcher. Next, the analyst turns to the technologist to determine the effectiveness parameters relevant to the component or subsystem and also to determine comparative devices to evaluate with the conceptual subsystem in question. The analyst then works with planning agencies to determine future missions for the conceptual and comparative devices. The devices are then evaluated in terms of the mission requirements and cost in terms of the effectiveness parameters.

Research-application studies cut through most of the interaction problems. With the analyst and basic researcher working closely together during the conceptual design phase, the current and most relevant research data are brought out, and the time lag and publication explosion problems are not so severe. Through coordination between analyst and technologist, effectiveness parameters are selected which the engineers and applied scientists are familiar with and can easily evaluate. This eliminates the problem of jargon and terminology. In addition, the technical managers are given some insight to the cost effectiveness of the various devices and thus are better able to structure their exploratory develop-

ment programs with due consideration to the relevance and importance of a new research finding.

#### *technological-barrier studies*

Technological-barrier studies normally start with a sensitivity analysis of the effects of variations of subsystem characteristics on the overall system performance. In a sensitivity analysis, reasonable increases in performance are postulated for the various subsystems. If the total system performance demonstrates a relatively large change with a change in a particular subsystem performance, a technological barrier is indicated.

Technological-barrier studies indicate where advances are needed to make future systems more cost-effective. However, the barriers must be interpreted in terms of research opportunities for the research community. The translation of technological barriers into research opportunities follows no set pattern. One approach is to break down into components the subsystem that affects the overall system performance the greatest. Through coordination with AFSC and OAR laboratories, the performance-limiting subsystem components are determined. Research necessary to im-

prove the components' performance or to develop new, superior components is then considered to be the key to improved capability.

The primary utility of barrier studies is to focus attention on critical areas of research. These types of studies identify critical areas for technologists, who then encourage direct contacts between technological and research groups. These direct contacts help alleviate the publication and communication problems. Also, highlighted problem areas give insight to research managers as to how to structure or reorient their research programs.

IT IS OBVIOUS that there are many problems concerning effective interaction between the research community, which is primarily phenomena-oriented, and the technological agencies. These problems have been recognized, and progress is being made to alleviate them. One approach is the research analysis program of the Office of Research Analyses, which should help alleviate some of the difficulties in effective interaction between the research community and the technological agencies.

*Office of Research Analyses*

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5. *The Office of Aerospace Research Scientific and Tech-*

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#### Acknowledgment

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## In My Opinion

### "WHAT DID HE SAY?"

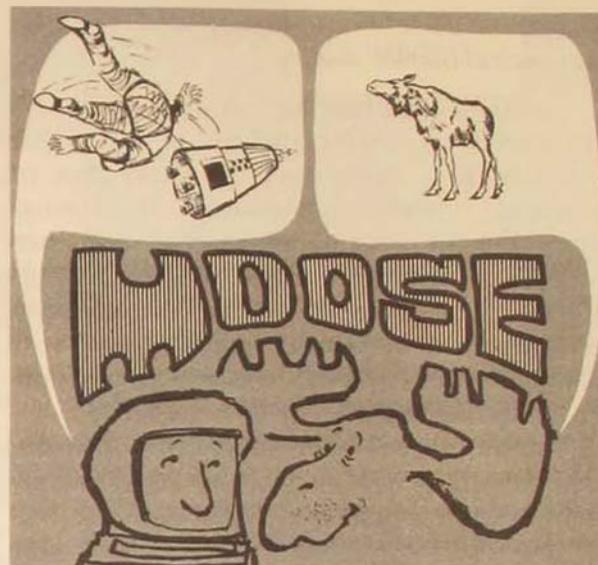
MAJOR GENERAL THOMAS G. CORBIN

SIR HARRY LAUDER once said the ability to hold an audience must be a gift, or no Scotsman would ever possess it.

This treatise holds out no promise of such a prize, though it does hope to illuminate certain pitfalls that must be circumvented to preclude losing an audience. Neither is this a pedantic diatribe against present military methods of communicating. Rather, it is a small cry, from a growing wilderness of misunderstanding and misinterpretation, protesting a practice both insidious and deceptive.

The proliferation of acronyms, abbreviations, and initials in the propagation of military information has risen to mind-boggling proportions. The transfer of information is now made over a communications bridge whose foundations rest not on a bedrock of knowledge but upon a precipitous alphabetic conglomerate. The seriousness of this problem is not fully appreciated. Indeed, the official Air Force guide for making oral presentations (Air Force Pamphlet 178-1-1) considers it worthy of only a cursory examination.

There has probably never been such fertile creation and widespread use of these



fuzzy ghosts of words as at present. Cryptic designations, contorted abbreviations, and eclectic initials have permeated the language of government, research, and business since the beginning of World War II, largely as a by-product of the information explosion in science and technology.

The most insidious of these forms is the acronym. An acronym (from ACRO—meaning extreme, plus NYM—meaning name) is a word (or nonword, but pronounceable) made up of initials or syllables from a group of words (MOOSE—from Man-Out-Of-Space-Easiest, an emergency space escape system) or of the first and last syllables of a group of words (MOTEL—from MOrtor and hoTEL). Many have become widely known and accepted as words in their own right and are common coin of the realm (RADAR—from RAdio Detecting And Ranging).

The United States has not been alone in this convolution of language. Look to the early twenties and we find the Soviets running amuck with such tongue twisters as AMTORG, GOSPLAN, and AGITPROP. If it seems we have been surpassed in this arena of non-

communication, worry no more, for we have closed the abcedarian gap. Consider: AFAUD—the readily recognizable Air Force AUDiter General, or AFJKT—known to all as the Air Force Job Knowledge Test, or the truly imposing DEFREPNAME—for DEFense REPresentative North Atlantic and Mediterranean Area.

There seems to have been little or no order in the creation of many such terms. Some of those in use today were obviously selected (after being squeezed, elongated, and diabolically tortured) for the resultant acronym (CARE—Cooperative for American Remittances to Europe, ACTION—American Council To Improve Our Neighborhoods). Some have a logical basis, and some do not. Some are borrowed words, some are nicknames; others are alphanumeric, and still others are a combination of these schemes.

The torrent of initials to designate governmental agencies and procedures has inundated us with alphabet soup: SAC, TAC, TAWC, TARC, MAC, OSD, AFPR, AFATL, APRFE, APGC—and on ad infinitum. The miscellany ranges from the sublime (HALO—High Altitude Low Opening) to the ludicrous (APC—All Purpose Capsule).

At times, these terse, descriptive, and (sometimes) easily remembered terms have without question become useful in the language as a means of referring to complex, multiworded concepts, projects, or hardware. (Confusing sometimes also. Remember the lieutenant who asked his crew chief why his aircraft was being sent overseas to IRAN—Inspection and Repair As Necessary.)

As each of our specialized disciplines grew in complexity, so too did the locutions necessary to describe them. As new heights were reached in reducing complicated data to more manageable units, understanding correspondingly reached new lows. What had begun as a shortcut to understanding has become a detour around comprehension.

Recently, at one of our Southern bases (best that it remain nameless), General ——— and a group of senior officers were scheduled to be briefed on the mission of a particular unit. Despite meticulous preparation, disaster struck. What went wrong? Shortly after be-

ginning his presentation, the briefing officer resorted to the use of acronyms and initials in explaining a point. Lapsing into parochial jargon appears to be in vogue these days. There are those who will accept it without question, either through stupor or as a display of supercilious sophistication. This day, General ——— was seeking specific detailed information. He questioned the briefer as to the exact meaning of an acronym he had used. The officer's answer was deemed in error and was immediately corrected by the operations officer of the unit, whereupon the unit commander further corrected both. This exchange brought forth the hasty departure of General ———. His parting shot to the unit commander still rings in the ears of those present: "Call me when you know what the hell you're talking about!"

An experience of this sort is reason enough to develop habits of semantic clarity, for clarity is the handmaiden of understanding. Remember, the use of a familiar word has a greater impact than a strange one. Anatole France, the Nobel Prize-winning novelist, said, "The finest words in the world are only vain sounds if they cannot be understood." Will Rogers also saw this. He said, "I love words but I don't like strange ones. You don't understand them and they don't understand you."

My objective is not to place a yoke on creative expression but to free it from the tethers of constrictive contractions. Let us not be drugged by this poison that is more dangerous than opium or hashish—a poison that stifles understanding and retards comprehension. We are becoming addicted to the unfettered use of acronyms, abbreviations, and initials, without explanation, in our communications.

With Air Force Manual 11-2 listing more than 2500 authorized abbreviations and acronyms (approximately the number of words in a first grader's speaking vocabulary) plus other thousands of parochial unauthorized ones, it seems time to call for a change. Let comprehension, not expediency, shape our course.

Far from calling for a departure from tradition, I suggest a return to the inspiring

example of past masters of language: Moses found it unnecessary to refer to the Ten Commandments as the "TENCOMS"; Lincoln completed his Gettysburg Address handily without resorting to acronyms; Hannibal explained his conception of the Battle of Cannae to his lieutenants without once referring to his foes as the ROAR (ROman ARmy).

I fear we are forgetting how to speak English. The time is fast approaching when meaningful communication will be difficult, if not impossible, unless measures are taken to restore clarity to our working vocabulary. Let us descend from our Tower of Babble and begin ASAP!

*Eglin Air Force Base, Florida*

## THE ROLE OF MILITARY RESERVISTS IN CIVIL DEFENSE

MAJOR DAVID A. SINGLETARY



AS PART of the military establishment and as community leaders and citizens, reservists have many opportunities to promote effective planning and mobilization for civil defense. My purpose here is to delineate, in rather broad terms, some of the areas where such activities are possible and feasible and to suggest avenues of future approach.

It is essential to view civil defense as an interrelated complex of nonmilitary as well as military functions necessary to prepare or mobilize the entire nation against possible war; to maintain the continuity of government functions and essential economic activities; and to facilitate the early resumption of peacetime pursuits. The term "nonmilitary defense" is often used to convey the broad range of civilian activities that must be joined with the military for preparedness, defense, and recovery. A paramount aspect of civil defense is the degree to which state and local governments as well as civilian leaders are needed to participate in systems and programs in order to make them work properly. It is not a purely military problem although the military establishment plays a vital role. Civil defense planning and the responsibility for implementing plans rest to a surprising degree on local leadership; and this fact is currently reflected in civil defense plans and organizational structure. If it is assumed that planning

functions which are now a part of the civil defense program will be implemented, then there will be created a critical requirement for correlative planning, and more intensive planning, at the state and local government levels. Many of our current problems in civil defense relate to the fact that serious planning and research in the whole field of non-military defense activities have only recently been initiated. There needs to be further research, in depth, on many aspects of these problems; long-range planning and research functions related to civil defense should be augmented far beyond their present capabilities.

#### *contributions of reservists*

There are several unique contributions the reservist can make toward effective planning and mobilization. He can act as a promoter and coordinator between the military and civilian considerations involved. This would be true in both the planning and mobilization phases. With regard to the military aspects of civil defense, reservists can act in their roles in various reserve military units to insure preparation of adequate plans for participation of the units in the civil defense programs. Selected military reservists may also be placed in positions of responsibility within the civil defense organizations. In this capacity they could serve as part-time staff personnel while at the same time pursuing their normal civilian business or profession. The advantages of using reservists to augment full-time staff would be fourfold:

1. Trained people could be procured quickly from the reserve rolls without extensive recruiting problems or assignment of military personnel who may be urgently needed for other duties.
2. Use of reservists would entail much less cost to the government. Indeed, in some instances individual reservists would be willing to volunteer their time as a public service.
3. Reserve assignments could be used as a means for acquiring expert consultant services in a relatively inexpensive and expeditious manner.

4. Reservists could be used as a pool from which to select qualified people for full-time civilian employment in staff positions under civil service. Similarly they could be used on a selective basis for recall to active duty in uniform.

In addition to the military role, there is a second and highly productive role that reservists can play in civil defense programs. That is, in regard to the purely civilian aspects of civil defense, reservists can, as civilian community leaders, act as promoters of the program and fill positions of leadership in state and local civil defense programs. The rest of this discussion will be directed at this particular role of the reservist, which is a most important one.

#### *the reservist as a civilian leader*

Leadership is extremely important because without extensive public support it will be impossible to achieve a desirable state of readiness. The formal organization for civil defense at the federal level is designed only to provide a framework within which the program can operate. A favorable expression of national interest is urgently needed. Until this interest is substantially heightened, there is little possibility that we can achieve a truly successful civil defense program even though substantial federal appropriations are provided. There is a critical need for civilian community leaders in thousands of cities across the country who are cognizant of the need for civil defense programs and who are willing to work toward that end. Reservists, because of their greater understanding of the implications of a thermonuclear war, are in a position to comprehend the nature of the problems involved much better than the average citizen. Also, many reservists occupy various positions of leadership in their respective communities in business, professions, and local government and are active in civic affairs. Such people are in a position to greatly influence the attitudes and actions of other citizens and strongly affect the degree of public acceptance of civil defense programs initiated at the federal level.

*the national plan*

The depth of the role of the reservist in civil defense is apparent when the provisions of the National Plan for Civil Defense Mobilization are reviewed. According to this plan, virtually all groups in the nation have civil defense responsibilities. Individuals are responsible for sheltering and sustaining themselves for at least two weeks and for contributing to the general recovery effort. State and local governments are responsible for their own survival, for giving civil defense direction, and for helping to sustain their populations. The federal government is responsible for direction and coordination of all civil defense efforts and for assistance in local problems as soon as possible. However, in most instances state and local organizations would be expected to carry on exclusively by their own devices for periods up to five weeks. This could be a most crucial period indeed and one in which reservists can and must provide active participation and leadership.

Executives and managers in industry, agriculture, labor, and finance, many of them officers in the reserve forces, are directly responsible for assisting the government in planning and executing measures designed to insure the functioning or restoration of essential elements of the economy. Professional, civic, service, religious, and social organizations are expected to make such contributions as may be possible. Individual federal agencies are assigned temporary responsibilities until emergency controls can be activated and permanent responsibilities established for eventual recovery. For example, the Department of Labor would handle manpower problems; the Department of Agriculture would be responsible for food distribution; the Department of Health, Education, and Welfare would engage in activities related to maintaining emergency health services; the Department of Housing and Urban Development would seek to provide emergency housing and rebuild cities after widespread destruction; and the Department of Transportation would promote movement of high-priority shipments of people and goods during the emergency. Similarly, virtually every other

federal, state, and local government agency would be required to provide whatever service it could during a period of national crisis. In order to make these operations a success it will be necessary to involve people who are not only well trained and dedicated to their civilian jobs but who also possess an understanding and appreciation of the strategic military problems involved. Selected reservists can form the nucleus for such groups.

One of the pertinent characteristics of the national plan is that it is not self-operating, and a great many of the steps needed to make it successful have not yet been taken. Although tremendous effort has gone into the program at all levels, our system to date has not developed the organization and trained citizenry required even to bring an effective response to alert signals.

The stakes are high. Civil defense preparedness can reduce total casualties very significantly in event of thermonuclear attack.

One of the problems we are facing is the relative lack of experience this country has had with any form of civil defense against enemy air attacks. This is one of the reasons why it is very difficult to convince the average citizen of the need for extensive protective measures. The fact that this nation has never suffered a bombing attack, although a fortunate circumstance, operates as a negative factor in lulling people into complacency, oblivious to the threat we are actually confronted with at this time.

There has been a great deal of speculation as to reasons for this country's failure to face its civil defense needs. Contributing factors include the complex and unprecedented nature of the problems presented; the newness of the threat; the probability that an effective program would be costly; the assumption, perhaps wrong, that thermonuclear war is not very probable; the feeling that nothing can be done about a nuclear war; and lack of Congressional support. These and other arguments have all been advanced at one time or another. However, it should be noted that Americans, when pressed on the question, usually come out strongly in favor of a meaningful civil defense program.

*reservists in the shelter program*

By far the most important aspect of civil defense activities relating directly to the protection of the population is the program for fallout and blast-resistant shelters. While the threat presented by hydrogen weapons is great and may well grow greater, one of the most promising lines of counter action seems to be the construction of shelters offering various degrees of protection. For a time, dispersal and evacuation were the favored tactic of civil defense planners. However, the introduction of more powerful weapons with their greater destruction radius and of intercontinental missiles with tremendous speed of delivery has completely changed this concept. As an alternative to dispersal, the protection concept is rapidly gaining acceptance. The shelter program, if implemented on a widespread basis, would solve some of the problems of civil defense, but it would introduce others. Various problems connected with shelters would include danger of radiation, falling debris, blocking of entrances, ventilation, water supply, food, and sanitation. Some of these problems have been subjected to extensive research, but most have not. Perhaps one of the most difficult problems is the engendering of morale and community spirit within the large community-type shelters where sizable numbers of people are forced into limited space for extended periods of time. Certainly a vast amount of high-quality leadership is going to be needed in order to make such a program work with any degree of effectiveness. Since people in shelters would probably be dissociated from normal governmental functions for several weeks after an attack, it will be necessary for initial guidance and leadership to come from local sources. This much-needed leadership can come from a well-informed group of citizen leaders, which the reserve pools can contribute to a remarkable degree.

Some criticism has been leveled at the shelter program. A small number of people have opposed it on grounds that it is too expensive, ineffective for blast protection, and apt to give a false sense of security. However, efforts can and must be made to dispell such

opposition. Reservists can help by promoting a favorable image of civil defense in their respective communities.

*continuity of government*

Another important aspect of civil defense that could benefit from participation by reservists is the provision for continuing government functions in the event of widespread destruction. There is much to be done in this area.

The importance of providing for the continuity of government under extreme conditions has been recognized in the national plan. It provides for establishment of lines of succession to official positions, safekeeping of essential records, establishment of control centers and alternate sites for government emergency operations, and maximum use of personnel and resources during emergency periods. Most of the state and local governments and federal agencies have acted in some way towards meeting these requirements. However, full participation in the program by state and local government agencies is lagging far behind the federal effort. Many city and county governments have made no arrangements of this kind. The role that reservists can play is to use their influence as citizen leaders to emphasize the need for developing effective plans for continuity in localities where they live or work. Reservists who are local government officials or who are otherwise authorized can themselves actually prepare these plans.

*economic planning*

Next to survival of the population, the preservation of the national economy is perhaps the most important segment of plans for national survival. Reservists who are business or industrial leaders, economists, or government officials can play a vital role in the formation and implementation of economic plans and policies related to civil defense. The protection of the economy involves planning in a great many areas. Among the more important aspects are manpower, food, water,

fuel and power, clothing, transportation, communication, and medical services. The American economy is somewhat vulnerable to attack, but with advance measures taken to reduce risks there is a possibility for rapid recovery from even large-scale destruction.

The relatively little economic planning accomplished thus far has been performed by government agencies, but some notable collateral work has been accomplished through industry groups and individual companies. A few companies have provided emergency headquarters, prepared lists of succession, built underground structures, stockpiled equipment and supplies, conducted evacuation drills for employees, and provided for protection of vital records. Fortunately, there are signs of increasing awareness by American industry, especially among the larger corporations, of the need for civil defense readi-

ness. These activities need to be significantly expanded.

THE POSSIBILITY of increased use of reserve forces and individual reservists in civil defense programs should be explored. Reservists can assist in creation and implementation of plans for fallout protection, damage control, and preparation for recovery, as well as participate in programs of public information and education.

There needs to be research and development activity beyond the scope of present efforts on many aspects of nonmilitary defense. This should include, among other things, the design of systems incorporating various combinations of military and nonmilitary defense efforts and consideration of various mixes of reserve forces that might be used in the process.

*Atlanta, Georgia*

## Books and Ideas

### *WITH PREJUDICE, WITHOUT MALICE*

DR. ALFRED GOLDBERG

WARS of the past have been of dimensions that the mind of man could grasp. Above all, they had a human dimension that could be readily seen and understood. In the great conflicts of modern history—the American Revolution, the Napoleonic wars, the American Civil War, World War I—man in the singular or the mass was still the measure of events and achievements. This was true even in World War II, in spite of the enormous impact of the machine and the vast scope and intense violence.

Perhaps of equal importance in creating a kind of near-nostalgia for wars of the past is the common revulsion from a vision of warfare in the future—technological, dehumanized, enormously destructive, full of unknown terrors—that is too frightening for all but a few to contemplate. So terrifying is this specter that it has made past wars seem not only bearable but almost attractive by comparison.

There are other compelling reasons for continued interest in World War II apart



*Tedder*

from strong romantic and escapist impulses. It remains a huge and impressive event in the affairs of men, connected with the present and the future by a continuous chain of circumstance. It provides us an opportunity to observe and ponder the thoughts, attitudes, decisions, and actions of men in a time that still has great relevance in today's world. Because its effects are still visibly with us, it is the stuff from which real learning and understanding may be derived.

For this reason, the enormous literature on World War II that has emerged in the short space of two decades constitutes a treasure trove for those concerned with current and future problems of war and peace. No portion of this literature has attracted

more attention—from layman and scholar alike—than the revelations of the political leaders and the military captains who bore the burdens of the higher direction of the war. These men, most of them of moderate intelligence and normal prejudices, endowed with great power but possessing limited information, made the fateful decisions that affected the lives and fortunes of most of the people of the world. Their recollections and judgments of men and events and their explanations of the whys and wherefores of great decisions, even if they are not destined to be as enduring as Thucydides, have meaning for us now and in the foreseeable future.

This literature—autobiographies, biographies, memoirs, diaries—should be required reading for the games theorists, computer simulators, and model makers who are so influential in politico-military thinking and planning. Our tremendous advances in science and technology, our great triumphs over our physical environment, do not obscure the inescapable evidence that the greatest and most baffling of our problems is still man and his relations to his fellow men. We still have a great deal to learn about the human element in war that cannot be gotten from the immense impersonal collections of data that have been amassed for the computers. Man is chiefly responsible for many of the uncertainties—the chance, the accidental, the irrational, the uncontrollable—that continue to make war an art rather than a science.

The British leaders of World War II—true to the long-established literary tradition among British politicians and soldiers—have been especially prolific in taking up the pen when they put down the sword. For this we should be grateful, for of all the nations engaged in the war the British have told more and they have told it better. Many of their politicians and generals have written with verve, candor, and an eye for the meaningful that few Americans have matched.

The latest and best of the great British military leaders to speak his mind about the

war is Marshal of the RAF Lord Tedder.† Among the surviving leaders only Portal, head of the RAF and Tedder's friend and supporter during the war, has not yet been heard from. The others who have published—"Bomber" Harris, Alanbrooke, Montgomery, Alexander, Cunningham, Ismay, Slim—have made contributions that help greatly to round out the record as it was seen and understood by those who helped to make it. To be able to see the same great events and issues described, elaborated, and interpreted by many firsthand participants provides the historian and the analyst greater opportunities for understanding, insight, and perspective than the individual participants could have had. Accordingly, the composite historical accounts and analyses add up to much more than the sums of the parts from which they have been constructed. This is more than sufficient justification for the publication of personal accounts, even for the more self-serving ones, for these too have something to offer, if only insights into the character of the authors.

In this postwar outpouring, Churchill's six volumes have been a touchstone against which to test the others; but it has become increasingly clear that he is sometimes wrong, not infrequently biased, and often knows or tells less than he should. This is not to be held against him. It is simply impossible for any one person—even Churchill—to comprehend, reconstruct, and present objectively the manifold and intricately complex affairs in which he played such an important part. The effect of the publications of the military leaders has been to diminish greatly Churchill's role as a military strategist and leader and to reveal the shortcomings that were not apparent outside the inner circles.

Tedder makes a particularly important contribution to the continuing re-evaluation of Churchill, and he does it soberly, candidly, most explicitly, and without malice. He was not overawed or bedazzled by the bright sun of Churchill's intellect and wit; he resented and opposed judgments, analyses, and ideas from

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† Marshal of the Royal Air Force Lord Tedder, *With Prejudice* (Boston: Little, Brown and Company, 1967, \$10.00), 692 pp.

the great man himself when they seemed to him to prejudge the issues or to be lacking in merit. Nor was Tedder impressed by the Prime Minister's penchant for rhetorical exhortations to his field commanders on occasions when sober reflection and second thoughts would have brought better results. Such an occasion was the launching of the abortive campaign to conquer the Dodecanese in the fall of 1943 after the Italian surrender. To the commander in the area, General Wilson, beset by great problems of making do with resources that Tedder and others had pointed out were inadequate to the task, Churchill sent stirring words: "This is a time . . . to think of Clive and Marlborough, and of Rooke's men taking Gibraltar." More pertinently, it was a time for Wilson to think of the soldiers, the landing craft, the support ships, and the aircraft that he desperately needed but did not have.

Among the military men, Montgomery and Alanbrooke wrote intensely egocentric versions of their own roles and, too often, denigrating versions of the role of others in the campaigns against Germany. Their favorite whipping boys were Eisenhower and the Americans, but Tedder came in for his share, too. In his account Harris, who fought his own war, concerned himself with a justification of his conduct of the RAF bombardment campaign against Germany. Of all the leading British commanders, only Slim appears to have had qualities comparable to those of Tedder as a man and commander. He, too, was successful in leading Allied forces, including Americans and Chinese, and in triumphing over terribly ambiguous command arrangements. While character, personality, and intellect were no doubt major elements in the success of both men as leaders of Allied forces, there is ample evidence from their performances that they also possessed political instinct—in which a capacity for survival is fundamental—in the best sense of the term. Without the inclination and the capacity to submerge national and service instincts in the broader requirements of coalition warfare, neither man could have been as successful.

Tedder's book contributes strikingly and

accurately to the data available for study of the impact of politics and personalities on the conduct of a great war. The notion that the political and the military are separate realms is of course long since discarded. It was not true in the United States, where some of the generals would have preferred it to be so and seemed to believe that it was. There was no doubt on this score in Great Britain, not only because Churchill participated so compulsively in the making of military decisions but also because of the prolific and complicated British political connections in every part of the world. Maintenance of the *Pax Britannica* over much of the globe for generations had required a skillful blend of the political and military in which the former had properly predominated. Military men had become sensitive to if not appreciative of the relationship.

It was in an area where the British had long been deeply involved that Tedder came to his first high wartime command. The Middle East was normally an exceptionally complex and unstable area of the world; in wartime the political and strategic problems of the region must have seemed like a Chinese puzzle to the British commanders who had responsibility for the immense reaches from Malta to the frontiers of India. From command headquarters in Cairo over a period of two years, 1941–43, Tedder had a key and sometimes dominant role in the series of campaigns against the Italians and Germans under Rommel in the North African desert; the liberation of Ethiopia and the conquest of Italian Somaliland; the long and bitter battle of Malta; the hopeless defense of Greece against the Germans; the battle of Crete; the capture of Syria from the Vichy French; the repression of a pro-Nazi revolt in Iraq; air cover for the Navy in the Mediterranean; the policing of Iran; establishment of indispensable air routes across Africa; negotiations with the Russians about RAF air support in the Caucasus; reinforcement of India to meet the Japanese onslaught; the Dodecanese campaign; air attacks against Italy and Axis-held areas in the Mediterranean. The list could be longer, but it suffices to suggest the dimensions of the problems and the pervasiveness

of the political element. Political considerations were often paramount, as in the Greek and Dodecanese campaigns and in the policing of Iran.

In all these events, some of them life-and-death issues for the British in the Mediterranean and many of them happening concurrently, Tedder was a central figure who helped shape major decisions and actions. His stature grew with the passage of time as events—disasters as well as victories—much more often than not vindicated his judgments and predictions. Many of his troubles stemmed not from the enemy but from the British Army and Navy commanders with whom he was associated in Cairo and elsewhere in the area. A convinced and avowed apostle of air power, Tedder succeeded eventually in gaining the respect and confidence

of the other services. It required much firmness, plain speaking, and persistence, an immense practical grasp of problems, and refusal to be bound by accepted doctrines, customs, and red tape. By the end of the North African campaign in 1943 he had forged, tested, and secured acceptance of the concept of unified control by the RAF of air operations either in combination with the other services or independently. Montgomery added his personal endorsement, and the Americans, profiting from their own North African experience as well as that of the British, promptly adopted the concept and enunciated it as official doctrine.

The way toward unified control of air power had thus been clearly pointed by Tedder and his chief operational commander, Air Marshal Coningham. This was no small

*Air Chief Marshal Sir Arthur Tedder, G.C.B., Commander-in-Chief of the Mediterranean Air Command, confers with Major General Carl Spaatz, USAAF, Commander of the Northwest African Air Forces.*



achievement in the crucible of Middle Eastern and North African warfare in 1941-43, when British ground and naval commanders, and American too, fought frantically to control or direct the use of portions of the always limited and often inadequate resources of men and airplanes which too often were all that stood between them and defeat or stalemate.

By the time Tedder joined forces with Eisenhower early in 1943 in Algiers, as commander of the Allied air forces in the Mediterranean, he had already demonstrated the qualities of leadership, imagination, and practical wisdom that had gained him the respect and confidence of his colleagues, including the Americans who had fought under his command against Rommel. It was at this time that he first came under the surveillance of a shrewd judge of men, Harold Macmillan, then British political representative in French North Africa. After a meeting with Tedder in February 1943, Macmillan wrote in his diary:

Tedder is really a most interesting man. He has the rare quality of greatness (which you can't define but you sense). It consists partly of humor, immense common sense and a power to concentrate on one or two simple points. But there is something more than any separate quality—you just feel it about some people the moment they come into a room. And Tedder is one of those people about whom you feel it.\*

The establishment of the combined Anglo-American command in the Mediterranean under Eisenhower in 1943 marked the beginning on a grand scale of the close military collaboration that helped so much to make possible final victory over the Germans. It was not immune to the strains that inevitably affect politico-military collaboration between countries; it suffered the individual and national jealousies, suspicions, fears, and selfish motivations that affect most human and international relationships. Tedder was most sensitive to these differences and makes clear what a delicate thing such a close coalition is. The success of the military collaboration unquestionably owes a great deal to the abil-

ity of the military leaders of both countries to transcend their service and national interests and to accept the higher loyalty.

Tedder stands with Eisenhower as pre-eminent among those who made the coalition work from the beginning. The experience he had acquired during the Middle East campaign of 1941-42 in dealing with British commanders, with the Americans, and with British and American political representatives constituted a rich and unusually edifying political education. From the beginning of his association with Eisenhower and with Eisenhower's perennial chief of staff and alter ego, Walter Bedell ("Beetle") Smith, Tedder showed his understanding of the total environment, including the political, and how it affected and shaped not only the use of air power but the use of the overall military capabilities. This acute comprehension, his capacity for intellectual persuasion that made him exceedingly effective in high-level conferences, and the objectivity that often caused him to side with the Americans against his British colleagues in some of the great strategic issues of the war gained for him more respect, cooperation, and admiration from the Americans than was accorded any other British military leader. It also gained him the distrust and criticism of some British military leaders, especially Montgomery, with whom he differed frequently, and also Alanbrooke, who usually supported Montgomery. Some of his British critics went so far as to hint at lack of loyalty to his own country and his own service. Early in 1945 Alanbrooke and Montgomery preferred that Tedder's role as Eisenhower's deputy be even more circumscribed than it was. Churchill also was sometimes annoyed with Tedder and on one occasion abused him in a note to the British Chiefs of Staff for not properly representing British interests at Supreme Headquarters. There is reason to doubt that Tedder would have been Portal's successor as head of the Royal Air Force after the war had Churchill instead of Attlee been Prime Minister.

When Tedder became Deputy Supreme Commander of the Allied Expeditionary Force in January 1944, one member of Eisenhower's

\*Harold Macmillan, *The Blast of War*, p. 221.



*Tedder and Brigadier General Patrick W. Timberlake, Commander, IX Bomber Command, U.S. Middle East Air Forces, confer at an RAF mess hall in the Middle East.*

immediate staff described the position as being like that of an ambassador without portfolio. It was a particularly difficult and trying post, for if the Allied command arrangements in the Mediterranean had seemed complicated, the arrangements in Europe must often have seemed like a maze. This was especially true of the air forces, which were the object of a tug-of-war between the Americans and the British at several levels—the Combined Chiefs of Staff and SHAEF, the British Air Ministry and SHAEF, and the tactical air commanders versus the bomber barons. It was here that Tedder made great contributions by helping to bring order to a situation that was potentially chaotic and by exercising strong direction of the diverse and sometimes conflicting elements of Anglo-American air power. His great ability in organizing and directing large-scale Allied air forces could not be matched by anyone.

Tedder deserves also the major share of the credit for driving through, against the doubts and disinclination of Churchill and the British War Cabinet, the plan for bombing the French and Belgian rail systems in the months immediately preceding the landings in Normandy. This was a major political issue which was resolved in Tedder's favor only with the support of President Roosevelt, but Tedder had persisted when it might have been the better part of discretion to defer or compromise. Events proved him right, for there can be no doubt that the interdiction campaign contributed immensely to the success of the landing and the subsequent build-up, without incurring the heavy French and Belgian civilian casualties that had been predicted.

Although he insisted on the priority of the demands of the land battle, Tedder wholeheartedly supported the strategic air campaign against Germany. His chief concern was to secure the best balance in the allocation of air resources among the missions assigned. Unlike the strategic and tactical air commanders, he viewed the air battle as a whole and related it to the land battle. He understood the interaction of the different air missions and sought to mesh them in the

pursuit of larger objectives than their immediate ones. Thus, although he insisted that the strategic bombers give priority to transportation targets over oil targets during the pre-assault and assault phases of Overlord, he readily acceded to and even encouraged the opportune use of the bombers against German oil targets on several occasions during the month before D-Day. Tedder had no doubts that strategic bombardment played an indispensable role in the defeat of Germany.

Once the land battle was joined on the Continent, Tedder became involved in the major strategic issues that were chief sources of disagreement between the British and the Americans. Most of the issues centered on Montgomery and had political repercussions with nationalistic overtones. The most important of these included the timing and proper use of forces in efforts to break out of the Normandy beachhead; a southern France landing versus an invasion of the Balkans; the allocation of resources to securing the approaches to Antwerp; priorities for the thrust into Germany; and control of the land forces during the Battle of the Bulge. On most of these issues, Tedder sided with the Americans against Montgomery, who was generally supported by Alanbrooke and less directly by Churchill.

By this time Montgomery had become a national hero in Britain. He dealt directly with the British Chiefs of Staff and on occasion the Prime Minister. It is worth noting that Bomber Harris, too, enjoyed a personal relationship with the Prime Minister during most of the war that undoubtedly enhanced his prestige and afforded him a degree of independent action unusual for a subordinate commander. Tedder had neither the standing nor the influence of Montgomery among his countrymen. Yet he not only supported the Americans—Eisenhower, Omar Bradley, and Beetle Smith—against Montgomery, he often urged Eisenhower to stronger measures to bring Montgomery into line. Tedder's courageous persistence in his views and advice in the face of certain disapproval from most of his British political and military superiors must be regarded as the measure of the man.

One cannot help being struck by the strength of Tedder's feelings about his Mediterranean experience as compared with his European experience. In part it was a matter of the scale of the conflict. The war in the Mediterranean, in spite of its complexities, could be comprehended and was within the grasp of the commanders. It was Tedder's conviction that "but for the lessons learnt . . . [in the Mediterranean] victory in Europe would not have been gained so speedily or at such little cost." (pp. 687-88) In western Europe in 1944-45, not only was the war on a far vaster scale but the political and personal issues were greatly complicated and exasperating. Moreover, the opportunities for an individual, even one so bold and clever as Tedder, to exercise controlling influence were much less than they had been in the Mediterranean.

The role of Deputy Supreme Commander was much less satisfying to him than being air commander in the Mediterranean. The vibrant, confident buoyancy of the Mediterranean years is missing; there is a feeling that he was not entirely at ease as the No. 2 man, that the ambiguities of the position precluded enjoyment of it. As Tedder himself put it, there "was little that was cheerful or exhilarating about the last stages of the war." (p. 688) The proportions of the book itself are the best evidence of this feeling: more than two-thirds is devoted to the Mediterranean, and that is by far the livelier, more personal, more open, and more interesting part. There is also a feeling of purpose, of doing, and of accomplishment that must have been exhilarating to a man at the peak of his professional and intellectual powers.

Although the title is characteristic of the witty, ironic, and sometimes cynical Tedder, the book is anything but exposé. Tedder is indeed critical of many of his contemporaries, including Roosevelt, Alanbrooke, Harris, De Gaulle, and Wavell. But he is almost diffident and often oblique, and his criticisms are almost always in the context of particular events and issues. Accordingly, with only a few exceptions, he does not give us assessments of men in the round but rather glimpses of them

in the toils of a crisis or a military operation. To be sure, his scrupulous regard for chapter and verse, eschewing generalities, makes for responsible, hardheaded criticism, but it may also deprive us of some broader judgments that could be helpful to a better understanding of the men and the war. But Tedder's technique in this regard is consistent with his overall approach and his intellectual integrity. Moreover, his judgments of people, although deliberately narrow in focus, represent strong essences, for he had strong feelings about them and these feelings sometimes transcend his restrained, underwritten sentences. Thus we have Tedder's opinions "with prejudice" but without malice.

This perceptive account of great events has the ring of truth about it. Tedder relied little on memory. He was able to reconstruct events, sometimes in detail, from contemporary sources, including his journal, his messages to and from the Air Ministry, and his correspondence with his RAF chief, Portal. Because he also used much of the pertinent literature that had appeared by the time he

wrote, he was able to document what he did not know firsthand, and he very carefully did so. We have, therefore, the Tedder of World War II, not some scrubbed and dressed-up version of the man and the events concocted twenty years after.

Oscar Wilde said that "to be understood is to be found out." Many are the men of World War II who have been found out—often from their own words. Tedder reveals much about himself in his book, and the findings are greatly to his credit. There is none of the self-justification, vainglory, and posturing that mar the works of many of his contemporaries. There is a detached and dispassionate quality that underscores his basic objectivity and sincerity. He is genuinely deserving of sober respect and admiration for a superb job done under exceptionally trying circumstances. There are exceptions to Emerson's epigram that "every hero becomes a bore at last." Tedder, who would have been the first to disclaim the hero's role, is such an exception.

Santa Monica, California

## WHO STARTED THE COLD WAR?

HERMAN S. WOLK

*. . . It is only with the progress of historical science on a particular subject that men come really to recognize that there was a terrible knot beyond the ingenuity of man to untie. . . . In historical perspective we learn to be a little more sorry for both parties than they know how to be for one another.*

—Herbert Butterfield

**J**UNE 21, 1968, marks the twentieth anniversary of the Berlin airlift. There is a certain ironic propriety in the fact that this

anniversary should fall during a time in which another one of those "great debates" is raging among those who deal with and think about American foreign policy. We have apparently entered one of those cyclic periods when the very intellectual roots of U.S. foreign policy are being called into question. And although at first glance it might appear that the war in Vietnam is the reason for this questioning, a deeper probe might also lead one to believe that, while Vietnam is certainly one of the reasons, it is not by any means the sole rationale.

The last few years have been witness to

a plethora of books about the Cold War. How did it start? What is its essential character? Is it over? At the risk of formulating a dangerous generalization (something these books are not devoid of), one might conclude that most of the recent works have been written by what we might term either "consensus historians" or "revisionists." Both terms may be somewhat unfair to some of the writers, but one or the other seems to fit a majority of them nicely. Another caveat: It should be recognized that the word "consensus" remains one of that coterie of words that have come into vogue in recent years and that remain curiously unsatisfying. Other such words—sometimes flowing with overbearing regularity from those who pontificate on the Georgetown cocktail circuit—are "viable," "commitment," and "sophisticated." One ought to beware.

The consensus historians have argued that essentially the Cold War was a result of ineluctable circumstance: the Second World War decimated Europe, shattering the structure of power that had contained the Soviet Union, and into that vacuum Stalin moved, with the result that America and its allies felt compelled to move in response. In general, supporting this thesis have been Marshall D. Schulman, *Beyond the Cold War* (Yale University Press, 1966); Charles Burton Marshall, *The Cold War: A Concise History* (Franklin Watts, 1965); and both Raymond Aron and Hans Morgenthau in many of their works.

On the other hand, the revisionists have argued that the U.S. was at least equally if not primarily to blame for the evolution of the Cold War. Professor D. F. Fleming, in his massive tome *The Cold War and Its Origins* (Doubleday, 1961), led the revisionist attack by charging the U.S. with caprice and with a gigantic misreading of history. The Cold War, said Fleming, was a direct outgrowth of American interventionism, militarism, and our almost pathological obsession with anti-Communism. Several more recent revisionist works are Gar Alperovitz, *Atomic Diplomacy:*

*Hiroshima and Potsdam* (Simon and Schuster, 1965); Richard J. Barnet and Marcus S. Raskin, *After 20 Years: Alternatives to the Cold War in Europe* (Random House, 1965); Edmund Stillman and William Pfaff, *Power and Impotence: The Failure of America's Foreign Policy* (Random House, 1966); and Ronald Steel, *Pax Americana* (The Viking Press, 1967).

Professor Louis J. Halle of the Graduate Institute of International Studies in Geneva and late of the State Department's Policy Planning Staff has now given us a somewhat different work which—while falling in the category of consensus—is not easily categorized.† This fact in itself speaks volumes for Halle because he has written a book which is deeply thoughtful, detached, and enriched by a kind of melancholy wisdom.

Halle says that since the end of the eighteenth century four wars have been fought to maintain the European balance of power. The fourth is the Cold War. According to Halle, the Cold War was the product of an "irreducible dilemma" in which men were lashed to the circumstances of the historical flow. "The essence of history . . . is the contrast between the immensity of its movement and the limitations of the individuals who, often with the greatest gallantry, put themselves at grips with it." (p. xii) Or, again: "I am not one who thinks that great men make history. Still, I would rather not do without them." (p. 117)

The author views the Cold War more in nationalistic than ideological terms:

The behaviour of Russia under the Communists has been Russian behaviour rather than Communist behaviour. Under the Communists Russia has continued to behave essentially as it behaved under the czars. There has been the same centralization and authoritarianism. There has been the same conspiratorial approach to international relations. There has been the same profound mistrust of the outside world. There has been the same obsession with secrecy and with espionage. There has been the same cautiousness, the same capacity for retreat. There has been the same effort

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†Louis J. Halle, *The Cold War as History* (New York: Harper & Row, 1967, \$6.95), 434 pp.

to achieve security by expanding the Russian space, by constantly pushing back the menacing presence of the foreigners across the Russian borders. (p. 11)

Thus, according to Professor Halle, the Cold War amounted to a "historical necessity" to which Communism was a secondary rather than an essential element.

With Europe prostrate after World War II and millions of Russians under arms, it was a great mistake, says Halle, for the U.S. to demobilize immediately after the war and completely dismantle its military machine. Although the view has been held that Washington was oblivious to power politics at the close of the war, the author—who was at the time in the State Department—maintains that Washington's major preoccupation was nevertheless with "the deadly struggle to contain the Soviet Union that could already be foreseen." (p. 39) The explanation for this dichotomy is that by then it was too late to persuade the public of the necessity of restoring a balance of power.

By this time, men were being driven by circumstance. Stalin probably felt that there had always been a Cold War and that it would continue after the war as before. The U.S. and Britain, on the other hand, did not feel encircled; they viewed the situation in more global terms. The Grand Alliance might be continued, as President Roosevelt saw it, in the form of the United Nations. The trouble here, as Halle sees it, was that far too much was expected of the U.N. It simply could not deliver on such a grand scale, especially as an alternative to international power balance.

The Berlin blockade in 1948-49 was the first great battle of what was already an overt Cold War. Here Halle makes what he feels to be an exceedingly important point—one that places him firmly with the so-called consensus historians. Berlin showed, for the first time in the Cold War, that nuclear weapons had indeed revolutionized strategy, for if the U.S. had not possessed nuclear weapons and long-range air power, the Soviet Union "would not have been deterred from using its local military superiority to take West Berlin by force." (p. 166)

The weakest part of *The Cold War as History* is Halle's treatment of the evolving confrontation in the Far East. Indeed, he comes very close to a blanket condemnation of American Far Eastern policy since the Open Door. His judgment that Mao Tse-tung, even early in his career, disdained Communist-type discipline is certainly open to question, as is his view that *both* the Red Chinese under Mao and the Kuomintang under Chiang fought the Japanese equally. The idea that the Communists after the war possessed the "Mandate of Heaven" but few guns and little ammunition is not only surprisingly naive but contrary to fact, which is that the great stock of weapons of the crack Japanese Manchurian Army fell into the hands of Mao with the help of the Soviets.

Halle is guilty of contradiction in stating that it was not a foregone conclusion that the Communist Chinese would be unfriendly to the U.S. while almost in the same breath observing that "Mao's new regime regarded the United States as the enemy. . . ." (p. 200) The author does recognize that it would have been "unseemly" for the U.S. to recognize Peking at the same time the Chinese were torturing and killing American missionaries and jailing the American Consul General in Mukden.

"Another impediment to the acceptance by the American people of the new regime's legitimacy . . . was the Communist label that it bore, a label that was bound to subsume the whole of reality as mythically conceived by people of limited intellectual sophistication." (p. 201) It remains debatable whether this was a matter of "sophistication" (that word again!) at all. Curiously, this doubt is stated by Halle himself in his limited indictment of Mao's actions and brutalities. But then the Korean War starkly sharpened the confrontation and ended any possibility whatsoever of an American *rapprochement* with Mao. Halle's interpretation of the Korean conflict seems to lack the sure feel he displays on European matters.

As far as military-political policy is concerned, the author refutes the widely accepted thesis that the Eisenhower-Dulles policy was

solely one of massive retaliation (What of Hungary, Lebanon, Taiwan?), which was subsequently replaced by the opposite policy of flexible response under the Kennedy Administration. Dependence on the nuclear deterrent, according to Halle, diminished as the U.S.S.R. developed its own nuclear arms, and this diminution was already well advanced by the time of Dulles's "massive retaliation" speech of 12 January 1954. At any rate, Dulles reduced the implications of that speech in an article in *Foreign Affairs* the following April. Halle implies that the Defense Establishment was not in fact completely foundering when the Kennedy Administration came to power. There seems to be some evidence already that historians will in the future look with a jaundiced eye upon those publicists who have already depicted with finality the alleged bankruptcy of the Eisenhower defense policies. Much that was done in the 1960s in Defense could be traced back to the mid and late 1950s, not the least of which was Secretary of Defense Thomas Gates's pioneer establishment of the integrated targeting staff (Joint Strategic Target Planning Staff) at Headquarters Strategic Air Command.

Louis Halle echoes such contemporaries as Raymond Aron and Marshall Schulman—and, not insignificantly, also Professor Arthur Schlesinger, Jr.—when he speculates that if it is correct to regard the Cold War as World War III, then we must at least note that it has been quite different from the two tragic and costly World Wars of this century.

The reason for the difference, I think, is that the revolutionary new weapons of the nuclear age are so deadly that their use cannot be seriously risked. . . . It follows that, so far at least, we have much to thank nuclear weapons for. Whatever the future may hold, their advent upon the scene has so far spared us much. It has kept the Cold War cold. (p. 8)

Again, in his conclusion, he observes that the inhibiting influence of nuclear weapons makes the Cold War "historically unique." They have so far prevented a general conflict, and in them "lay the hope of the world, no less than its peril, as it moved on into an unknown future." (p. 418)

It is exceedingly difficult to summarize and evaluate in a brief review the philosophical and historical content of Halle's work. It is much more than a history of the Cold War; it has much to say of world politics and the interplay of international relations—and, above all, of the folly of mankind. Where Halle lines up strongest with the consensus is in his judgment that the Soviets took the initiative in the Cold War. The West, in general, reacted to this thrust, with both sides locked into the flow of historical inevitability.

Has the Cold War ended? Although optimistic about the future, Halle really doubts it. Surely it is difficult to answer in the affirmative when America and Russia confront each other in Europe, the Middle East (perhaps the most explosive locale of all), and Asia. No doubt many of the revisionists would disagree. The conflict of interests between the U.S. and the U.S.S.R. persists. The international political schism is deep. And, in many respects, Germany still remains the crucial issue. In itself, this melancholy realization conjures up the divisiveness of the Cold War conflicts.

To those revisionists who argue that the U.S. is imperialistic, interventionist, and militaristic, I would point out that a close reading of post-1945 history indicates that America has not pursued domination but has—sooner or later—resisted it. Indeed, a case can be made that the United States, far from being too assertive, has been too reactive and defensive. And, of course, the pitfall presented to those who claim that we have been guilty of globalism is that by condemning America as a global policeman they end up arguing against U.S. intervention *in principle* anywhere.

Finally, Professor Halle, with his learning and wisdom, reminds us that the future will not yield itself any more readily than the past. For, despite the arrogance of predicting with any sense of finality what the year 2000 will hold for a frail humanity, we simply cannot conceive of the possibilities or surprises that lie ahead.

But of course none of this relieves us from discharging our responsibilities despite our ignorance and fallibility. That is the human predicament—and there is no way out.

*Silver Spring, Maryland*

## WHITHER GERMANY?

DR. CHESTER V. EASUM

**D**R. WILHELM WOLFGANG SCHÜTZ is an acknowledged evangelist for the idea of reunification of Germany. The title of his recent book, *Rethinking German Policy*,<sup>†</sup> is a provocative come-on: What German policy, theirs or ours? The policy of Germans with regard to reunification, or the policy of the rest of the world with respect to the same problem? If the former, then the policy of which Germans, those of the Federal Republic of Germany ("western" Germany) or those of the so-called German Democratic Republic ("eastern" Germany)? And as a matter of fact, despite the plenitude of official statements about the attitudes of people living in the two divided Germanys, would it be more accurate to use another plural and speak of two German peoples rather than one, even yet?

For the past ten years Dr. Schütz has been chairman of the board of trustees of an organization which calls itself "Germany Indivisible." With true missionary zeal and faith in the solvent power of right reason, he persists in the hope that, as reunification can take place only with the consent and cooperation of Soviet Russia and the United States, these two parties can and must soon see the light and come to the point of mutual consent and cooperation to that end, in realization of their own interest. This would mean not the conquest, annexation, or absorption of one part of old Germany by the other but rather the voluntary political reunion of both Germanys on a basis of complete equality and of mutual respect and consent. Differences could be amicably worked out for the sake of the enormous mutual advantages to be derived from the reconstructed federal union. A convincing act of faith is presupposed.

There is an enormous amount of hypothetical reasoning and writing here. "Is it not

reasonable to suppose that . . . ?" "This would naturally lead to . . ." "This should . . ." "This must . . ." There is also exhortation here, in plenty.

The author stresses the point that neighboring states need have no fear of a Germany so reconstituted. Such a new Germany would be a peace-loving state not only in the nature of things, having been formed by a process of peaceable change without the use of nuclear weapons, possessing and seeking none, but by its own nature. It would be, of course, a loyal member of the North Atlantic Treaty Organization and of the United Nations, having been reconstituted within that framework.

In an attempt to make his proposals appear as practical and specific as possible, Dr. Schütz proposes that the term of the German federal parliament (*Bundestag*) be extended to five years, to make it coincide with the federal president's term in office, and that a series of ten-year plans be drawn up to serve as Germany's contribution to the reform of NATO, on the assumption that there will be some withdrawals from NATO in 1969.

The author further suggests that Germany might well recommend to the United Nations the appointment there of a high commissioner for human rights and that the U.N. send medical service units to trouble spots such as, in 1967, Cyprus. (p. 72) He further suggests the active expansion of a system of treaties of recognition and friendship with the emerging nations on a basis of self-determination. (p. 76)

His final general proposals are ambitious indeed. "The objective, therefore, is a peace-conference for World War II and also between the NATO and Warsaw Treaty nations. The neutral European powers should be invited to observe the proceedings and to exer-

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<sup>†</sup>Wilhelm Wolfgang Schütz, *Rethinking German Policy: New Approaches to Reunification* (New York: Frederick A. Praeger, 1967, \$5.50), 154 pp.



*Berlin Wall*

cise a moderating influence, and the Secretary General of the United Nations should be asked to participate. *This would enhance the attention paid to the principles of self-determination and human rights. . . .* (Emphasis mine.) (p. 123)

“Does it not follow from this that the disarmament conference at Geneva and the Disarmament Commission at New York may offer one of the channels for our proposals?” (p. 124)

“We should even consider how far it might be possible to extend a world disarmament conference into a world peace conference.” (p. 132)

To me, the author’s “rethinking” seems to consist of some stubbornly unrealistic, continued or repeated, wishful thinking of the pacifist one-worlders of the past quarter of a century. There is nothing that I recognize as a really new or practical approach.

A summary review of the hardy, though to me rather unrealistic, optimism of this book

brings it into sharp contrast with the pessimistic, though to me more realistic, position of the German philosopher Karl Jaspers.† The German original of the Jaspers book *Wohin treibt die Bundesrepublik?*<sup>2</sup> was more enthusiastically greeted by the German reading public, which is largely composed of persons free from official responsibility, than by those holding public office, who are sobered or rendered more conservative—depending somewhat upon the point of view.

Professor Jaspers points out that many of the specific provisions of the constitution of the federal republic were written with an eye to avoiding the weaknesses of the Weimar constitution, such as multiplicity of parties by fission due to the theoretically democratic system of proportional representation, and the irresponsible dismissal of a chancellor without a designated successor. Such precautionary checks upon the free expression of the people’s political will, he says, have outlived

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†Karl Jaspers, *The Future of Germany*, trans. and ed. E. B. Ashton, Foreword by Hannah Arendt (Chicago: University of Chicago Press, 1967, \$4.95), xvii and 173 pp.

their usefulness. The Hallstein doctrine, he says further, is also useless.

Without suggesting how the popular will is to find expression except through parties, the author deplores what he regards as the present tendency of the professional party leaders to form self-perpetuating salaried oligarchies which make up the party lists of candidates with less and less reference to the passive party memberships—a process by which the parties committed suicide once before.

Most of all the voice of the German Jeremiah deplores what he calls the “touch of mendacity” (p. 59) that poisons German political life, at the center of which is the great fundamental lie “that the Germans were never really Nazis,” whereas according to him “all

Germans have to answer for the fact of Hitler’s rule.”

To Jaspers, what is done is done. The Oder-Neisse Line is final. The one who threatens the peace is the one who wants to change existing boundaries, not the one who wants to preserve them. The special status of the Soviet zone of occupation is final as long as Russia wants it to be. Germany must cease to threaten her eastern neighbors and must recognize that from their point of view she has an evil past to live down before they will cease to regard reunification as a threat.

The reader’s sympathies seem likely to ride along with the advocates of reunification; but any short-term bets will probably be placed on Professor Jaspers.

*Lincoln, Nebraska*

## LEADERSHIP, STRATEGY, AND REFLECTION: OR, “WHAT’S AN OFFICER TO DO?”

CAPTAIN DAVID MACISAAC

**F**EW would deny that the single overriding responsibility of an officer is the exercise of leadership. But how many would agree that “any officer’s work week should comprise about 50 percent execution and the other half study, if he is to make the best use of his force”? Then, to raise the ante a little, not many of us would deny that some familiarity with the history of strategic thought is important for an officer. But would we all agree that “if any

two theories of strategy are not compatible, then neither of them is a valid general theory”? And finally, most of us would surely agree that crew members who might be called upon in a war situation to deliver nuclear weapons should know their weapon system inside out. But would we all agree that if airmen “continue to think and act in the patterns on which air war has developed into nuclear war, they will have fallen away from their true function as

protectors of the civil population, and will have delivered them over to mass slaughter”?

Just what *is*, after all, the full range of an officer's responsibility? Is it limited to himself, his family, his outfit, and his men? Or does it extend in some measure beyond his immediate circle and assigned tasks? These are just a few of the questions raised in three recent books, all by military men, each addressing on a different level the basic question of what it means to be a military officer in this age.

The first of the three (in order of appearance) and probably the least controversial is General “Slam” Marshall's essay on leadership.† This book has a long history and is probably known to many readers by its earlier title, *The Armed Forces Officer*. The original version appeared in November 1950 as an official Department of Defense publication. It was revised and republished under the same title in December 1960, bearing the following official designations: DOD Pam 1-20, DA Pam 600-2, NAVPERS 15923A, AF Pam 190-1-12, and NAVMC 2563. These early versions, prepared under contract to DOD for use as a leadership manual, did not bear the name of the author. In 1966 General Marshall again revised and expanded the book, this time for commercial publication. He gives three reasons for doing so: first, Vietnam has added to our experience; second, “writing for official purposes usually compels restraint [and] it seemed worthwhile to review, write, and publish under auspices that would relieve all doubt”; and third, “it is my feeling that in a work of this kind the reader has the right to know who is speaking.”<sup>1</sup>

Let me state at the outset that the most recent version is the best. While the same basic chapters remain largely intact, their order has been rearranged<sup>2</sup> and their titles are more down-to-earth.<sup>3</sup> And while it is true that post-1960 material has been added here and there, one suspects that many of the other “changes” are in fact elements of the original draft that were blue-penciled for one reason or another during the clearing process at the

Pentagon.<sup>4</sup> In all, there are 26 short chapters, averaging about ten pages each and covering everything from the meaning of one's commission to the things one should keep foremost in mind when leading Americans in combat. The book's main purpose “is to stimulate thought and to encourage the average young officer to seek truth for and in himself.” This is a worthy aim, and those who know General Marshall are aware that he has never lost sight of it.

Any book like this must face up to the basic question of whether leadership can be taught. The author's assumption is that it can, if the spirit is willing and the student is not the village idiot. Basic to this assumption is a conception of leadership that emphasizes diligence, thoroughness, knowledge, and work. The officer who strives always to carry out assigned tasks completely and on the basis of accurate command of his data has within him the *essential* attributes of leadership. All the rest—manner, voice, bearing, imagination, initiative, magnetism—all these he classifies as more superficial traits, capable now and then of lifting a man into a position of leadership but not of keeping him there under severe stress. Seen in this light, the officer who would most successfully win the loyalty of his men is the one who would never forget two favorite maxims of the wise teacher: “Example is not the best way to teach, it is the only way” and “You can't fool the kids.”

To diligence, thoroughness, and command of the data, one must add the willingness to accept risk: “The readiness to accept risk and the capacity for completing assigned or chosen work, around these two fundamentals may be developed the aura, the manner of leadership, its technique, its system. If they are missing, there is no hope and the article must in time be exposed as counterfeit.” And in all of this, “there is nothing else that serves as well as the natural manner, with some polishing of the surface here and there and a general tightening at the corners.” Paraphrased, the argument might run like this: Don't tell them how, show

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†S. L. A. Marshall, Brigadier General, U.S. Army (Ret), *The Officer as a Leader* (Harrisburg: Stackpole Books, 1966, \$6.50), 288 pp.

them; do it every day in matters large and small; then, in the test of combat, the moral authority already accrued will draw them to your purposes, and you need pray only that your courage will meet the test.

This is the bedrock on which the book is built. Individual chapters fill in the details—knowing your men, the nature of discipline, speaking and writing, counseling, instructing, dealing with people. No absolute rules are offered. In each area some general postulates are discussed and examples are given. Selective anecdotes reveal the author's skill as a raconteur. Trenchant observations challenge the reader on page after page:

- The fault in the average lieutenant colonel is that he has long forgotten how greatly words of encouragement and advice from that level weighed with him when he was wearing gold bars. (p. 10)

- There are no dull lecture topics; there are only dull lecturers. A little eager research will enliven any subject under the sun. (p. 88)

- . . . authority is contingent upon respect far more truly than respect is founded upon authority. (p. 151)

- The sorriest vice that may afflict the leader at any level is the compulsion that makes him want to have a finger in every pie, the deciding voice in every problem, the inability to leave anything alone. (p. 158)

- The sign of superiority in any officer at whatever level is his confidence that he can make another good man to fill any vacancy. (p. 195)

These excerpts should make it obvious that this is much more than a "how-to-do-it" book for beginning lieutenants (and, to be sure, if conscientiously read and reread it will help them much more than the typical military guidebook ever will). Indeed, any officer of whatever grade who thinks he can still learn something about leadership and who will try this book simply as a guide to introspection should not be disappointed. And he certainly will not be bored.

IF AN OFFICER is sometimes puzzled by the issues raised in a discussion of leadership, he is often even more adrift on the subject of strategy. He need not feel alone, for, like "the Renaissance," "strategy" is a term that must be defined each time it is used. That there is no general agreement as to its meaning or implications is one of the major points raised by Rear Admiral J. C. Wylie, Deputy CINC, U.S. Naval Forces in Europe.† "The literature of war and its strategies," Admiral Wylie writes, "is poverty-stricken." After admitting that we have indeed a surfeit of battle studies, military histories, and particularized "strategic analyses," he insists—and rightly so—that warfare, taken in its widest sense, remains a woefully neglected intellectual discipline. It lacks not only a defined intellectual framework but an accepted vocabulary as well.<sup>5</sup> As a direct result, he contends, soldiers, sailors, and airmen continue to look upon their particular approaches to warfare as having some general, or absolute, validity.

Admiral Wylie directs his criticism to both professional officers and the academic community; the common error he charges them with is a failure to recognize that the study of warfare "merits a place in the intellectual world as a matter worthy of more than technical study." He does not propose to offer a definitive answer to the question he raises, but he does offer some ideas on how to begin.

He begins by defining analytically two operationally different kinds of strategies: "sequential strategy," a series of discrete steps or actions, each growing naturally out of, and dependent upon, the one that preceded it (e.g., the Central Pacific drive across the Pacific in World War II); and "cumulative strategy," in which the entire pattern is made up of a collection of lesser actions, not sequentially interdependent (e.g., tonnage warfare waged by submarines). Citing World War II, he shows how sequential strategies formed the initial basis for action but came to be supplemented by cumulative strategies (e.g.,

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†J. C. Wylie, Rear Admiral, USN, *Military Strategy: A General Theory of Power Control* (New Brunswick: Rutgers University Press, 1967, \$4.00), vii and 111 pp.

bombing). Yet this occurred without conscious analytical differentiation between the two approaches. Might we not improve our overall prosecution of a war, he asks, if we see what we are doing well enough at least to label it accurately? "If we could judge the progress and the effect of our cumulative strategy, not only would we control an . . . element . . . that up to now we have been forced to leave largely to chance, but we might more effectively shape the conditions existing when the war is over." True enough, but is it possible? What about Vietnam? I would argue that "search and destroy" operations and "pacification" programs are both cumulative strategies; a friend says, "No, each is sequential." But perhaps this disagreement serves only to make the point that definitions and an agreed analytical framework are needed.

Moving onto a larger stage, Admiral Wylie argues that there are today four "generally recognized major theories of war strategy." These he labels the continental, maritime, air, and Mao theories. He then discusses each of these in turn, his principal purpose being to show that no one of them is necessarily a valid general theory. The continental theory presupposes that victory hangs on the defeat of one armed force by another in battle. The maritime theory assumes that sea communications are a necessary element of influence in the conflict. The air theory confuses destruction with control, tacitly assuming that the former can produce the latter. The Mao theory requires the existence of a rural peasantry amenable to political manipulation and military action. The point in all this, he suggests, is that none of these is a general theory of warfare. "They are specific theories, each valid under specific conditions and diminishing in validity as the limits of reality within which they function depart from the tacitly identified ideal on which they are predicated." In short, what Admiral Wylie seems to be saying is this: We must stop trying, whether consciously or not, to make war situations fit into pre-established patterns; we must get the

horse back out in front of the cart and devise a *general* theory of strategy applicable to *any* war situation, whether the practitioner feels at home with it or not.

As a step in this direction he concludes by offering a series of basic assumptions on which a valid general theory might be developed. His arguments are closely reasoned, carefully qualified, and reflect hard thinking.<sup>6</sup> The goal he seeks is a worthy one but is, he admits, "a tall order." His ideas, offered in a genial and utterly undogmatic manner, are meant—like S. L. A. Marshall's on leadership—to spark creative thinking in others. If we continue to impose predetermined strategies on new and unanticipated war situations, he warns, we will not only be guilty of wasted effort but run the risk of losing control over our effort. "Some method of bringing intellectual order into strategy," he concludes, "is long overdue."<sup>7</sup>

TODAY'S airmen cannot long study modern strategy without coming up against the grimly stark questions raised by the possibility of nuclear war. Should nuclear weapons ever be used in warfare, there would be no question where an officer's duty lay. But what about right now, what about the "interim period"—if that's what it turns out to be? Is it any part of a serving officer's responsibility to assure that nuclear weapons are in fact *not* introduced into a war situation? This is the essential question raised by another senior officer, one who first met war face to face at the Somme and Passchendaele.

Lieutenant General E. L. M. Burns, a Canadian who since 1962 has served his government as its adviser on disarmament, has written an impassioned, sobering, and provocative book whose title, *Megamurder*, sums up its theme in one word.<sup>†</sup> To speak of waging war with nuclear weapons, he argues, is delusory doubletalk; for a nation to engage in such a war would be equivalent to waging war upon itself. "The military should realize that the

†E. L. M. Burns, Lieutenant General, *Megamurder* (New York: Pantheon Books, 1967, \$6.95), xv and 297 pp.

greatest threat to the survival of democracy is no longer the Russians or the Chinese . . . but rather war itself. It is nuclear war against which the military must protect their fellow-citizens. . . . Unless we can find a way to prevent such a war, we shall be delivering millions upon millions of our fellow-countrymen to death." Were this to happen, the military would be guilty of forfeiting their *raison d'être*, which is the protection of the civilian population.

Many officers, especially airmen, will be irritated by General Burns's book. He will be accused of prejudice, bias, and "slanting the evidence" by some; of muddle-headedness by others. But before working up a head of steam for attacking his arguments, one might well remember that it was General H. H. Arnold who concluded his Third Report to the Secretary of War with these words: ". . . the mission of the armed forces of the United States should be not to prepare for war, but to prevent war—to insure that peace be perpetuated." Although he does not cite Arnold in this context, Burns is effectively asking what we have done to accomplish that task.

The book as a whole is a contemplative history of aerial bombardment, combined with a descriptive and historical analysis of postwar disarmament negotiations. The author sees the two as closely related, with strategic air theory wedded to nuclear weapons by well-meaning but confused men. A point he raises that should concern airmen is his argument that whenever aerial bombardment is adopted as a strategy it tends inevitably to escalate. Citing World War II, Korea, and Vietnam, he tries to show that bombing in itself, while it may start out with limited aims and specific targets, tends to be slow in producing the desired effects. Then, anxious to do their part and do it well, air commanders begin to recommend the removal of previously imposed limitations, hoping—indeed, often promising—thereby to produce significant results on the overall war situation. So begins a process, he argues, which continues step by step until bombs are falling on population centers. We have experienced several such spiraling processes; sooner or later one will involve nuclear

weapons, and "megamurder" will result.

Many since Clausewitz have recognized that, once battle is joined, warfare tends to take on a momentum of its own. What General Burns has done is apply this observation to the history of one particular form of warfare. And no matter how many errors may be found in his presentation, or in his judgment for that matter, it is perhaps well that he has done so. If we look at modern air doctrine in its entirety, we see that widespread agreement exists concerning most of its functions. No one argues against the need for air transport or reconnaissance, for control of the airspace over areas to be defended or attacked, for weapon systems capable of providing these necessary adjuncts to battle. But strategic bombing (including mid-range cumulative interdiction campaigns) remains an uncertain science. Surely to some extent it always will be, since *any* bombing decision involves a large-scale prediction of the future conduct of the enemy, a prediction that involves at a minimum evaluations of both the enemy's means *and his will*.

What can be done to improve our real knowledge of bombing and its effects? Many starts have been made in this direction since World War II, but none has been very successful. Perhaps one new starting point might be a full-scale Air War College study of General Burns's theory on the humanly induced inevitability of escalation when bombing is applied as a strategy. Such a study might prove or disprove his theory, or it might well reach some middle ground. In any case questions would be raised and faced up to, questions that have not as yet received the concentrated study they deserve. In a brief postscript General Burns paints the moral clearly:

As armaments continue to increase in number and power, the negotiators at Geneva begin to have the feeling that they are like men standing over a fused mine. They see the fuse burning, they know the mine that can destroy hundreds of millions is there. How long the fuse may be they do not know, but they do know that if it is not cut, sooner or later the mine will explode. And still they find them-

selves disputing over whether the fuse should be cut with an axe . . . or by shears . . . who will make the first cut, and so on. The fuse keeps on burning.<sup>8</sup>

St. Augustine might well have been speaking to General Burns when he wrote: "Let those be angry with you who do not know with how much anguish truth is sought."

LEADERSHIP, strategy, and reflection—three

responsibilities among many. Each officer must decide for himself whether and to what degree such responsibilities accrue to his own person, his own conscience. Whatever attitudes or positions he assumes on the questions raised in these three books, there can be no argument with Lieutenant General Sir Winthrop Hackett's observation that the solutions to today's problems demand more and more good minds in the profession of arms.

Durham, North Carolina

#### Notes

1. He adds that the committee which empowered the project in the first place agreed on this point, but that "some Pentagon bureaucrat discovered that a Department rule required anonymity. While it is foolish to argue a priori with a system, that rule merely dilutes the force imparted by oneness of conception."

2. In the newest version there is an obvious effort to get first things first. For example, "Knowing Your Job as a Leader" moves up from Chapter 13 to Chapter 4.

3. "The Problem of Career" replaces "Planning Your Career"; "Your Code as a Leader" replaces "Forming Military Ideals"; and, significantly, "Speaking and Writing" replaces "Writing and Speaking."

4. This is a guess on my part, based on the fact that several of the "additions" fit so well into the overall flow of the narrative and are the *sorts* of things that get blue-penciled. Let the curious reader compare pp. 155, 173, 179, 201, 203-4, 220, 225, and 232 with the corresponding pages in DOD Pamphlet 1-20 (the 1960 edition). Also, some Army friends advise me that the three added maxims on p. 275 could *never* have been approved by the Marines, especially number XXVII concerning

the overloading of packs.

5. Some members of the so-called "strategic community" are already at work on this problem. See, for example, Urs Schwarz and Laszlo Hadik, *Strategic Terminology: A Trilingual Glossary* (New York: Praeger, 1966). The introduction notes that "the language began to be confused and corrupted by outsiders who put it on in order to look like insiders, and by those lesser insiders who were unconsciously impelled to make it more difficult to understand, more obscure, in order to exclude the profane." (!)

6. For this reason it would be unfair simply to list these assumptions in a simplified form. See his Chapters 7, 8, and 9.

7. Général d'Armée André Beaufre takes an approach similar to Admiral Wylie's when he calls for the conscious formulation of a "total strategy" (Wylie's "general theory of war strategy") that includes political and economic forms of action. See his latest book, *Strategy of Action* (London: Faber & Faber, 1967).

8. The five-page postscript that concludes with this paragraph has been omitted from the American edition. In the Canadian edition it appears on pp. 264-68.

## The Contributors



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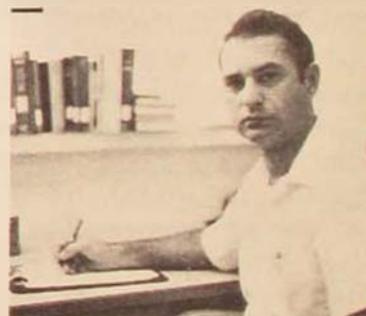
Military Scientist with TEMPO, General Electric's Center for Advanced Studies, Santa Barbara, California. After graduating from the U.S. Military Academy in 1938, he took flying training and during World War II commanded a B-29 group, Twentieth Air Force, based on Tinian. His postwar assignments were in the Far East and Europe, where he served eleven years with the North Atlantic Treaty Organization, ultimately as Deputy U.S. Representative to the NATO Military Committee and Standing Group, 1959-63. General Huglin is a graduate of the National War College (1957) and a member of the Council on Foreign Relations, New York, and the Institute for Strategic Studies, London. He has been a commentator on the Pacifica Foundation radio network on the subject of U.S. involvement in world affairs and a contributor to *Air University Review*.



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HARRIET FAST SCOTT has lived and traveled extensively throughout the Soviet Union as wife of Colonel William F. Scott, U.S. Air Attache, 1962-64. Her fluency in the Russian language and her familiarity with Russian military writing have been reflected in articles in *Military Review* and in selections and translations from the Soviet military press appearing in the Pentagon's *Current News* and *The Friday Review of Defense Literature*. With Dr. William R. Kintner, Mrs. Scott is coauthor of a recent book, *The Nuclear Revolution in Soviet Military Affairs*.



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Commander, 1st Air Division, SAC; student, National War College; Commander, 4060th Air Refueling Wing, Dow AFB, Maine; Commander, 818th Strategic Aerospace Division, Lincoln AFB, Nebraska; and Deputy Director, then Director, Legislative Liaison, OSAF, preceding his present assignment in 1966.



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The Air University Review Awards Committee has selected "Isolationist Critics of American Foreign Policy: A Historical Perspective" by Dr. Paul S. Holbo as the outstanding article in the March-April 1968 issue of the *Review*.

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