

Military Review

U. S. Army Command and General Staff College
Fort Leavenworth, Kansas

In This Issue

- + Ethnic Weapons
- + Central Highlands
- + Assault Capabilities

November 70



**UNITED STATES ARMY COMMAND AND GENERAL
STAFF COLLEGE, FORT LEAVENWORTH, KANSAS**

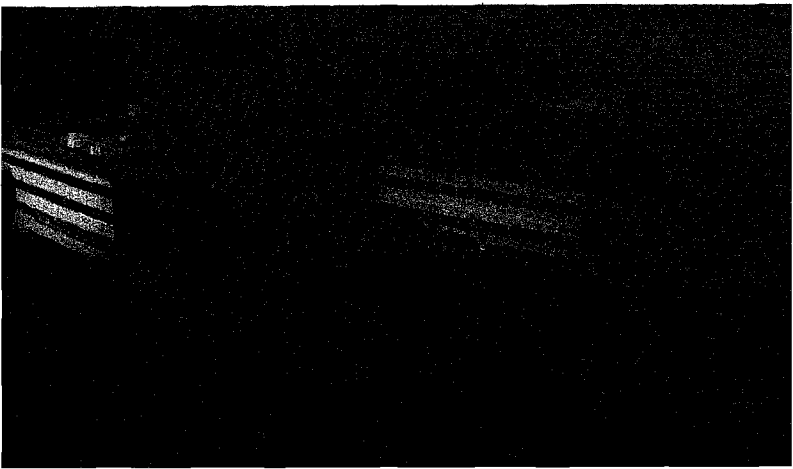
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Military Review

Professional Journal of the US Army

FORTY-EIGHT YEARS OF MILITARY SERVICE

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NOV 1970

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Library of Congress Catalog Card No 34-33760 Rev

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MILITARY REVIEW—Published monthly by the U. S. Army Command and General Staff College, Fort Leavenworth, Kansas, in English, Spanish, and Portuguese. Use of funds for printing of this publication has been approved by Headquarters, Department of the Army, 25 July 1968.

Second-class postage paid at Fort Leavenworth, Kansas. Subscription rates: \$4.00 (US currency) a year in the United States, United States military post offices, and those countries which are members of the Pan-American Postal Union (including Spain); \$5.00 a year in all other countries; single copy price 50 cents. Address subscription mail to the Book Department, U. S. Army Command and General Staff College, Fort Leavenworth, Kansas 66027.

Military Review

Award Article

The Military Review announces the selection of the following article from the September issue as a **MILITARY REVIEW AWARD ARTICLE**:

"Future Military Discipline"

Colonel Robert B. Rigg, United States Army, Retired

Colonel Rigg notes that our Nation is undergoing serious social revolution with its new generation and its social conflicts. Military discipline is going to grow more complex. He discusses two alternative approaches, suggests several areas in which experimentation may be in order, and concludes that there is a definite need of more formal training for junior officers and noncommissioned officers to enable them to cope successfully with the new disciplinary problems.



COMING:

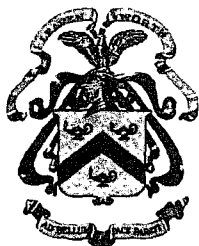
Richard M. Ogorkiewicz, in "The Future of the Tank," analyzes why tanks have been written off every time a new antitank weapon has appeared—this time with the advent of the missile-armed attack helicopter. He does not believe that helicopters are likely to be able to operate as freely in the face of a well-armed enemy as is often supposed. Mr. Ogorkiewicz, a consulting engineer and senior lecturer at the Imperial College of Science, London University, discusses tank armament, weight versus mobility, and the new low silhouettes.

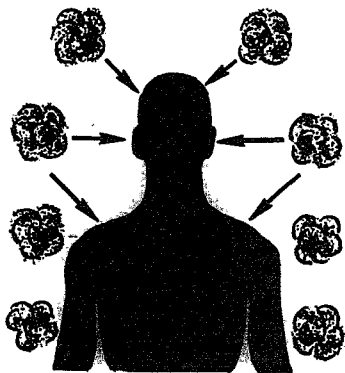
Colonel Sam C. Holliday, United States Army, in "Future Forces for the Army," suggests the concept of regionally oriented commands to provide skilled individuals to assist host countries in their internal defense. He writes that the most critical weakness in the Army's force planning for the past 10 years has been the failure adequately to consider all of the alternatives regarding forces for stability operations. He presents concepts of a Regional Assistance Command and a Military Assistance Division.

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ETHNIC WEAPONS

Carl A. Larson

A NEW generation of chemical weapons seems to be growing out of information collected and interpreted in research centers in both East and West. So far, chemical agents have been considered effective mainly against tactical targets of limited area. Even if this view may still be maintained, a new edge can be honed to an already formidable weapon. Forthcoming chemical agents with selective manstopping power will put into the hands of an assailant a weapon with which he cannot be attacked.

At the bottom of this new reasoning lies a careful exploration of the reaction of individual soldiers to chemical agents. Tactical consequences of the wide variation of such reactions involve both target analysis and the

selection of personnel for special missions.

With or without exposure to toxic products, most molecules of the human organism keep to their ordinary tasks of maintaining structure. A fairly great number of molecules are held in reserve against predicted needs, but a fatal chaos would result if too many molecules were ready to react with each other. Our energy requirements are satisfied by the transformation of molecules, capable of releasing energy, into other molecules with a less energy content. But every transformation, whether it takes place in a gun chamber or in a muscle, calls for the supply of activation energy.

High pressure and temperature are not compatible with vital functions. As in all other living organisms, our

molecules are kept arrayed until particular trigger mechanisms lower the activation energies of chemical reactions. These carefully safeguarded procedures for alerting molecules are extremely selective, and they depend on the activities of enzymes.

Such catalysts of living organisms have attracted an increasing interest, and new methods for the study of enzymes have accumulated some imposing, and mostly new, facts. One way to knowledge about the ladders of chemical reactions furthered at each step by a special enzyme is to study what happens when one enzymatic step is blocked. Material for such studies is provided by nature and by artificial inactivation of particular enzymes, intentional and accidental.

Catalase Activity

The immense laboratory of human natural variation provides many instances of sharp differences in the activities of well-defined enzymes. Catalase belongs to this category. Its task is to split hydrogen peroxide, H_2O_2 , setting free oxygen. Today, hydrogen peroxide may be better known as a rocket propellant than as a disinfectant. If used in the latter capacity, diluted peroxide foams when brought into contact with blood or a fresh scratch in the skin. Without catalase, there is no foam. We need the enzyme to inactivate hydrogen peroxide generated by bacteria trying to invade the gums through minute injuries.

Carl A. Larson heads the Department of Human Genetics at the Institute of Genetics, University of Lund, Sweden. He holds a Licentiate degree from the Medical School of Lund University and is a licensed physician. Dr. Larson has published research work and popularized science in American and European periodicals.

In the early fifties, several Japanese families were observed where some members lacked catalase activity. Their blood produced no gas when in contact with hydrogen peroxide, and they had more or less severe ulceration of the gums with loss of teeth. This enzyme defect is rare, and it follows a simple mode of inheritance, with the parents of patients having a normal or practically normal catalase activity. The changed gene responsible for lack of catalase is not confined to east Asian populations as was once suspected.

Scores of enzyme failures due to gene mutations have now become known. Many of them cause early death or severe mental retardation. Sometimes, a dietary adjustment suffices to overcome the consequences of enzymatic ineptitude. The study of such heritable disturbances has included their prevalence in different geographic regions.

Basic Pattern

Although some outstanding inequalities between widely separated ethnic groups have been registered, detrimental genes are, as a rule, rare all over. Significant is the basic pattern, repeating itself in scores of enzymatic failures, of a changed gene causing a distinct enzyme block. It does so alone or together with its similarly changed partner gene, carrying its false message unaltered from generation to generation.

Besides these experiments by nature, revealing the existence of an enzyme and its determining gene by replacing the gene with an inert imitation, information about enzymes has been obtained from the study of their inhibitors. Chains of vital processes in the human body, concerned with energy provision and material replace-

*Army News Features*

Enzyme inhibitors could turn these troops into a state of paralysis

ment, can be broken at will. For practical purposes, the effect of a specific enzyme inhibitor is a disturbed function that can be seen or measured with special methods. In effect, a supply point has been demolished.

For widely varying purposes, enzyme inhibitors have long been systematically studied. Their principal modes of operation have been traced, and their practical use includes agents with antibacterial and antitumor activity. The systematic search for enzyme inhibitors, useful as insecticides, began in Leverkusen in the Rhine Province in the thirties. Insects have solved their internal supply problems much in the same way as the gardener or farmer who tries to survive his bug fauna, but there are differences in susceptibility to enzyme inhibitors. In 1937, the Leverkusen lab-

oratories could, however, report a series of organophosphorous compounds that killed the gardener as well as his beetles.

Keeping quiet about these reports, the Wehrmacht began large-scale production in Dyhernfurth in Silesia of what was code-named Trilon. This was in April 1942. By 1945, some 12,000 tons had been produced of tabun or GA. Thus, began the mass production and stockpiling of the so-called nerve gases.

Such highly toxic enzyme inhibitors demonstrate quite convincingly the need for an orderly mobilization of molecules for a given mission—in this case, signal transmission. Too much or too little, too early or too late means chaotic performance by activated molecules.

When the brain orders a muscle to

shorten, the signal is dispatched via a nerve which triggers numerous muscle fibers. This is done through the transcription of the nerve signal to a chemical message, acetylcholine being released at the endings of nerve fibers. As long as the flow of impulses

mediate result is a persistent muscular contraction, a state of cramp, followed by paralysis. And this is exactly what happens when the critical esterase, called acetylcholinesterase, becomes inhibited by a G-type phosphorous compound. When the block



Army News Features

Face masks provide protection from a variety of agents, but a minute droplet of VE or VX passing rapidly through the skin can be fatal

travels through the nerve, acetylcholine is discharged and the muscle remains contracted. What happens when the muscle gets word to suspend action is not only that the transmitter substance, acetylcholine, stops being set free, but the chemical signal becomes muted, and acetylcholine is immediately broken up into inactive compounds. This vital task is fulfilled by an esterase, a specialized enzyme.

Without normal activity of this esterase, acetylcholine remains at the nerve fiber endings. The command to cease action does not arrive. The im-

mediate result is a persistent muscular contraction, the result is temporary inability of service. But muscles of respiration are also involved, with death following exposure to relatively small quantities. Thus, GA can kill in concentrations of 40 milligrams per cubic meter of air during 10 minutes of exposure through inhalation. However, GB and GD have a lethal concentration of only 10 milligrams under the same conditions.

A further development of the G series of chemical agents is represented by the V anticholinesterases

which are active after having passed the skin. The G agents are also absorbed through unprotected skin, but they evaporate too fast for full effect. A minute droplet of VE or VX passing rapidly through the skin, into the blood circulation, can kill a soldier.

Questions about the limitations of chemical warfare have been raised from time to time. The high toxicity of G and V-type enzyme inhibitors and the possibility of using strategic missiles with chemical warheads carrying well above four tons of payload have raised the discussion to animated altitudes. With existing ordinance employed on a modest scale, and with only a fraction of the GB now in stock, the inhabitants of Paris, Osaka, or Los Angeles could be asphyxiated. But this does not draw the whole picture.

Blocking Agents

By a peculiar coincidence, an inborn variability in the activity of cholinesterases has been observed. For various medicinal purposes, drugs are used to interrupt the transmission of the nerve impulse where it reaches the muscle. One objective is relaxation of the abdominal wall so that surgical manipulations can be carried out without resort to deep anesthesia.

Blocking agents of the same type are also used to decrease muscular spasms in tetanus and to prevent mishaps in the electroshock treatment of psychiatric disorders. One widely used blocking agent derives from curare, the South American arrow poison. Another is suxamethonium which cuts the nerve-muscle signal by interfering with the shifting of electrons at the critical junction.

The therapeutic effect aimed at should vanish with the need for relaxation, but in some patients suxa-

methonium caused unexpectedly long laming of muscles and dangerous standstill of respiration. While curare was, at an earlier stage of its medical use, the carefully guarded secret of tribal witch doctors, nothing in that way entered modern anesthesiology. The relaxant was right; the patient was unfit. The untoward reaction was brought about by a weak or absent cholinesterase activity.

Persons with this potentially fatal weakness are in excellent health as long as they are not exposed to suxamethonium. The deficient enzyme differs in some respects from the cholinesterase handling acetylcholine. It is produced by the directives of a changed gene and the fault appears in consecutive generations.

Human Variations

Such chance findings of heritable differences inevitably attract the attention of people who study the distribution of different genes in human populations. The esterase differences have been studied in detail with the aid of specific enzyme inhibitors. In essence, their inheritance follows well-known Mendelian patterns. A person who has the usual gene on both of two ordinary chromosomes is endowed with a 100-percent esterase activity; the atypical gene on the same site of both chromosomes renders only 50-percent enzyme activity. If two such persons start a family, their children will each have one usual and one atypical gene, and 75-percent enzyme activity.

Close to four percent of the normal people in Canada and Britain carry the atypical gene with the resulting reduced esterase activity. Similar proportions of 75 percenters have been observed in non-European populations. It is quite possible that the atypical

gene, and a third gene causing, in duplicate, zero esterase activity, will finally be found to have about the same distribution in geographically widely separated populations.

But this is only a stray observation fitting into a repeatedly confirmed pattern of human variation. In brief, human populations can be characterized by frequencies of distinct genes. Sometimes, gene frequencies agree fairly well between widely dispersed populations, but more often there are great differences. This view differs from the concept of typification established in physical anthropology until mathematical models and the observation of simply inherited, normal traits made the study of gene frequencies meaningful.

Biochemical Differences

With World War I came the first impetus to the new approach, blood group frequencies in Allied armies being found to vary considerably among personnel of different geographic origin. Next, blood groups were used to map the world population. In central Asia, the B-gene frequency comes near 30 percent; in American Indians, this gene is originally absent. When new blood group systems were discovered, European, Asian, and African populations could be characterized by a number of independently varying gene frequencies.

Widely used in such studies of human populations is the ability to taste diluted solutions of phenylthiourea. Persons who carry a variant of the taster gene on both of the critical chromosomes are nontasters. If somebody were to dissolve a sufficient amount of phenylthiourea in the drinking water in Mahar, India, 54 percent of all water drinkers would complain of the bitter taste. Among

Brazilian Indians, an identical experiment would make little more than one percent aware of the admixture.

Several other biochemical differences between human beings have been studied with an increasing awareness that some of these differences may be adaptive. When a simply inherited variant of the red coloring matter of blood, practically absent in Europe, was observed to be common in a broad belt across central Africa, it was brought into relation with the high incidence of malaria in these regions.

Carriers of the changed gene have an increased chance of becoming grandparents in spite of the high mortality among their children where the abnormal gene in the duplex state is a merciless killer. The cause is the greater resistance to malaria granted by a single gene for the deviant pigment. In the Mediterranean region, similar situations include other variants of blood pigment and also an enzyme defect significantly common in old malaria regions.

Enzymatic Reactions

In the present decade, knowledge about enzyme polymorphisms has accumulated. If a deviant gene is too common in a given population to remain prevalent only through new mutations, it has a polymorphic distribution. More often than not, the selective forces balancing such relatively high frequencies of a substandard gene are completely unknown. The chance observation of a reaction to a certain drug is obviously just the shadow on the wall. The real item has to be searched for among entangled molecular supply lines in the living organism. Clearly a relative advantage in one environment granted carriers of a mutant gene can be

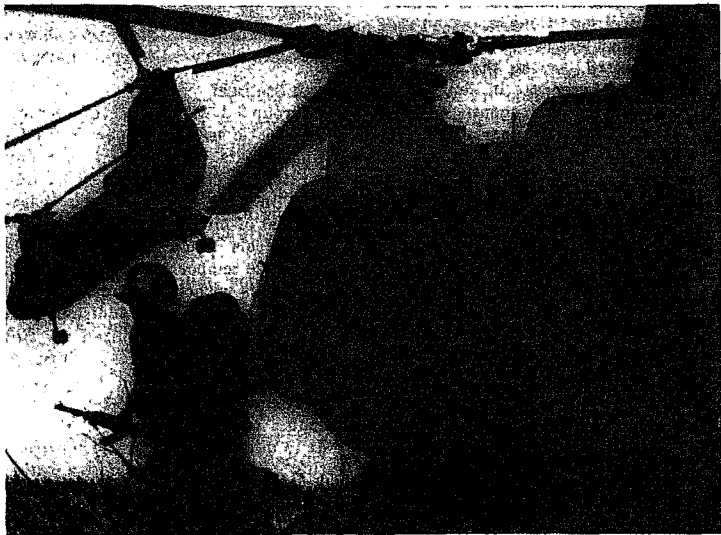
entirely void in another environment. But the decisive environmental factors of selection can hardly be suxamethonium drugs, sulfonamides, or BZ-type chemical agents.

Careful analyses of enzymatic reaction patterns to a series of drugs are underway, and we may soon have a grid where new observations of this kind can be pinpointed. One set of reference lines in this grid goes from genes necessary for enzyme production. Another set of lines marks substances turning on and off the making of active enzymes which can, but need not, be alerted.

Recently, a series of widely debated observations have revealed an enzyme deficiency in southeastern Asian populations, making them susceptible to

a poison to which Caucasoids are largely adapted. In such situations, the sketchy grid just mentioned is of some use. One looks for the possibility of the poison-provoking enzyme production, an individual adaptation observed in several instances.

The poison now at issue is milk. In Europeans, intolerance to lactose, or milk sugar, occurs as a rare recessive trait. Healthy parents, each carrying a single mutant gene, have children approximately one-fourth of whom react to milk ingestion with diarrhea, vomiting, malabsorption, and even death. When reports on milk intolerance in various groups of non-European began to accumulate, it was remembered that malnourished children in east Africa got diarrhea when



*Vertol Division
The Boeing Company*

Innate differences in vulnerability to chemical agents between different populations have led to the possible development of ethnic weapons

treated with dried skimmed milk. Then, the enzyme lactase was found to lose its activity in the intestinal mucosa of African infants over the first four years of life.

New reports on milk intolerance in Chinese, Filipinos, and Indians were met with skepticism in that the groups studied might not be representative of their peoples. A study reported from the Chiangmai University in Thailand has, however, revealed a widespread lactose intolerance in adults in northern Thailand, the lactase activity getting lost between the first and fourth years of life. By inference, it has been found likely that Southeast Asians, in general, are deficient in lactase production.

Rapid and Slow Inactivators

Similar observations of geographically distinct enzyme differences are to be expected. Among the obviously inherited differences in enzymatic response to chemical agents, acetylation is marked by a clear separation of people in two groups. Originally, one group was characterized as composed of rapid inactivators of isoniazid, a drug used against tuberculosis. The other group of slow inactivators carries an alternative gene less efficient in converting isoniazid to acetylisoniazid. Europeans, as well as Americans of African descent, have among their numbers about 50 percent slow inactivators. Eskimos and Japanese have approximately 10 percent slow inactivators.

The method of acetylation to inactivate a molecule is not confined to isoniazid. People belonging to the two acetylator classes reveal differences in handling a number of other drugs, including enzyme inhibitors acting upon the central nervous system. Although the study of drug metabolizing

enzymes is only beginning, observed variations in drug response have pointed to the possibility of great innate differences in vulnerability to chemical agents between different populations.

A series of enzyme inhibitors and chemically active substances interfering with signal transmission in the brain and spinal cord have been intensely studied since the early fifties. Many of these substances have a colorful prehistory saturated with tribal sorcery.

The incapacitant known as BZ derives from a drug which before its present renaissance as lysergic acid diethylamide (LSD) caused epidemic outbursts of Saint Anthony's fire in the Dark Ages. With ditran-like compounds, BZ shares the capacity to produce transient toxic psychosis, sometimes compared to schizophrenia.

Search Continues

Surrounded with clouds of secrecy, a systematic search for new incapacitating agents is going on in many laboratories. The general idea, as discussed in open literature, was originally that of minimal destruction. Psychochemicals would make it possible to paralyze temporarily entire population centers without damage to homes and other structures. In addition, with the small quantities required for full effect of modern incapacitating agents, logistics problems would be minute. The effective dose of BZ-type agents amounts to micrograms.

It is quite possible to use incapacitating agents over the entire range of offensive operations, from covert activities to mass destruction. One fairly obvious offensive preparation is protection of the country's own personnel by tolerance-building. This is where enzymatic response to psycho-

chemicals enters the scene. Exposure to drugs or to molecules of almost identical composition is known to produce, with varying degrees of accuracy, resistance to the toxic effect at repeated exposure. As this is a known and thoroughly discussed procedure, concealment of large-scale preparations of this type probably would be difficult if not wholly impossible.

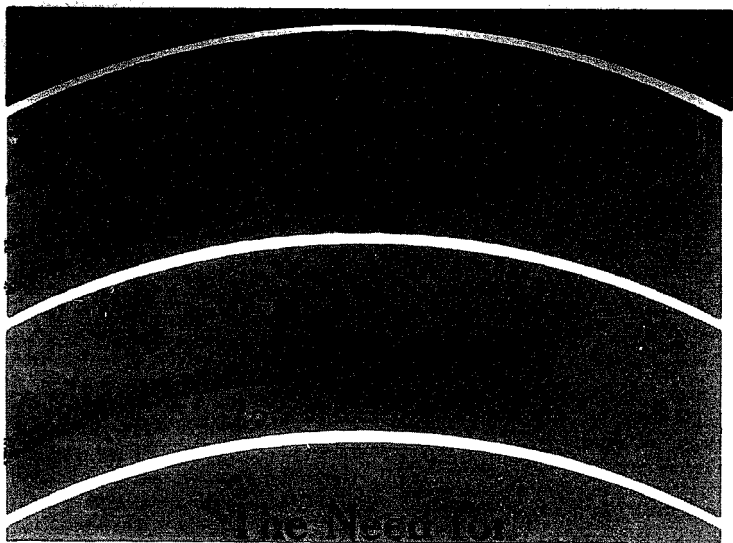
Another prospect may tempt an aggressor who knows he can recruit from a population largely tolerant against an incapacitating agent to which the target population is susceptible. An innate immunity would offer concealment of preparations and obvious advantages in many tactical situations. When the proper chemical agent is used against intermingled friendly and enemy units, casualties may occur in proportions one to 10.

Such inferences are barely extrapolations of observed genetic differences between major human populations and of research programs known to be in progress. Widely different opinions have been ventured as to the type of chemical operations likely to be directed against military personnel and the civilian population in a future war. There have been some recent tendencies to stress the wide latitude between incapacitating and the lethal action of BZ-type agents. Friendly troops could use them to dampen belligerence. They effectively slow down physical and mental activity, make the poisoned personnel giddy, disoriented, and more or less unable or unwilling to carry out commands.

Friendly forces would discriminately use incapacitants in entangled situations to give friend and foe a short period of enforced rest to sort them out. By gentle persuasion, aided by psychochemicals, civilians in enemy cities could be reeducated. The adversary would use incapacitants to spare those whom he could use for slaves. There is little that human biology can contribute to prognoses of that type.

The factual basis of abundant enzyme inhibitors of widely different types can be neglected as little as modern methods for their distribution. They need not be gases in a true sense. Well-studied enzymes represent a small proportion of the total number of catalysts necessary for our vital processes. When new enzyme varieties are discovered, some of them are likely to overstep the prevalence limits so far observed, both high and low, in different populations.

But the production of enzymes in the living cell could not be selectively quenched until details of early signal transmission from the gene became known in 1969. During the first half of that year, several laboratories reported factors engaged in passing over the genic message from DNA, the primary command post, to RNA which relays the chemical signal. The enzymatic process for RNA production has been known for some years, but now the factors have been revealed which regulate the initiation and specificity of enzyme production. Not only the factors have been found, but their inhibitors. Thus, the functions of life lie bare to attack.



ASSAULT CAPABILITIES

Captain Carl H. Amme, Jr., *United States Navy, Retired*

IT IS GENERALLY assumed that some military options are politically more acceptable than others, and that some options are even ruled out because of the political costs or the ultimate risks they entail. The military planner may plan on the basis of military considerations only to discover that political considerations dominate military imperatives. Political considerations operate to facilitate or constrain the choice of military alternatives and limit the use of military power in the event of conflict, and af-

fect the decision to use military force in the first place.

The two are clearly interrelated. The same complex considerations that cause war in the first place also influence the choice of military objectives and the restrictions placed on military forces. Military choices are drawn not only on the basis of military requirements involving the capability of friendly and enemy forces, but also with regard to the consequences a particular choice may work among the nations of the world.

The motives behind a decision to use force or make war are expressed in the way priorities are assigned to various political goals. The political values considered important at one time, in one context, may not have the same importance at another time, in another context. The most serious threat to an important national interest does not automatically lead to a decision to intervene on behalf of the interest. There must be some prospect of success if intervention is to be seriously entertained.

Direct Response

Both the United States and the Soviet Union have the power to enforce their wills on nations within their respective spheres of influence. The existence of the "strategic-nuclear balance," embodied in the nuclear striking forces of the two countries, tends to influence each country to avoid direct conflict with the other. When one of the countries has a cause to advance, it tends to advance the cause through means that will not call forth a direct response against itself.

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At the same time, abstract principles play a part in shaping decisions about intervention, whatever the goal or national interest that intervention is meant to serve. Thus, there is, in the United States, a substantial interest in "nonintervention" as a principle at the same time that there is a substantial interest in not suffering a strategic defeat. The principle has to do with feelings about what one would prefer not to do, while the interest has to do with what others may do to us if we suffer a strategic defeat.

Bay of Pigs

Hans J. Morgenthau uses the Bay of Pigs as an example of the conflict between principle and interest:

The United States was resolved to intervene on behalf of its interests, but it was also resolved to intervene in such a way as not openly to violate the principle of non-intervention. . . . The United States failed to assign priorities to these two interests. In order to minimize the loss of prestige, the United States jeopardized the success of the intervention. Instead of using concern for prestige as a datum among others in the political equation—that is, as an interest among others—it submitted to it as though it were an abstract principle imposing absolute limits upon the actions necessary to achieve success.¹

The Soviet Union escapes the dilemma between principle and interest by promulgating the Brezhnev doctrine, calling for intervention in the affairs of Socialist countries when irresponsible leaders cause the country to stray from the valid pathway of Socialist development.

The rapidity with which Soviet intervention in Hungary in 1956 receded

¹ Hans J. Morgenthau, "To Intervene or Not to Intervene," *Foreign Affairs*, April 1967, p 431.



US Army

Korea was a form of direct intervention characterized by a deliberate decision to employ armed forces in support of US interests

from memory in the West, and the ease with which Soviet intervention in Czechoslovakia has been passed over by most of the world seem to have made a Soviet statement of principle superfluous when it comes to intervention. The statement was not made, therefore, to legitimize intervention in the eyes of the world, but only to lay down a firm rule that could be called to the attention of any member of the Socialist Commonwealth who might be thinking about swimming against the current of Socialist reality as defined by the Soviet Union.

Conflict between two principles of operation in foreign relations can be as difficult to resolve as conflict between national interest and principle. The Monroe Doctrine, a clear state-

ment of principle about European intervention in US affairs, as in the Cuban case, runs afoul of the equally certain principle of nonintervention by the United States. Revulsion at US intervention in Latin-American affairs certainly influenced the outcome of the Cuban affair from the Bay of Pigs to the missile crisis.

The result of the conflict between two equally valid principles was that the Soviet Union was granted tacit recognition of its right to station forces in Cuba so long as they were not equipped with missiles and medium bombers. At the same time, the United States has been left with the dilemma of deciding which is more important—observance of the principle of nonintervention in order to keep

the Latin Americans happy, or observance of the principles of the Monroe Doctrine in the interest of US security.

Degree of Tensions

The importance of an issue in dispute between the two superpowers cannot always be ascertained with any precision. When an issue is raised, however, it can be assumed that one side or the other thinks it important whether or not the objective viewer can see the importance. It must be supposed that, once an issue is raised, some judgment of the priority assigned to the issue may be made. However, the tension and antagonism generated around an issue may be a measure less of its importance than of the depth of the conflict between the policies of the two superpowers.

Tensions, such as those of the cold war, are not susceptible of rational analysis. The conflict of interests over a well-defined objective may become characterized by the passionate clash of ideologies and attempts to assert prestige and test resistance. What is at stake in the conflict between the superpowers is domination. The tensions are heightened or relaxed according to the specific issues at the moment, but they submerge the clear-cut political goals that are in conflict.

The importance of various political objectives and interests must, therefore, be judged in the context of the tensions between the United States and the USSR:

- *Action-reaction response* in Soviet-United States relations affects the means by which the two superpowers pursue objectives and establishes a "climate" that conditions the policies of other powers. For example, the *detente* in Europe creates concern in Germany that the United States and

the Soviet Union might reach agreement before the problem of reunification is resolved.

- *The existence of spheres of influence* in any particular area places a higher importance on the interests of the country that exercises the predominant influence. For example, the existence of a US sphere of influence in West Europe and the tacit Soviet recognition of US predominance would result in ranking the importance of US interests higher than Soviet interests in that area. The reverse is true of East Europe. This has placed a limit, for example, on how far Czechoslovakia and other satellite states may go in their liberalizing and nationalist movements.

- *Changes in the strategic balance* affect the willingness of each superpower to court conflict or even military confrontation and affect the constraint that can be exercised on lesser powers by nuclear threats.

- *The Sino-Soviet split* and the active competition offered by China's brand of communism in the developing areas of the world affect Soviet-United States relations and the importance that the Soviets and Americans assign to their respective political goals and objectives.

Values of a Nation

Security, power, and wealth have been cited as three of the more important values of a nation. National security is usually regarded as the highest political value; it is a "vital" interest simply defined as one for which a nation would fight. But this definition conceals the fact that nations will differ in the efforts they will expend to gain security. How else can one account for the lag in US reaction to the German and Japanese threat of the thirties or to the fact that Czecho-

slovakia lifted not a finger to preserve its independence in 1938, 1948, and 1968?

Even today, it is difficult to identify and rank the political values inherent in the US support of the Republic of Vietnam. National security, US reliability as an ally, right of self-determination, support for the "Free World," containment of communism, a demonstration of commitment and resolve, interests and purposes of allies (for example, the Philippines, Australia, and Thailand), prestige, the American tradition of winning its wars, and "buying time" have all been cited as political values important to the United States. No doubt some subjective assessment of both the pragmatic and idealist values could be made, but only at the hazard of wide disagreement.

Analyzing the national interests and political values does not produce clear criteria for a scale of values. A state has many national interests and political values, and some, like the "great generalities" of the constitution, embody the political and cultural traditions within which a nation formulates its foreign policy. The values may be vital, or merely peripheral, but it is difficult to categorize them without considering the role and availability of military forces to preserve them.

Role of Military Forces

The role of military force derives from the purpose of maintaining an international environment within which a nation can pursue its national purposes without having to use military force. The requirement to be placed on the military forces cannot be clearly defined in advance of contingencies. The only recourse is to maintain a force of sufficient size and flexibility so that the nation's capacity

to deal with threat to its values is unambiguous.

Some insight can be gained into these crucial political considerations by examining situations since World War II in which US leaders contemplated military intervention or actually intervened for the purpose of defending US interests or those of its allies.

Forms of Intervention

Aside from a peaceful show of force, military intervention may take two general forms. The first is direct intervention actually carried out in Korea and the Dominican Republic and threatened during the Cuban missile crisis. Such intervention is characterized by a deliberate decision to employ armed forces to the extent necessary to prevent the enemy from achieving his objective or to restore peace on terms compatible with US interests.

The second form is Vietnam where the United States became involved indirectly, not as a result of a major deliberation, but through a series of small decisions involving military assistance and advisors, and where each step that deepened the US commitment was reasonably regarded at the time as the last that might be necessary.

US intervention in Lebanon in 1958 was of the first type, even though no shot was fired. Landing the battalion of 6th Fleet Marines was quickly followed up by Marine reinforcements, the US Army 24th Airborne Brigade and elements of the 19th Air Force. US forces deployed in the vicinity of Beirut in the next few days included about 15,000 men of whom 8,000 were US Army and about 6,000 were US Marines. Also committed were 150 US Air Force combat aircraft and 270 aircraft of the 6th Fleet carriers.

This was a sizable force to commit

to a situation where the existing civil war had already reached a stalemate. The fortuitous outcome, however, could not have been foreseen, and, had the civil war again erupted at the time of intervention, even more US troops would have been required.

The United States also intervened

Treaty Organization allies by threatening retaliation.

The United States intervened indirectly in Guatemala, Quemoy, Bay of Pigs, and in Vietnam (at least, in the last case, initially). Each of these conflicts was characterized by an explicit decision not to project US military



*Vertol Division
The Boeing Company*

Air assault and amphibious forces form an essential component of US capability to project its power to the rimlands

directly at the time of the 1956 Suez crisis, but not militarily. Both the United States and the USSR brought pressure to bear to bring that war to a close. The United States put great diplomatic pressure on Britain and France, including financial pressure through the World Bank. The USSR entered into vigorous diplomatic correspondence and made nuclear threats against London and Paris. The United States, after some delay, responded to the Soviet threat to its North Atlantic

forces into the existing conflict to achieve the US limited objective. The risks of getting involved militarily were low in the case of Guatemala and the Bay of Pigs, but were appreciably higher in Quemoy and in Vietnam where there were distinct possibilities that a well-armed Communist enemy might commit hostile acts against US forces.

The accompanying chart summarizes the influence of political considerations on the decision to intervene,

**Influence of Political Considerations on
Decisions to Intervene and Choice of Alternative Military Forces**

	Decision to Intervene	Military Objectives	Military Constraints	Choice of Alternative Military Forces	Outcome
Korea	High	Low, then High	High	Low	Conflict
Guatemala	High		High		Success
Suez	High		High		Success
Lebanon	High	High	High	Low	Success
Quemoy	High		High	High	Success
Bay of Pigs	High	Medium	High		Failure
Laos (Thailand)	High	High	High	Low	Success
Cuba Missile	High	High	High	High	Success
Dominican Republic	High	High	High	Low	Conflict
Vietnam	High	High	High	Low	Conflict

military objectives, military constraints, and choice of alternative military forces in 10 selected crises. The influence of US political considerations were uniformly high on the decision to intervene and on the military constraints imposed.

The choice of military objectives in the indirect support rendered in Guatemala and Quemoy did not appear to be influenced by US political considerations. Particularly in the case of Quemoy, the United States would have preferred for Nationalist China to pull back to Taiwan. The selection of the Bay of Pigs as an objective rather than the town of Trin-

idad was dictated by the US desire to conceal its involvement in the operation.

In Korea, General Douglas MacArthur had considerable leeway initially in choosing military objectives. After the Chinese crossed the Yalu, US political considerations influenced these military choices to a much greater extent. Four direct and two indirect interventions resulted in successful attainment of US political objectives without involving US forces in conflict. Two direct and one initially indirect intervention resulted in conflict (Korea, the Dominican Republic, and Vietnam). One indirect interven-

tion, the Bay of Pigs, resulted in failure.

Political considerations influenced the choice of alternative military forces to a significant extent only in the case of Quemoy, where naval escort was chosen over bombing mainland Chinese airfields, and in the Cuban missile crisis (where a naval blockade was chosen over bombing and invasion).

The analysis of 10 crises and conflicts revealed that:

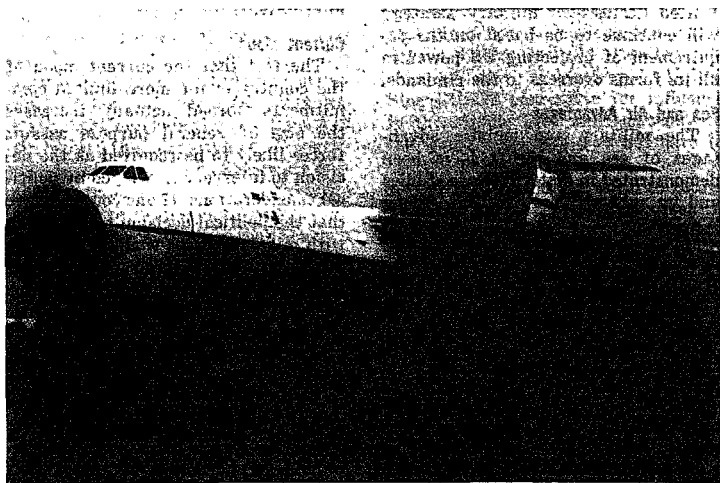
- *The major political values influencing the decision to intervene with military forces were the strategic interests, political objectives, commitments, and constraints that were perceived by the President and his advisors in the circumstances at the time.*

- *The choice of alternative military responses was based primarily on the availability and suitability of the mili-*

tary forces in being. The structural arrangements within the Department of Defense and the operating philosophy of the Joint Chiefs of Staff revolve around the concept of balanced general purpose forces. The wide range of contingencies examined indicated that a large variety of capabilities were needed and, in most part, were available for the military responses decided upon.

There were exceptions. For example, President Harry S Truman's decision to intervene in Korea was based, in part, on a mistaken assessment of the capabilities of the South Korean armies. But it was not a crucial factor in his view.

- *Political considerations greatly influenced the choice of military objectives and the constraints imposed upon the actions of military commanders.* For example, President



US Army

The C-5A enhances US strategic airlift capability, but it does not eliminate the need for assault forces

Dwight D. Eisenhower's preoccupation with not provoking the Soviet Union during the Suez crisis of 1956 led him to modify the Joint Chiefs' measures for improving the Nation's state of readiness by insisting that they be carried out progressively rather than all at once.

Also, the response of convoying Nationalist Chinese forces to Quemoy and providing them with certain amphibious vessels was chosen in lieu of bombing the Chinese artillery emplacements on the mainland out of fear of widening the scope of the conflict. In Lebanon, political considerations prevented the army from disembarking its *Honest John* missiles.

These conclusions provide important perspectives for future military strategy. Barring a major war that would radically change the strategic balance between the Soviet Union and the United States, US military strategy will continue to be based on the requirement of projecting US power in all its forms overseas to the rimlands.

Sea and Air Advantages

The military and logistic advantages of sea and airlift have been demonstrated in historical case studies and by analysis. For example, Albert Wohlstetter has shown that the United States can lift four times as much to the Thai-Laotian border from 8,500 miles away as China can from 450 miles away.² Air assault and amphibious forces are an essential component of this capability. To bank on the use of military forces to protect administrative landings without preparing for possible assault places too great a trust in the accuracy of intelligence and forecloses on options of national decision makers. The distinction be-

tween peacekeeping operations and limited war is finely drawn.

There is another political consideration that argues strongly for an assault capability. The Soviets have placed a major effort in developing a merchant marine that would permit peaceful penetration and subversion in certain countries of the third world. The Soviet Navy itself is beginning to play a role in this strategy with its penetration into the Mediterranean and Red Sea and its visits to ports and anchorages in the United Arab Republic, Algeria, Yemen, and other countries.

The presence of Soviet warships in the port of a strife-torn nation might well inhibit US decision makers from using these ports for delivery of military assistance or combat support for fear of a direct confrontation. Air assault capabilities provide an obvious alternative.

Current Mood

The fact that the current mood of the country is for more limited commitments abroad actually increases the size of general purpose assault forces likely to be required as the decision to intervene is delayed by political considerations. If one could be sure that the political decision to intervene with military forces would be prompt, then joint air-ground task forces might offer initial advantages in some cases. But the historical analyses have shown that, with the sole exception of Korea, political considerations operated to delay decisions long enough for both air assault and amphibious forces to arrive on the scene.

The case for the use of decisive military force at the outset rests principally upon the propositions that gradual escalation is, in the end, more costly; that the desired objectives are,

² Albert Wohlstetter, "Theory and Opposed Systems Design," *Conflict Resolution*, September 1968.

in fact, obtainable through dominant US military force and not through lesser means of US support; and that prompt, decisive action will not trigger the entry of some other major power that otherwise might not be drawn into the conflict.

These propositions must be based on political judgments in the context of each new military action that is contemplated. The problems that have attended gradual escalation in Vietnam are not proof that any other course would have been bound to succeed in Vietnam or that the Vietnam experiences may be projected upon a situation involving different geographic factors, different arrangements of loyalties, different concepts of US interests, and different risks and opportunities.

Alternative Responses

Once the crucial decision to intervene is made, the choice of alternative military responses will be based primarily on the availability and suitability of the military forces in being. An "air barrier" over sovereign territory might preclude the use of certain air routes, thus negating the theoretical advantage of speed of response normally attributed to airlift.

Austria protested our infringement of its airspace during the Lebanon crisis, and there is a distinct possibility that even some of our allies, such as France and Turkey, might react in similar manner. North African states likewise would probably bar the use of their airspace in connection with conflicts in central Africa. One could argue that these political considerations would be overridden in time of actual limited war. But they are real constraints during periods of crisis when peacekeeping operations are set in motion to forestall a conflict.

One can clearly assume that, in the future, US commitments will be minimized and kept as equivocal as possible. In a crisis, the United States will make a pronounced effort to abstain from action outside the diplomatic realm. If, however, military action is taken, it will be taken in concert with other powers if possible with as little force, as little damage, and as little provocation of the USSR as appears achievable in pursuit of the objectives of US action.

Simultaneous Crises

On the other hand, the frequency of conflict has actually increased during the past two decades. Experience has shown that crises often occur simultaneously in different parts of the world. Furthermore, crises cannot always be considered as isolated incidents. They are often a part of a larger political context.

In other words, a conflict that might occur in Libya or Ethiopia cannot be regarded as an isolated situation outside of the demonstrated United States-USSR contention for influence in the Middle East and elsewhere in the world. Also, one does not have to ascribe a monolithic exercise of control of the Communist world to recognize that advantage can be taken of US involvement in one area to precipitate a crisis in another. This was clearly demonstrated in the simultaneity of the Chinese-Indian border war at the time of the Cuban missile crisis.

The role of military forces derives from the overriding political objective of maintaining an international environment within which the United States can pursue national ends without the use of military force. Thus, US military forces must be responsive to the anticipated needs of our political

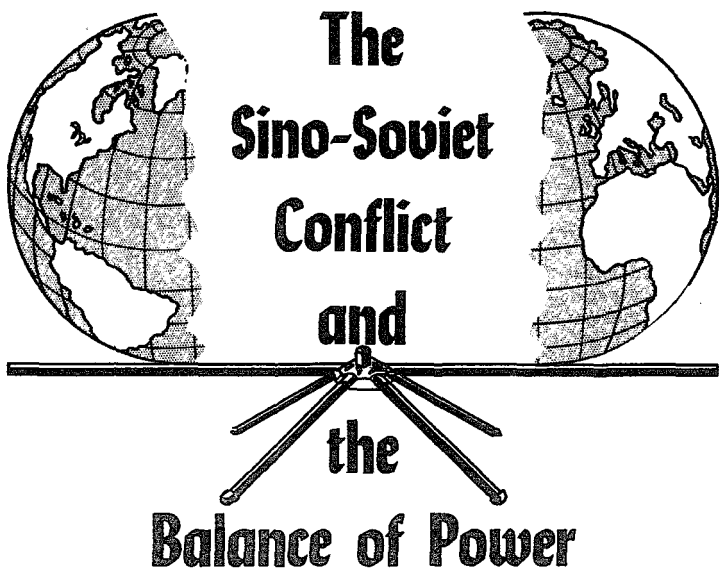
leadership, recognizing that these needs cannot always be clearly defined well in advance of contingencies. This requires a force of sufficient size and flexibility to make manifest the ability of the United States to deal with conflicts threatening significant US security interests.

The availability and presence of air

assault and amphibious forces within range of crisis areas provide the President with options not only in the decision to intervene or not to intervene, but also in the selection of military objectives that serve US national interests. To cut back on our military preparedness eliminates important national options that prudence demands.

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The Sino-Soviet Conflict and the Balance of Power

Tong-Chin Rhee

A FEW years ago, the suggestion of the present state of affairs between Communist China and the Soviet Union would have raised suspicion concerning the knowledge of the person making it. With human memory being so short, we tend to ignore important messages buried in the past. However, a study of history is essential for an understanding of present times and events. Among many epi-

sodes involving the Chinese, one pertinent today can be gleaned from the memoirs of the late Admiral of the Fleet William D. Leahy.

In 1945, after the Yalta agreement, the Chinese Nationalist Government of Chiang Kai-shek was negotiating with the Soviet Union on a treaty of alliance and friendship. Because the Soviets had extracted a long list of concessions from the Chinese as the

price of their last-minute intervention in the war against Japan, Washington's major concern was how to bolster the weak Chinese position to avert excessive Soviet extortion over and above what had been agreed upon between Franklin D. Roosevelt and Joseph Stalin at Yalta. Tensions were mounting between Moscow and Washington, and the cold war was already on.

Soong's Position

Reflecting this mood of concern, Admiral Leahy, the President's chief military aide, cautiously reminded Foreign Minister T. V. Soong of China that any further concessions to the Soviet Union, over and above what the United States had promised Moscow, were to be made without US recognition and entirely on China's volition. Soong's position was that China:

- Was too weak to withstand the pressing demands of the Soviet Union.

- Had to be cautious and friendly to the USSR lest it should antagonize Moscow to the point of supporting the Chinese Communists overtly in the impending struggle of power.

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- Would "prefer to settle the controversy by military action" some time in the future.

To Leahy's question concerning when the military reckoning would take place, Soong answered, "Well, that might be any time in the next five hundred years."¹

Nationalistic Regime

This essentially Chinese remark could still apply to the Red Chinese. What people have forgotten is that the mainland Chinese regime has gradually transformed itself from a totally Red regime to an essentially Nationalistic Red regime in the past decade or so. Practically everybody had the obsession of a monolithic Communist world and had difficulty predicting the physical confrontation between the brother parties of the Red world. The basic nature of the Communist internationalism of Karl Marx, V. I. Lenin, and even Joseph Stalin simply did not allow such a prediction.

Whatever the analysis of the events taking place between the two nominally Communist giants, we must accept the fact of confrontation and the possibility of a military exchange as well. An understanding of the problems must start from that premise although a negotiated settlement cannot be entirely ruled out.

If we acknowledge the clashes at Damansky (Chenpao) Island on the Ussuri River or along the borders of Sinkiang Province, our immediate concern would be how real or immediate are the dangers of physical conflict between the Chinese and the Soviets? Or if the chances of military conflict are real enough, how much possibility is there for these two Communist

¹ Admiral of the Fleet William D. Leahy, *I Was There: The Personal Story of the Chief of Staff to Presidents Roosevelt and Truman Based on His Notes and Diaries Made at the Time*, Whittlesey House, McGraw-Hill Book Co., N. Y., 1950, p. 389.

states actually to blow each other apart? And, then, if they did, with what consequences?

Obviously, as there is a serious imbalance of forces between Peking and Moscow, in material terms, the answer could vary depending on the angle from which we examine the present situation. From the Soviet point of view, the confrontation is not only possible, but could even be desirable. In both conventional and nuclear armament, the Soviet Union enjoys an enormous superiority over the Chinese.

Even in comparison with the United States, Moscow has the capability of inflicting grievous damage on its opponent. This capability is still increasing, both in volume and diversity. However, although a major military confrontation with the West is unlikely under the present conditions of nuclear stalemate, between Peking and Moscow there is no such stalemate.

Geographic Nearness

Furthermore, if the US argument for a "thin" antiballistic missile was rather facetiously based on the present nuclear capacity of the Chinese, any military capability on the part of the Chinese could be an immediate menace to the Soviet Union simply because of geographic nearness. Hence, the threat of China to the Soviet Union is more real than it is to Washington. As the Chinese perfect their delivery systems with massive stockpiling of nuclear and hydrogen warheads, the threat posed to the Soviet Union and the attendant Soviet concern is understandable.

There is no guarantee that the Chinese Communists might not resort to force to rectify the wrongs of the past imposed on them by the Russians. Mao Tse-tung was reported to have said on

the occasion of the establishment of the Red regime in 1949 that the days of imperialistic encroachment on China had passed for good, never to return again.

Drastic Solution

Under these circumstances, it should not be a great surprise that some radical elements in Moscow's leadership are in favor of seeking a drastic solution to the Chinese problem. The belligerent image of China has hardened in the years since the Korean War. The often misunderstood concept of the "paper tiger" and the attendant nuclear philosophy of the Chinese leaders have bolstered the image of an irresponsible and insane Peking. The excesses of the Red Guards and the cultural revolution have shocked the world, and, even among the neutrals of the world, the general goodwill toward Red China has decreased sharply.

Clearly, then, the Soviet leaders might feel that the time is propitious for them to exploit local border incidents and expand them into a major military operation. Therefore, the revival of the "Yellow Peril" theme in Soviet propaganda may have to be considered more seriously as carrying a message of import than has hitherto been judged in the West.

The other important problem from Moscow's viewpoint concerns the question of border demarcation or territorial readjustment claimed by the Red Chinese. Considering Chinese irredentism and their charges of neoczarism against the Soviet Union, Siberia, traditionally neglected by European Russia, immediately takes on vulnerability from alien attack. Some corrective measures have been taken such as the yet uncertain Soviet-Japanese agreement on joint development of Siberia and state-supported and financed mi-



NATO's Fifteen Nations

Chinese frontier guards confront an intruding Soviet armored vehicle along the Ussuri River last year

gration. Nonetheless, Siberia is still virtually a no man's land.

The exposed flank of the Maritime Territory provides yet another threat for Soviet dreams in Asia not only for the present, but for the decades ahead. The growing naval power of the Soviet Union, together with the increasing Soviet attempt to penetrate the Asian oceans, and the rivalry with China over Southeast Asia all presuppose the existence of secure home bases in Asia. At the moment, only the Maritime Territory with Vladivostok could satisfy this need.

As the Soviets perceive a growing threat from China, and these bases are increasingly in jeopardy, Moscow's desire to settle the issues with the Chinese through military means can only grow. Leonid I. Brezhnev's vague proposal for an Asian security alliance

system and the activities of the Soviet diplomats abroad, sampling the possible reactions to preemptive Soviet attack against the Chinese nuclear capabilities, indicate their frustration and jittery posture and the rise of hardliners in their leadership. Herein perhaps lies the greatest possible menace to Asian peace.

On the other hand, China's responses reportedly have been cautious, measured, and inflective. If the Chinese actions in the early part of 1969 were vigorous and provocative, their present posture seems to be one of avoiding recklessness and thereby denying the Soviet Union what might constitute legitimate excuses for taking drastic counteractions.

The debilitating elements the Chinese Communist leaders now have to consider seriously are many. First, the

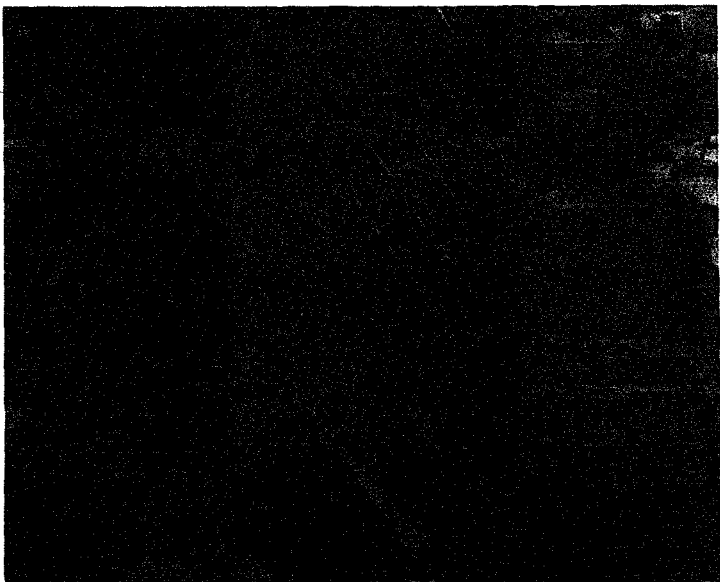
political confusion has been such that they may not be sure of the national unity and political loyalty of the people to the present leadership. Any miscalculation in this regard could be lethal to the regime at this point. In fact, the task of stabilization and recovery is so pressing that, notwithstanding hostile pressures, Peking could have ruled out all foreign adventures for the time being.

Second, the general economic picture at this point is too disheartening to allow enormous military diversion. Not only agriculture, but the general extractive and manufacturing production have suffered during this gigantic political confusion.

Third, the political infighting and

the purges have rendered the military establishment a dubious instrument for vigorous national defense. In a major conflict with the Soviet Union involving modern technology and philosophy, the highly "politicized" and "proletarian" armed forces with largely obsolescent equipment may be totally undependable as an effective deterrent.

Furthermore, the present military leadership has deemphasized professionalism and reverted to the guerrilla-peasantry philosophy of the Yen an days which may well prove to be a source of handicap for Peking. Although Peking does not admit it publicly, its actions seem to verify its tacit appreciation of these weaknesses.



Manufacturing production in Communist China is improving gradually following the political confusion which accompanied the cultural revolution

Fourth, had the Chinese really counted on the development of credible nuclear capability as the realization of their political instrument in Asia, there is no reason why Peking should at this stage want to act recklessly to invite a devastating military attack.

Finally, the Soviet Union, after years of slackening control, suddenly seemed to tighten up the reins to other Communist countries. The Czechoslovakia invasion and the so-called Brezhnev doctrine may have had a dampening effect on the Chinese in their acts of challenge to the Soviet Union.

If all these diverse elements play their role, it is understandable why the Soviet Union is now acting more aggressively toward China, but China is quietly reversing its gears.

"Holy War"

However, there are still numerous possibilities of miscalculation by both Moscow and Peking leadership. These still could engulf Asia in a massive war. For instance, despite their recognition of weaknesses, should the Chinese be pressured to the limit, there could be a chance of sliding to a military explosion—a kind of immense "Holy War" for the Chinese nation. Reportedly, the Chinese are doing their best to prepare the people for just such an eventuality with the Soviet Union.²

But should war come between Peking and Moscow, what would be its general scenario and its ultimate impact on the global balance of power? In a broad sense, there could be two different engagements although, in reality, it may involve elements of both.

² The reported moving of Chinese nuclear installations to Tibet or somewhere in south China and the frosty and fruitless Aleksei N. Kosygin-Chou En-lai conversations are indications of Chinese determination and Moscow's careful preparation for action.

The Soviet Union, employing its vast military superiority and fearing the repetition of the Japanese and United States experiences in China and Vietnam, could apply fast-moving and hard-hitting surgical operations aimed at selected targets of extreme importance in China. Upon successful achievement of these limited objectives, Moscow would pull back and concentrate all its efforts on gaining a political settlement to guarantee its control of China.

The nuclear installations of Lop Nor, Lanchow, Paotow, and the industrial complexes of northeastern China and Manchuria would be lucrative targets for the Soviets. These targets could be effectively taken out by the use of airpower with tactical nuclear weapons.

Conventional Means

The Soviets could achieve a comparable result using only conventional military means such as a powerful armored column with sufficient air cover, along with airborne units presently available in the Far East. If war comes, this latter scenario seems more probable. It takes pains to distinguish between the Chinese leadership and the people. Soviet contention has been that communism has been betrayed by Mao Tse-tung and his irresponsible cohorts.

Also, even if it would be relatively easy for the Soviet Union at present to destroy the nuclear forces in China, it would merely delay, probably by about 10 years, their re-creation. Furthermore, a deliberate nuclear attack could entail a host of political problems. The Soviet Union would destroy all ties with the Chinese people, write off chances for reconciliation, and initiate a conflict with no end. Besides, by resorting to a nuclear first strike,

Moscow would establish a dangerous international precedent in the use of nuclear weaponry for political ends.

There is no question that the Soviet Union is concerned with the possibility of protracted guerrilla warfare on

But if the Soviet Union managed the swift surgical operation and succeeded in achieving a satisfactory political settlement, there would arise the greatest problems the Asian balance of power has ever faced. Such an event



In a war with the Chinese, the Soviet Union probably would utilize powerful armored columns with air cover and airborne units

Chinese soil. Moscow will try its best to avoid such a quagmire.

Should the war be protracted in that manner, Moscow would then have to reorient its entire industrial posture to meet the gigantic demands of logistics. Obviously, such appreciation on the part of the Soviet Union may induce Moscow to have second thoughts and lead to a political settlement of some kind with the Chinese.

Additionally, any protracted conflict in Asia would entail enormous difficulties in Europe for the Soviet Union. Since the Soviets regard Europe as their central question, Moscow would try to avoid a paralyzing involvement with the Chinese at all costs.

would endanger global equilibrium. Given the Soviets' persistent aim of communizing the world and their vastly improved military capabilities relative to the 1950's, this could well be the major step toward their revolutionary goal on a global scale.

Admittedly, Red China has played the role of the chief villain in the Asian situation since 1949. But ironically, a Soviet military and political victory over China would assuredly point to the other fact that Red China has been an important power balancer for general peace in Asia.

Verbally bellicose, but actually weak and cautious, China has so far absorbed the major impact of Soviet in-

trusion into Asia, and thereby indirectly aided in containing the Soviet Union and reducing its potential militancy to its present scale.

There is a limit to what a weak and underdeveloped China can do in Asia in terms of spoiling a balance. But an aggressive and materially equipped Soviet Union, once established in China without any effective challenges and opposition, might entirely discard its present policy of peaceful coexistence and fundamentally rupture the balance of power in its favor.

In such a case, not only a conflict such as Vietnam could be more ruthlessly exploited, but nations in the Asian rim would find it impossible to maintain their independence or even neutrality. The United States would find it almost impossible to remain uninvolved.

War of Attrition

As to the second possible scenario of Soviet attack against China, using only conventional arms and traditional land thrusts, one cannot entirely rule out the possibilities that might lead to a war of attrition. There could be two totally different developments in this conventional conflict. One could be swift Soviet victory and disengagement before a definite political settlement. If the Chinese defeat were severe, the Chinese might decide on political settlement favorable to the Soviet Union. Or they could decide to continue the conflict with national mobilization.

In this case, Moscow would have no choice but to resume the conflict leading to a second entry of the Soviet forces into China and an eventual protracted war. In that case, Moscow could be confronted with a monumental Vietnam in a greater landmass, involving greater humanity, and a to-

tally unpredictable impact on Soviet national life.

In the case of a protracted war, the United States would have a much better chance of preparing itself against all eventualities.

Responses would vary depending on attitudes in Asia toward US efforts for a multilateral or bilateral system. Japan might become more active and cooperate with the United States more satisfactorily than in the past. But in the long-range picture, Japan would probably want to seek accommodation with the power on the mainland. North Korea would radically change, and, in case of a Soviet victory, a recurrence of another "Korea" would be entirely possible. In the final analysis, rapid intensification of a confrontation with Moscow would be virtually unavoidable.

Power Balance Upset

From any angle, a Sino-Soviet conflict would upset the world balance of power, and hence should be viewed as extremely damaging to the interests of the United States and of the non-Communist world. Equally important, a Sino-Soviet conflict and the resultant Soviet involvement in Asia in any major dimension would introduce a wholly revolutionizing element in European relations. This could provide unprecedented opportunities to the East European nations to assert their independence from the Soviet Union. This could be particularly serious in the case of the East German regime.

If, for instance, the Soviet Union's capabilities in Europe were damaged to the point of paralysis, it could lead the West Germans to seek readjustment of all the pending issues within central Europe. Should these events take place prior to the congealing of an atmosphere of *detente* between the

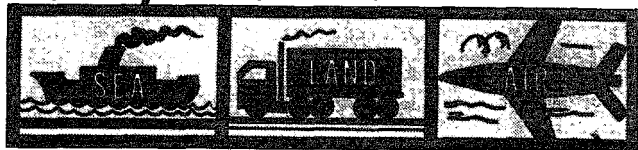
East and West, European nations would have to expect great difficulties in controlling the rapid changes within the safety range.

Under the circumstances, an abrupt decomposition of both the Warsaw and North Atlantic Treaty Organization alliances without prior preparation could bring forth unmanageable forces of change in Europe. This could be even more dangerous to European equilibrium than the crises of the past. A total reversion to unsettling bilateral arrangements might develop among the continental nations and

force the United States to either a protective isolationism or to a posture of bilateralism at the expense of smaller powers.

Examining the many possibilities of a Sino-Soviet conflict, one cannot help but feel the sense of groping through some impossibly complicated maze. Already, the world of nuclear stalemate is a highly risky arena for the decision makers. A Chinese conflict with the Soviets would introduce the final premium of an unsettling effect which would totally destroy sense and judgment all over the world.

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Economy of Force in the Central Highlands

Major General Donn R. Pepke, *United States Army*

FROM November 1968 to November 1969, the 4th Infantry Division had an economy of force mission in the Central Highlands of Vietnam. While the principles of an economy of force mission for an infantry division are well known, their application in a counterinsurgency environment can create new and unique problems whose resolution necessitates innovative techniques. Although every challenge was not resolved by responding with a set operational policy, I believe that many of the techniques developed and practiced by the division can enhance the effectiveness of future economy of force operations in similar environments.

During that period, the 4th Division had the largest area

of operations of any US division in the combat zone. This area extended from Dak Pek in the northwest corner of the highlands 190 miles southward to Duc Lap, and from the Cambodian border on the west 100 miles eastward to Binh Dinh Province—an area encompassing more than one-third of the 2d Corps Tactical Zone.

Massing Forces

Considering this huge area of responsibility and the limited helicopters available, the established policy of massing forces in critical areas while practicing spartan economy of force elsewhere eventually proved strategically sound and extremely successful. The 4th Infantry Division defeated every enemy thrust toward the population centers of the highlands while simultaneously providing an outer shell of security ringing adjacent hamlets, villages, and cities. The ultimate

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result was that the Republic of Vietnam's governmental agencies were able to establish a durable influence among the civilian populace.

Modified Orientation

In conventional warfare, there is an assertive orientation toward the destruction of the enemy's force and his will and ability to wage war. However, commanders at all levels operating in a counterinsurgency environment must understand the significance and necessity of a modified orientation. They must realize that destruction of the enemy's will and ability to fight is secondary to the mission of eliminating the conditions—socioeconomic as well as military—which give vent to insurgency, and of conditioning in the friendly indigenous force the desire and ability to rout insurgents and prevent their success.

Commanders, then, must learn to isolate quickly those factors which allow the indigenous building process to flourish. Thus, decisions not only as to where, but also as to how, they will economize or mass their forces take on special significance.

A failure to recognize and act upon this new orientation, particularly where an economy of force mission is indicated, constitutes strategic error and predestines failure. With our superior firepower, we are capable of inflicting continuous tactical defeats upon the enemy. Yet if he is successful in luring the economy of force into concentrating its combat power against him—if he can press commanders to commit the bulk of their troops to counter a threat and thus ignore the pacification effort—he may, then, have the opportunity for victory. We must preclude any possibility of allowing him to trade tactical defeat for strategic victory lest we be caught

in a situation where we are winning battles but losing the real war.

In the Central Highlands of Vietnam, the mission of the 4th Division was to provide an impenetrable protective screen which would allow the Government of the Republic of Vietnam (GRVN) to control population centers and lines of communication in order to instill and bolster a vital sense of security among the people.

It was believed that, if the division were able to contain the external threat represented by the North Vietnamese Army (NVA) regulars, the GRVN could systematically eliminate the conditions which allow the Viet Cong to exist—the lack of faith in local government and the absence of hope for future socioeconomic stability. It became clear from the outset that the division would have to minimize the force necessary to preempt any NVA threat that developed and meanwhile mass the bulk of our forces near the population centers to assist the GRVN in its pacification role.

Protective Screen

Intent upon intercepting the NVA and forcing them to fight in remote areas away from the population centers, the division perfected a multi-layered protective screen and effectively exploited the principles of "find," "fix," and "spoil." It was essentially this protective screen which permitted the orderly process of government and commerce to continue unabated in the highlands.

The outermost layer of our four-layer screen consisted of diverse intelligence-gathering resources. Not only did we rely upon intricate technical devices of reconnaissance and detection such as *Snoopy*,¹ sidelooking air-

borne radar (SLAR), *Red Haze*,² sensors, and air cavalry, but we also used the more traditional methods such as networks of agents. All of these proved eminently suitable for exploitation, and it became virtually impossible for the enemy to move a sizable force, even in small infiltration groups, through our screen without being detected. Most significantly, the early warning provided by this outer layer allowed us sufficient reaction time to align the three additional layers to counter any threat posed by the infiltrating NVA forces.

Operation 'Scorpion'

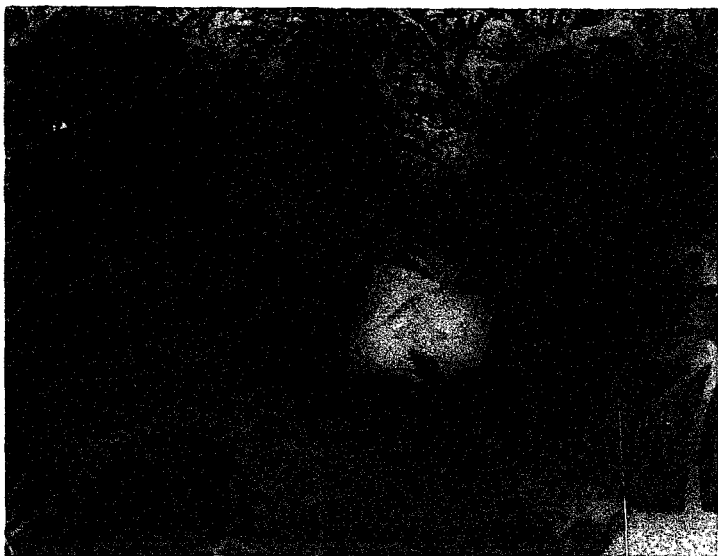
To our normal intelligence-gathering resources in the outer layer we added one particularly successful operation. We called it *Scorpion*—*Snoopy* accompanied by *Cobra* gunship teams. Whenever heavy readings indicating the presence of a sizable enemy force were recorded by *Snoopy*, the companion gunships immediately fired into the area. Information from prisoners and Hoi Chanhs ("open arms" program returnees), as well as evaluations of other intelligence indicators, proved that this particular weapon system paid good dividends by disrupting the enemy's movement and disorganizing his effort.

While we were extremely successful in pinpointing NVA base areas, we did not always have sufficient numbers of ground troops readily available to seal off the enemy completely and prevent his escape. To compensate, we employed *CBU-42A* munitions as barriers to restrict movement and to canalize the enemy into areas where we could mass the combat power available to destroy him.

Delivered by high-performance air-

¹ Odor-sensing device also known as "People Sniffer."

² Airborne reconnaissance flights to detect heat emissions from the ground.



Constituting the second layer of the 4th Infantry Division's protective screen are long-range patrols which report enemy movement through the Central Highlands. Here, patrol members pause to relay information for analysis and evaluation.

craft, the CBU-42A bomblet deployed upon impact a network of trip lines which, upon activation, triggered explosives. It was learned that, if properly targeted, these munitions could be employed in two distinct roles: to seed known infiltration routes and to compress enemy movement within specified areas.

In early August 1969, intelligence activities in the triborder area confirmed heavy movement from Cambodia into the Republic of Vietnam. The division, in turn, employed its first aerial-delivered mine barrier to check infiltration. Later intelligence reports showed considerable disruption in the patterns of enemy activity and a definite curtailment of infiltra-

tion along the route. The enemy was forced to make wide bypasses, thereby increasing his time of movement and diverting himself into areas vulnerable to other means of interdiction.

Later, a second pattern of employment evolved when it was decided to encircle known enemy base and supply areas with CBU-42A munitions in conjunction with B-52 strikes. The purpose of this method of employment was to compress enemy movement and deny him freedom of exfiltration while artillery and tactical air were programmed into the clearly defined target areas.

Closer to the maneuver battalions, but still a considerable distance from the population centers, the division

employed long-range patrols (LRP's). Their areas of operation were determined from information provided by the intelligence-gathering resources operating in the outermost layer. The 40 LRP teams were organized to man the second layer of the protective

screen. Once reinforcement was completed, we channeled our efforts toward fixing the enemy. Once they made contact, the reinforcements held to defensible terrain and directed artillery, tactical air, and gunships against the enemy. This approach proved highly



The Medical Civic Action Programs demonstrated the benefits of cooperation with the government of Vietnam

screen. To augment the normal LRP mission of detecting and reporting enemy movement, we provided selected LRP teams with a sniper capability and assigned them the mission of harassment. Captured enemy documents consistently revealed the enemy's respect for these small teams.

Contrary to normal doctrine, we did not usually extract LRP's immediately after they made contact. Instead, we reinforced the team with an areorifle platoon from a maneuver battalion in the innermost layer of the protective

successful. The NVA normally appeared eager to engage our forces, and with the enemy fixed in this posture, we had a lucrative target which could be attacked profitably by indirect fire.

Such engagements repeatedly spoiled major attacks, and generally, the enemy retreated to his border sanctuaries after suffering heavy casualties. Instead of pursuing—which surely would have been costly since we would have been fighting against ground-delaying tactics on the enemy's prepared battlefield—we continued to

harass him with heavy concentrations of indirect fire as he retreated.

Our innermost screen, the fourth layer, consisted of our maneuver battalions positioned along key terrain dominating the avenues of approach to the major population centers. This deployment permitted the battalions to participate actively in the GRVN pacification efforts by operating in the hamlets, villages, and cities of the districts they were securing.

These maneuver battalions engaged in operations aimed at destroying the Viet Cong infrastructure and disrupting Viet Cong base areas throughout Pleiku and Kontum Provinces. With peace talks in progress, accelerated pacification and territorial security in early 1969 became one of the chief goals of the GRVN and all Free World Military Assistance Forces in Vietnam. The more villages secured, the greater was the government's bargaining power.

Combined Operations

The second objective in our campaign against the Viet Cong was to hamper future operations of the regular NVA forces. Experience had shown that the main NVA units depended on local Viet Cong to guide them through unfamiliar territory and to stockpile foodstuffs and munitions. In conjunction with Army Republic of Vietnam (ARVN) forces, our battalions conducted three types of combined operations: reconnaissance in force, cordon and search, and Medical Civic Action Program (MEDCAP).

Reconnaissance in force operations detected and destroyed Viet Cong base camps and eliminated caches. Consistent operations of this nature inhibited movement of large local force units and reduced the Viet Cong's influence upon the civilian populace.

Cordon-and-search operations were conducted to eliminate the Viet Cong infrastructure. To insure success during these operations, we established a concept of close liaison, staff coordination, and bilateral operations with the ARVN.

A program which increased the effectiveness of the District Intelligence and Operations Coordinating Center was developed to provide local intelligence to US tactical commanders and to make all the necessary assets available to support a combined pacification program. This particular effort was recognized by the Viet Cong as the greatest threat to their infrastructure.

Benefits of Cooperation

MEDCAP's were the heart of our battalions' effort to demonstrate the benefits of cooperation with the GRVN. In the villages, the battalion commanders took note of the relative impact of various civic action projects and gathered intelligence. After repeated visits to a village, US personnel, along with interpreters and National Police, were readily able to detect strangers among the regular populace. These intruders were detained for interrogation and frequently provided valuable information concerning enemy activity.

The central function of the MEDCAP, however, was to offer a continuing source of medical personnel who were trained to recognize and treat the afflictions common to the villagers. Equally important was the training of indigenous medics and the teaching of self-help methods to the villagers. Repeated face-to-face contact with the inhabitants generated keen interest, gave better insight into problem areas, and cultivated an attitude among the people which enabled our Volunteer Informant Program to flourish.

Stability also was fostered with the introduction and training of Regional and Popular Forces. To assist the GRVN in its nationbuilding effort, the 4th Division established a biweekly Regional Force-Popular Force Leadership School with special instruction in weapons, tactics, and communications. Eventually, these units became the principal defense force while ARVN became the primary reaction force.

Naturally, our maneuver battalions stood ready to react whenever requested. Yet it was learned that, when US forces were involved in defeating the Viet Cong forces which attacked the villages, a limited victory, at best, had been achieved. Conversely, when the Regional and Popular Force units successfully defended their villages without the aid of US forces, a new surge of confidence and stability was noted.

Short-Range Patrols

The maneuver battalions also provided the third layer of the protective screen—short-range patrols (SRP's) and ambush teams. A division innovation, the SRP was normally composed of three to five men whose primary weapon was the radio. Each company manning its portion of the innermost screen would position five to seven such teams 1,500 to 4,000 yards forward of its location. The SRP's were instructed never to initiate contact, but, rather, to remain concealed and rely upon indirect fire support to rout or eliminate the enemy. Individual weapons were to be fired only in self-defense.

Since the SRP's were line troops of the division, they carried less equipment than LRP's and received specialized training by their battalions. These alert teams produced spectacular results for the division. In the

vicinity of Duc Lap during late fall of 1968, for example, SRP-directed artillery fire decimated a force of 600 to 700 NVA regulars within hours after the enemy had crossed the border into Vietnam.

Saturating the avenues of approach to nearby villages with SRP's, the battalions of the division managed to restrict enemy movement and reduce his ability to acquire food and forced labor from the civilian population. Free from the Viet Cong's influence, the people were able to respond to the government's pacification programs. Also, by placing these patrols along known or suspected enemy routes, we were able to screen an extremely wide front with few committed troops.

Successful Mission

On the surface, what might have seemed to be a highly dangerous mission proved the contrary for these highly motivated SRP's. During a crucial five-month period in 1969, the 4th Division totaled 1.5-million-man-SRP hours while suffering only 21 killed. Of the 21 fatalities, six had been ambushed when they violated standard procedures by returning along roads or high-speed trails leading back to their firebases while two others were killed by tigers.

A typical example of the 4th Division's effective use of the multilayered protective screen will illustrate its value. From late January through April 1969, the division successfully thwarted the NVA's winter-spring offensive in the Central Highlands. Owing to the success of the economy of force screen, the bulk of the divisional units was able to continue its support of the GRVN pacification programs and simultaneously maintain maximum pressure on the invaders while remaining flexible enough to meet sev-

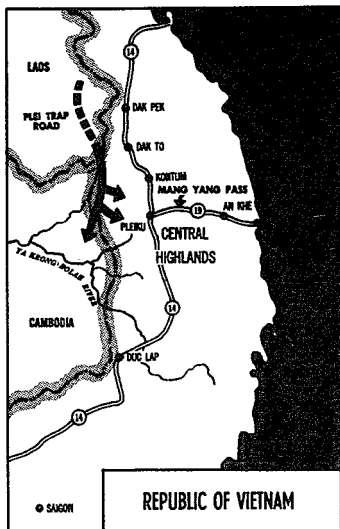
eral additional NVA threats throughout our sprawling area of operations.

The division began its aggressive campaign to preempt the winter-spring offensive long before the enemy had actually massed for the attack. Innovations in pattern analysis techniques by the G2 section enhanced early planning. The object, of course, had been to plot, over a period of time, all enemy locations and activities derived through an intelligence source and then to confirm our analysis by the programs of other intelligence resources manning the multilayered screen.

Intelligence Reports

In early December, it was apparent that the number of intelligence reports near the Chu Pa Mountain area of Pleiku Province had been increasing. Large numbers of intelligence reports were also surfacing along known or suspected trail systems to the west and southwest of the Chu Pa. Since daily scrutiny of these reports plotted on maps was inconclusive evidence, attempts were made at visual and photographic reconnaissance of the infamous Plei Trap Road, the trails branching from the road which led to the Chu Pa, and the Chu Pa Mountain itself.

Movement along the Plei Trap was evident. Recent improvements along this network could be easily spotted, and almost daily *Snoopy* flights confirmed its increasing use. Division engineers subsequently took action and closed this high-speed infiltration route. Evidence of movement to the Chu Pa, however, remained inconclusive. This area was too vast for adequate visual observation, and the surrounding jungle, with its triple canopy, was too thick to allow trail observation by aerial photography.



Consequently, the G2 section began plotting all intelligence reports, regardless of source, on an overlay so that early plans for an operation in the area could be formulated. The overlay was later shown to the ARVN commander of the 24th Special Tactical Zone. Weeks later, he produced a Hoi Chanh who confirmed our suspicions and identified the Chu Pa as an important base area. A new plan was formulated, and a combined US-ARVN operation was launched on 4 January 1969.

As ARVN rangers and infantry battalions blocked west of the Chu Pa and the 4th Division's 1st Battalion, 12th Infantry, blocked to the south, our 1st Battalion, 35th Infantry, was helilifted onto the slope of the mountain and attempted to drive elements of the firmly entrenched 24th NVA

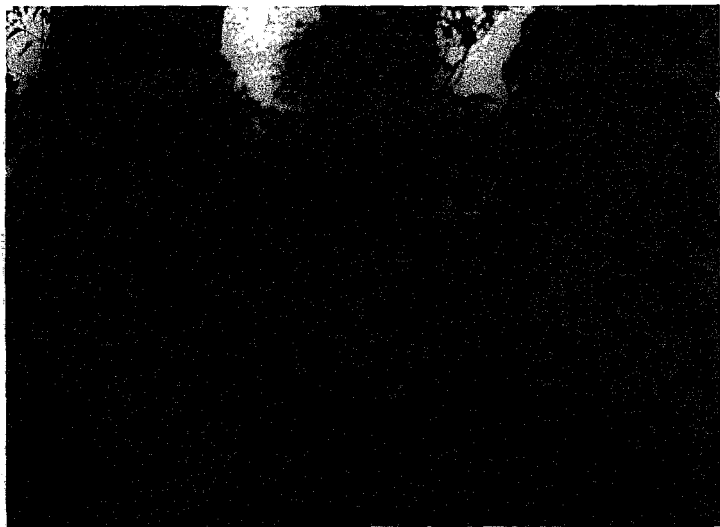
Regiment from their stronghold and trap them against the blocking forces. The battalion swept northward, meeting heavy resistance during the first week of the operation. Meanwhile, *Snoopy* sensings in our outer protective screen indicated the enemy was beginning to flee north across the Ya Krong Bolah River. Three companies—one indigenous from the Plei Mrong area and two United States—were immediately inserted into the area between the river and the base of the Chu Pa to cut off the enemy's northern retreat.

While the sweep of the Chu Pa continued through January, the division's 1st Battalion, 14th Infantry, successfully terminated pacification operations south of Highway 19 in Pleiku Province. This battalion could now be used to relieve the 1st Battalion, 35th

Infantry, which had borne the brunt of the fighting along the treacherous slope of the mountain. The fresh battalion was promptly inserted and proceeded deliberately down the mountainside, meeting heavy resistance from two NVA infantry battalions and one NVA artillery battalion.

When the last ARVN battalion had been withdrawn from the Chu Pa operation on 7 February to protect highland cities during the approaching Tet holidays, the 1st Battalion, 14th Infantry, remained committed to the Chu Pa, relying on artillery fire and air support to soften enemy positions. Eventually, the remnants of the NVA force left behind to protect the sanctuary abandoned their positions, divided into small bands, and exfiltrated under the cover of darkness.

The Chu Pa operation terminated



A division innovation was the short-range patrol whose primary weapon was the radio

successfully at the end of February. Because of the pattern analysis technique, there had been no real surprises, and we were able to search the area intelligently once the battle had subsided.

Results of Operation

The operation resulted in the discovery and capture of over 100 tons of material, the destruction of an additional 200 tons of supplies, and the death of over 500 NVA regulars, confirmed by actual body count. Most significantly, the successful pattern analysis techniques and the use of our multilayered economy of force screen enabled the division to preempt one phase of the enemy's winter-spring offensive almost two months in advance. Meanwhile, the GRVN pacification activities in the populated areas near the Chu Pa continued with little or no interruption.

Concurrent with the Chu Pa operation, however, was the threat posed by the 66th NVA Regiment. This unit, with supporting engineer and artillery, seemed targeted against either Polie Kleng, Plei Mrong, or Kontum City.

The presence of this crack enemy unit triggered immediate response by battalions of the division's 1st Brigade. This brigade, having recently completed 15 months of continuous operations in the vicinity of Dak To, had been redeployed to a new base at Soui Doi near the Mang Yang Pass. In early January, its battalions were operating south of Soui Doi near the Dak Payou Valley. In anticipation of a renewed enemy offensive thrust, the brigade was alerted in early January to deploy anywhere within the 2d Corps Tactical Zone on order.

On the night of 24 January, one battalion from the brigade conducted

a tactical road march from Soui Doi to Kontum and participated in a combat assault the following morning to seize the high ground southeast of Polie Kleng. The 66th NVA Regiment immediately probed the newly inserted battalion. Within hours, sightings and minor contacts made by the battalion's extensive (SRP screen) indicated that the enemy was trying to skirt northward around the blocking force. Another battalion was moved by truck to Polie Kleng and combat assaulted into blocking positions while an additional battalion from the division's 2d Brigade was helilifted to an area north of Polie Kleng to protect the northern flank from infiltration.

The division was now aligned with the 2d Brigade controlling three battalions west of the Ya Krong Bolah River to block the enemy's advance, and with elements of the 1st Brigade protecting the approaches to Kontum City and readying themselves for a combat assault either to smash the enemy or to cut him off from his sanctuaries. Over a short period, we had gained local superiority over the NVA.

Enemy Offensive

Within a week, the enemy initiated extensive reconnaissance efforts against friendly positions and became more overt in his movement. On 23 February, he launched a new phase of his offensive in the Central Highlands, beginning with attacks by fire against the population centers of Pleiku and Kontum and against US fire support bases. Meanwhile, having received supplies and replacements following its retreat from the Chu Pa, the 24th NVA Regiment had now infiltrated back across northern Pleiku Province into positions east and west of Highway 14. On 24 February, elements of this regiment sprang two abortive am-



US Army Photos

The 4th Infantry Division provided training for Regional Force-Popular Force members who, in turn, provided security and defense for pacification areas

bushes along the highway. The 3d ARVN Cavalry dispersed the attackers, killing 63.

Farther north between Kontum and Dak To, Viet Cong local force battalions emerged from the mountains and forests to attack lightly defended villages along the eastern side of Highway 19. In the triborder area west of Dak To, enemy artillery began heavy bombardment of the Ben Het Special Forces Camp.

To counter these threats, the division immediately deployed elements of an armored battalion to Ben Het and Dak To, and simultaneously sent an infantry battalion into the Chu Prong Mountain complex east of Highway 14. At Ben Het, US tanks throttled an NVA infantry-tank assault,

destroying two of eight Soviet *PT76* vehicles and turning back a battalion of ground troops. At Chu Prong, our infantry battalion rooted the enemy from caves and captured large supplies of munitions.

Meanwhile, the 66th NVA Regiment—still the principal threat to Kontum Province—continued to probe Polie Kleng in an attempt to penetrate the blocking force. On 1 March, elements of the 1st Brigade combat assaulted to the west of the 66th Regiment to effect a vertical envelopment and cut the enemy's lines of communication. Heavy fighting erupted. One friendly battalion drove an NVA engineer unit off its primary landing zone, killing 30 while losing only one man. Unable to attack Polie Kleng because of the

division's blocking forces to its front and discovering that US forces had been helilifted behind it, the 66th Regiment shifted southward to attack Plei Mrong, only to find the 1st Battalion, 35th Infantry, poised to its front along the avenues of approach.

To escape envelopment and cover withdrawal, the regiment turned to a series of harassing attacks. What was left of the 40th Artillery shelled US bases from Ben Het to Polie Kleng. Diversionary tactics, to include unsuccessful sapper probes in Kontum, continued into mid-April. By then, the 1st Brigade's envelopment had severely punished the regiment, with a ratio of NVA to US casualties being documented at almost 10 to one.

With the defeat of the main line enemy forces in early spring, the 4th Division returned to large-scale support of the GRVN pacification programs. The 1st Brigade was transported from the Plei Trap Valley to a new area of operations near An Khe in Binh Dinh Province. The remainder of the division's maneuver battalions settled back into the routine of providing an outer shell of security, ringing new areas marked for intensified pacification.

Battalion commanders coordinated closely with the districts in which they operated, and, where feasible, collocated their command posts with dis-

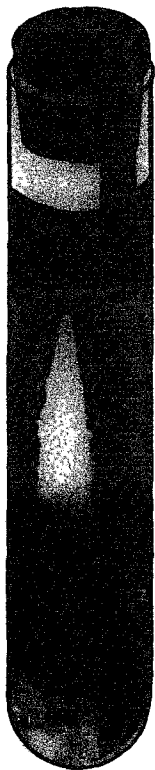
trict headquarters. Commanders also were instructed to intensify their operations against the Viet Cong infrastructure, sapper teams, and local force units, as well as to assist in the improvement of Vietnamese units, particularly the Regional and Popular Forces. Continuous surveillance provided by the multilayered protective screen was to be maintained, with designated battalions prepared to mass and resume operations against regular NVA units should new threats to the population centers develop.

In its economy of force role in the Central Highlands, the 4th Infantry Division had been faced with the challenging, and often frustrating, task of devising new techniques which satisfied sound principles. To a high degree, I attribute the success to tactical flexibility and willingness to innovate. It was in the area of the economy of force screen that I feel our experience was unique, and would hope that these practical contributions may prove of significant consequence.

The strategic mission was kept foremost in the counterinsurgency environment—to keep the North Vietnamese Army at bay while the GRVN exerted its influence toward building a strong and viable nation, thereby spawning a sense of national security and a hope for a tranquil and prosperous future for the people of the Republic of Vietnam.

Prevention of War

John F. Scott



MEMBERS of the Military Establishment know that one of their functions is the prevention of war. Military power constitutes a strong deterrent to aggression. Unfortunately, any reasonable, feasible military deterrent possessed by a democratic society does not prevent, and has not prevented, all those violent conflicts contrary to our national interests and those of our allies. The deterrent effect is praiseworthy, but it is not enough, especially if it can be improved upon.

The problem of violent conflict or war seems to revolve around a search for causes, the knowledge of which may be the only long-run "cure." Wars are not inevitable or we would have more of them. As Jean Jacques Rousseau wrote, wars occur because there is nothing to prevent them.¹

But more frequently, the clash of interests is adjudicated or mediated by an authority higher and more powerful than the interests themselves. Yet we must doubt that all violent conflict would be precluded by the strength of higher authority. In fact, violent conflict may seem the only desperate reply to totalitarian authority. Violence may, then, in certain circumstances, be seen as constructive rather than destructive, but, nevertheless, unfortunate.

Should one of the functions of the professional

¹ Kenneth N. Waltz, *Man, the State, and War: A Theoretical Analysis*, Columbia University Press, N. Y., 1959, p 188.

soldier be the study of the causes of warfare? An affirmative answer suggests a specialty in the military forces akin to research pathology in medicine: the search for, and an understanding of, the causes of organized, violent conflict. If not a part of the military general practitioner's role, it might at least be a part of his education. To establish a rational basis for such a reorientation of military interests, the first step would be to show that knowledge of causes would, in fact, make a positive difference in the relative success of preventing war or in the conduct of war should it occur.

Knowledge of Causes

Knowledge of causes as a potential preventive could find application only beyond the purview of traditional military roles in Western societies. The findings by a military scholar or organization that identified country X as ripe for internal violence or ready to pounce on country Y must necessarily be subject to application through political decisions. In any case, such information is the product of a nation's intelligence establishment. The military perspective on knowledge as a preventive would more logically be reserved to questioning assumptions about causation, to a reexamination and qualitative improvement of our fund of knowledge on the nature and causes of warfare.

More dynamically, knowledge would be directed to the application of military power to conflicts already in

bloom. We might first ask, "Is there a revealing relationship between the causes of war and how a war is fought by the dissident group or aggressive nation?" Presently, the answer is both yes and no. The Luddites of early 19th-century England smashed machinery. Their fear was the labor-displacing effects of the tools of industry. But a dissident group bent on overthrow of a government should not be counted upon to magnify the source of their frustrations by attacking such obvious targets. The terrorist tactic of murdering landowners does not, in itself, signify that a solution lies in agrarian reform.

Original, limited grievances may be compounded by the degree of effort and risk undertaken to overcome them. We may learn that violent movements reach a point where they feed on themselves, and the initial sources of frustration may be forgotten in favor of a more powerful psychological stimulant.

International Conflict

In international conflict, the reasons for aggression, if known, tend to define the aggressor's objectives and tend to define, in turn, a defensive strategy. Perceiving aggressions to be always a form of power madness or an inherent feature of the aggressor's ideology does little service to selecting the most efficient responses and the most efficient deterrents unless, indeed, these are the causes objectively identified.

Certainly, it would make a difference in our choice of strategies if an aggressor were intent only on conquering a neighboring state as a buffer to implement national paranoia, rather than if he meant to conquer a continent. We could choose either to coerce him by playing on his defen-

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sive-minded fears (possibly offering real guarantees that his fears are groundless) or, conversely, by exploiting the weaknesses in his purely offensive intentions.

There is the problem, of course, of overcoming conventional ideas of the "causes" of war and violence. These will be highly resistant to change because they are convenient and easy to understand. The tendency is to gloss over what might be fundamental issues and to focus on catalysts.

The presence of outside agitators—ideological agitators—for example, is a necessary observation of the elements and scope of some conflicts, but not a true isolation of causes. We have only to ask that, if by removing the "leaders" or outside agitators, will the potential for violence be eliminated? Surely, the ground must be fertile before anything can grow in it. Francisco (Pancho) Villa and Emiliano Zapata did not need someone to tell them why they were discontent, neither did Spartacus nor the American Revolutionaries.

Psychological Theory

To stimulate interest and to illustrate the probable complexity of causation research, a summary of two theories of conflict may be helpful. One is old and one new. The first has its foundations in psychology, the second in ethology—the study of animal behavior.

The frustration-aggression theory postulates that aggression is always the result of frustration although frustration does not always lead to aggressive behavior. Aggression may be directed at the source of frustration or displaced onto what may be a less formidable surrogate. Since not all frustrations lead to aggression, what determines the degree of frustra-

tion necessary for overt aggression?

By definition, frustration is the product of failure to achieve desired objectives. But rather than seeing frustration-aggression as operative only in the context of our everyday, intermediate objectives, these objectives may be conceived as a collective thing, a way of life with a given state of affairs toward which we aspire. The higher our aspirations, the more difficult they may be to realize.

Our Expectations

The "level" on which these objectives may be at any given time may be labeled our expectations. The expectations of a group of people, perhaps a nation, may be raised to a level such that, through misfortune or lack of resources, satisfactions are few, if any. The gap between expectations and satisfactions would then equal the degree of frustration for our theoretical purposes.

But it is not the case that all expectations go unsatisfied. It is, rather, that the pace of satisfaction may be more meaningful. The growth rate of expectations gallops; the rate of satisfactions jogs. Someday, hopefully, the two will be in reasonable balance as they are for some societies on the whole.

Such a theory tends to explain why violent revolutions often occur not when a people are destitute of material, esthetic, and psychological satisfactions, but, rather, when the process of change and growth has already begun—when the cumulative effects of expecting more on top of each increment widen the gap between the galloping expectations and the jogging satisfactions. With skill and luck, the crisis passes, and the problem, if this theory has merit, is common to every growing society—liberal, authoritar-

ian, or democratic. Individual freedom, for example, is probably like pregnancy in that there can never be just a "little" of it—once started, it is expected to grow.

Animal Behavior

The second theory is not a theory at all, but is somewhat more than a veiled hint from specialists in animal behavior that physical violence—rather than an "unnatural" behavior—may, instead, be a part of our natural makeup, possibly independent of culture. Our capability for violence should be viewed with objectivity. It is a means of self-protection, after all, and might, in part, explain how we have survived as we have. Rather than allow this propensity for violence to put a stop to evolution, however, we might consider the merits of accepting our inherent violent tendencies as natural and use our brains to curb them or find substitutes for their satisfaction.

Both theories, like all theories, are subject to criticism. What congeals and activates the individual frustrations or natural propensities to violence? Individual violent behavior differs, in large degree, from going through the motions necessary for a modern nation to go to war—or at least there was a difference before the advent of intercontinental nuclear weapons. Perhaps the ethologists have something to teach us about the nuclear age.

Assuming that causation is more a complex set of phenomena than is often seen, is cause-identification conducive to identifying the best politico-military strategies and tactics to deal with conflicts that could not be prevented? Apparently, there already has been some acceptance of an affirmative answer to this question. Pacification

programs and economic aid concurrent with traditional uses of military force are examples. But so much remains to be learned. One need only review the literature of students of the cause and the management of conflict to see that more knowledge is necessary and that the knowledge we do have needs to be organized and made suitable for policy premises.

Military Perspective

It seems that more could be done by the Military Establishment to exploit the potential for efficiency in preventing war or resolving and managing warfare based partly on the knowledge of its causes. The study of the cause of war needs a military "perspective" just as the study of poverty needs a sociological, as well as an economic, perspective. As the study of our environment and our social systems becomes more specialized, there exists the hazard of incomplete answers whose application will suffer the predictable consequences of too much trial and error.

As an example of a military perspective, it could be pointed out that, while economic aid and other programs may, indeed, be focusing on basic causes, the manner in which such palliatives are applied may be self-defeating. Ultimately, the military objectives must also be attained if other programs are to work beneath its protective umbrella. But if economic resources are distributed too deeply into a contested rural countryside, they could easily fall into the hands of insurgents.

While the study of war and its causes has long fascinated social and behavioral scientists and historians, one may note a ground swell of recent activity, the fruition of which could conceivably play a part in molding national policies and, inevitably, support-

ing military policies. As Kenneth Ewart Boulding has written, it is only in the last 200 years that man became aware of his social systems. Before that, he accepted these systems as he accepted the seasons and other natural phenomena. "The rise of knowledge of social systems, however, has within it the seeds of their control."²

We might consider this before dismissing the search for causation as fruitless because war, like sin, is, and has always been, with us. If we are rational, we must applaud the efforts of the social scientists. If we are both rational and committed to the idea

² Kenneth Ewart Boulding, *The Impact of the Social Sciences*, Rutgers University Press, New Brunswick, N. J., 1966, p. 6.

that military organizations can be agents of prevention and managers of conflict, then we should join in such efforts directly.

Of course, there is always the caveat that the armed forces cannot delve into every conceivable issue related to security and defense—either as a practical matter of limited resources or as a task not delegated to the military services by society. The Military Establishment can then be left to react to the findings of others, as it reacted to the findings of innovators of strategy in the 1950's who are still going strong today. As it is, there is still time to study both Margaret Mead and Karl von Clausewitz with equal interest and relevance.

We must be alert to recognize the interrelationship between international peace and security and these new areas of international concern and cooperation. Individual steps in both fields—dealing with the whole complex of conditions that generate national and international tension and dissatisfaction—are the components out of which we must try to build security in the future.

Secretary of State William P. Rogers

Fedayeen:



Palestinian Commandos

Colonel Selby F. Little, Jr., *United States Army*

Since this article was written, the Palestinian guerrillas have precipitated a major crisis in the Middle East. The article is published, however, because of the historical background it provides on the development of the guerrilla movement.—Editor.

THE use of *fedayeen* as an instrument of guerrilla warfare against Israel is not a new phenomenon as such tactics have been practiced by the Arabs for almost 50 years. There were Arab demonstrations in 1920 and 1921 against the British and League of Nations commitments to restore the Jewish national home. Religious strife flared once again in the 1930's when the Arabs became emboldened by the weakness and failure of the League of Nations. Terrorism was intensified after the United Nations General Assembly partition resolution in 1947 which established the independent Jewish state of Israel.

*Fedayeen*¹ units were organized in 1955 by President Gamal Abdel Nasser of Egypt to operate in Israel after the Anglo-Egyptian agreement of October 1954 to evacuate British forces from the Suez Canal Zone. The *fedayeen* threefold mission in Israel was terrorism, sabotage, and intelligence collection.

The activities of these *fedayeen* units, which were recruited mainly from among the Palestinian Arab refugees in

¹ *Fedayeen* is the name in common use in Arabic for Arab guerrillas or commandos acting against Israel.

the Egyptian-held Gaza Strip, were one of the major causes of the Arab-Israeli War in October 1956. The Israeli Army, when conducting the Sinai campaign during that war, had an announced aim of putting an end to the *fedayeen* raids from the Gaza Strip. In this it succeeded.

The stationing of the United Nations Emergency Force (UNEF) along the border following the war made it difficult for infiltrators to cross into Israel undetected, and terrorism subsided along that frontier. After a nine-year lull, organized terrorism was resumed in 1965 by the clandestine *fedayeen* organization *Al Fatah* (the Conquest).²

Emergence of 'Al Fatah'

Following the debacle in the Gaza Strip, whereby the Egyptian forces were overrun by the Israelis, a group of embittered Palestinians formed the secret society *Al Fatah*. Disillusioned by the inability of the Arab States to regain Palestine, epitomized by Egypt's failure to defend the Gaza

² *Al Fatah* an Arabic reversed acronym for the Palestinian Liberation Movement.

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Strip, they came to the conclusion that the Palestinians had to take destiny into their own hands.

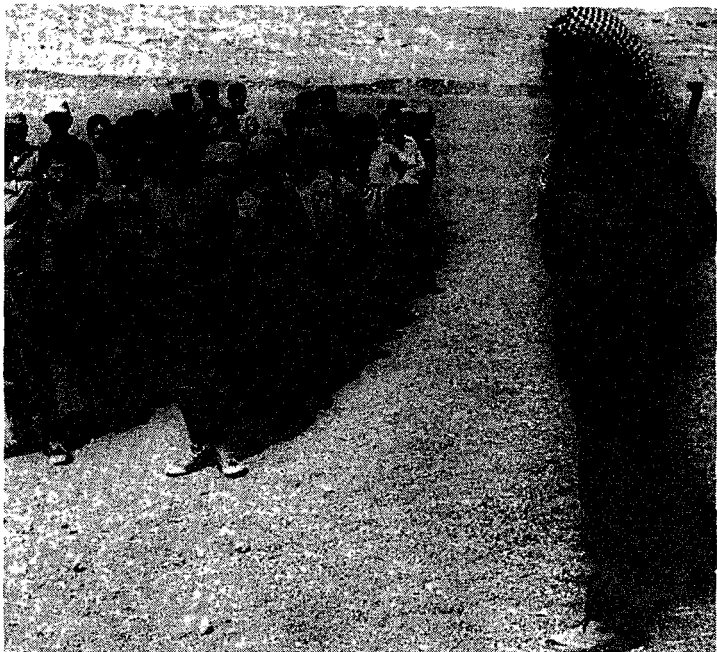
Al Fatah's founders, headed by Yasser Arafat, formulated the aims and strategy of their movement. The core of *Al Fatah* ideology is that all inter-Arab issues are secondary to the main challenge which is the liberation of Palestine.

The Arab States and *Al Fatah* were completely at odds as to the manner in which to approach this objective. The Arab States believed that to successfully bring their numerical superiority to bear on Israel, they must overcome internal rivalries and unite or at least insure coordination of effort. President Nasser, their spokesman, stressed the achieving of unity as a prerequisite for success. *Al Fatah* categorically refuted this gradualist approach to the problem and contended that the only road to unity was the liberation of Palestine.

Activities Prior to War

Al Fatah's initial recruiting and primary training activities in the Middle East were based in Algeria and Kuwait. However, in November 1964, Syria had become increasingly disenchanted with Arab inaction and began actively sponsoring *Al Fatah*. Once *Al Fatah* began receiving Syrian support, it created its military arm known as *Al Asifah* (the Storm) which began forays into Israeli territory early in January 1965.

Although Syrian based and directed, *Al Asifah* preferred to use Jordanian territory from which to launch its attacks. Despite Israeli warnings, King Hussein of Jordan was either unwilling or unable to prevent the use of his country by the *fedayeen*. He was well aware that any suppression would be highly unpopular among former



Yassir Arafat, founder of *Al Fatah* and Palestinian commando leader, trains young commandos dedicated to regaining the Palestinian homeland

Palestinians who constituted two-thirds of Jordan's population. He chose the line of least resistance and reluctantly tolerated the intensifying terrorist traffic along the 329-mile Israeli frontier.

Israel, after the January *fedayeen* raids, waited until 27 May to retaliate by destroying the *Al Asifah* bases in the Jenin and Qalqiliya areas. This operation marked the end of any understanding between Israel and Jordan that each would refrain from hostile acts along their common border.

During the period from January

1965 through November 1966, there were a total of 71 *fedayeen* raids from Jordan into Israel—35 in 1965 and 36 in 1966.³ These attacks led to Israel's second retaliatory attack against the Jordanian village of Es Samu on 13 November 1966.

Although the intent of the attack was to induce King Hussein to increase his vigilance and deny sanctuaries to the *fedayeen*, its over-all effect was to heighten preexisting tension between the King and the Pales-

³ Joseph Schechtman, "Arab Terror Blueprint for Political Murder," *Zionist Organization of America*, N. Y., 1969, p 18.

tinians on the West Bank. Widespread riots ensued which were only quelled by the stern measures taken by the Jordanian Army against the dissident Palestinians.⁴ At the same time, the army took positive steps to deter Syrian-based *Al Fatah* units from moving through Jordan to strike Israel. These actions brought a period of relative peacefulness along Jordan's border until the spring of 1967.

With access through Jordan made more difficult, *Al Fatah* began launching most of its attacks directly from Syria. From January to April 1967, activity on the Syrian-Israeli demilitarized zone was characterized by incidents ranging from small arms fire at tractors to artillery and air bombardments.

Arab Setback

On 7 April 1967, one of these incidents escalated into what appears to have been the curtain raiser to the six-day war. Israel, after an exchange of fire between tanks, unleashed a heavy artillery concentration on the Syrian positions in the Golan Heights followed by an air attack. By the end of the day, Israeli planes had appeared over the capital city of Damascus and had shot down six Syrian *MiG*'s. The most serious aspect of this affair was that, for the second time in six months, Arab forces suffered a humiliating setback at the hands of Israel without President Nasser, the leader of the Arab world, lifting a finger.

On 8 May, *Al Fatah* conducted another raid which was taken cognizance of by Israel. Prime Minister Levi Eshkol, on 11 May, in a public speech in Tel Aviv, stated that his government regarded the wave of sabotage and infiltration gravely and

that Israel would not hesitate to use airpower in response to continued border harassment from Syria. Two days later, in a radio interview, he declared:

It is quite clear to the Israeli Government that the focal point of the terrorists is in Syria, but we have laid down the principle that we shall choose the time, the place, and the means to counter the aggression.⁵

These public statements by Israel that it meant to retaliate sharply and substantially if the raids continued, although meant to deter further raids, were interpreted by President Nasser to mean that Israel was about to attack Syria and may well have caused the chain reaction that followed.

On 17 May, the United Arab Republic, after requesting the removal of UNEF units, began to move troops into positions along the 1956 Sinai Armistice line in order to deter Israel from attacking Syria, or to come to Syria's assistance if deterrence failed. This move, together with the loss of the buffer previously provided by UNEF units, resulted in the direct confrontation of Israeli and Egyptian forces which, in the existing state of tension, made conflict between them very probable.

Final Fatal Step

What turned out to be the final fatal step was taken on 22 May when President Nasser announced the reinstitution of the blockade against Israel in the Strait of Tiran. All of the events which had caused Israel to precipitate the 1956 war were once again in evidence and in a more intensified form—recurrent unpunished and uncensored raids into its territory, the movement of Egyptian armed forces

⁴ Joseph Churba, "Fedayeen and the Middle East Crisis," Air University, Maxwell Air Force Base, Ala., 1969, p. 29.

⁵ James M. Feron, "Israel to Mark 19th Birthday in a Mood of Sober Optimism," *The New York Times*, 14 May 1967, p. 13.

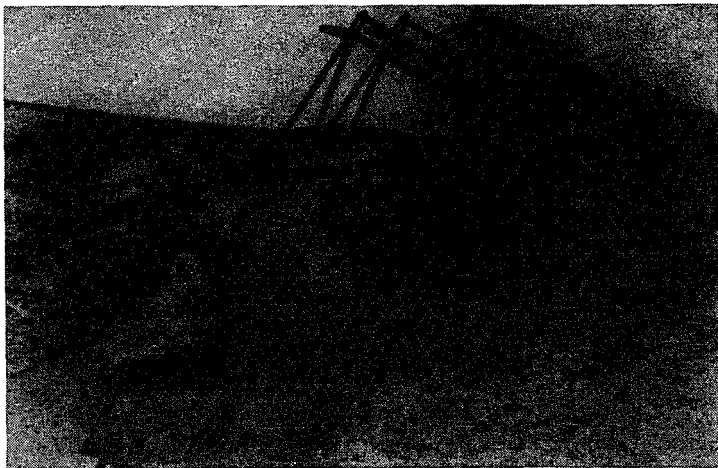
up to the Sinai Armistice line, and the blockade of the Strait.

On 30 May, Ambassador Abba Eban said in a press conference in Jerusalem:

Less than two weeks ago a change took place in the security balance in this region. The two most spectacular

achieved its objective: the involvement of the Arab States in a war with Israel, but the result was far different from that visualized.

The six-day war was a clash between regular forces in which neither the Arab masses nor *Al Fatah* had any function. The shock of defeat and the



Associated Press

***Al Fatah* bases in Jordan have included these launchers from which rockets are fired into Israel**

signs of the change were the illegal attempt to blockade the international passageway at the Strait of Tiran and the Gulf of Aqaba and the abnormal buildup of Egyptian troops on the Israeli frontier. The Government and people of Israel intend to insure that these two changes are rescinded, and in the shortest possible time.⁶

Six days later, Israel struck with this end in view. Twelve days later, it had achieved its objective, and much more besides. *Al Fatah* also

wreckage of its own theories immobilized *Al Fatah* for awhile, but it soon awoke to the realization that a new situation had been produced as new areas with a large Arab population came under Israeli military control. *Al Fatah* reasoned that now its hour had come. It appeared the time was ripe to apply the dogma of modern guerrilla warfare—that of mobilizing the masses to disrupt the government's functioning by civil resistance and using these masses as a source of recruits, intelligence, and supply.

The prewar tactic of forcing an

⁶ Charles W. Yost, "The Arab-Israeli War, How It Began," *Foreign Affairs*, January 1968, p. 307.

Arab-Israeli confrontation was, therefore, abandoned. The effort was now focused on the establishment of underground cells throughout the West Bank, storage of arms caches, and the organization and training of guerrilla bands in the Viet Cong manner. However, almost all the underground cells were detected by the Israelis, and their members were captured and jailed. By the end of 1967, the entire network was, for all practical purposes, destroyed. *Al Fatah* was then forced to resort to the same type of *fedayeen* operations it conducted prior to the six-day war.

Turning Point

Early in 1968, operational and training bases were transferred from Syria into Jordan, and *Al Fatah* began conducting raids into Israel on a daily basis. The rise in *fedayeen* operations soon caused Israel to launch several retaliatory actions against *fedayeen* bases in Jordan. Because of this, King Hussein attempted to stop the *fedayeen* attacks as being acts against the best interests of the Jordanian people. Unlike the prewar period, the King could not overcome the widespread sympathy in Jordan for the guerrillas, and *Al Fatah* was allowed to continue its operations.

On 21 March, Israel launched its largest reprisal, a combined operation of armor, infantry, artillery, and air against the main *Al Fatah* base near Karamah, Jordan. At the same time, heliborne troops occupied the mountain range east of Karamah to prevent the *fedayeen* from escaping eastward and to stop Jordanian Army reinforcements.

This operation resulted in 168 *fedayeen* killed and 138 taken prisoner. The Israelis lost 29 killed and some 70 wounded. The Battle of Karamah

was a turning point for *Al Fatah*. Although hardly a military victory, the fact that the *fedayeen* stood their ground and inflicted heavy casualties on the Israelis gave the Palestinian resistance movement a great boost. The strength of *Al Fatah* increased from 2,000 to 15,000 in the three months following the battle.

Effect on Arab States

Al Fatah has been very successful in securing cooperation from the Arab States which surround Israel. Not only have their governments been forced to take Palestinian objectives into account when formulating their own policies, but also have had to provide the *fedayeen* with military support. Whether he liked it or not, King Hussein has had to allow *Al Fatah* to establish bases in Jordan, and to carry on its attacks against Israel without interference or control by the Jordanian Army.

The government of Lebanon is confronted with a similar problem. Since May 1968, *fedayeen* units have been operating against Israel from the remote and sparsely populated areas of Mount Hermon in south Lebanon. The feeling on the part of the government was that, if Israel retaliated, it would cause few civilian casualties. However, in October 1969, the *fedayeen* began establishing bases in areas close to the Israeli border to get better access to Israel for more intensive guerrilla operations. This was considered a breach of the agreement reached in May. Such a move exposed Lebanon's southern border and population to Israeli retaliatory raids.

The army was ordered to crack down on *fedayeen* activities, and, as a result, the Palestinian refugees and Lebanese Moslems rioted and the Premier resigned. President Suleiman

Franjeh of Lebanon is faced with the same problem as Jordan: suppression of the *fedayeen* raids produces governmental crisis and the threat of civil turmoil; tolerance of *fedayeen* operations brings massive Israeli retaliation.

The Israeli authorities consistently and categorically have denied that *Al Fatah* is a serious threat. A retired intelligence officer, whose views presumably coincide with current official analyses of the guerrillas, dismisses *Al Fatah's* published strategic doctrine as unsound, its military accomplishments as minimal, and its efforts to promote organized resistance among the Palestinians in the occupied areas as a complete failure.⁷

Few guerrilla groups actually penetrate Israeli-occupied land. Since the 1967 war, more than 650 have been killed and over 250 captured. Israeli sources estimate that 90 percent of those who get beyond the frontier are killed or captured. Independent Western sources put the figure at about 80 percent. In answer to the question: "In this situation how big a threat are the *fedayeen*—the Arab guerril-

las?" the Israeli Premier, Mrs. Golda Meir, answered:

*But objectively, if you draw up a balance sheet of what Al-Fatah have done, they really have not succeeded. Their main failure has been their failure to create bases in the West Bank and in other places within our borders. They are a nuisance but they cannot change the reality of the situation.*⁸

The most important consequence, thus far, of the 1967 Arab-Israeli War has been the emergence of the Palestinian resistance movement as a major factor in the Middle East. Although Israel does not feel that a resistance organization such as *Al Fatah* presents a danger to the existence of that state, or a problem for its military forces, the *fedayeen* raids, followed by Israeli reprisals, have only intensified hatred between Jew and Arab, sabotaged all the efforts for negotiations, and ultimately may destroy the last hopes for reconciliation.

The *fedayeen* may lack the power to achieve their solution to the Middle East crisis—the liberation of Palestine—but, if there is to be any solution, they will be a part of it.

⁷ Michael Hudson, "The Palestinian Arab Resistance Movement: Its Significance in the Middle East Crisis," *The Middle East Journal*, Summer 1969, p. 303.

⁸ Joseph Fromm, "Last Thing We Want Is Another War," *U.S. News & World Report*, 22 September 1969, p. 52.

Automotive Testing in the Desert

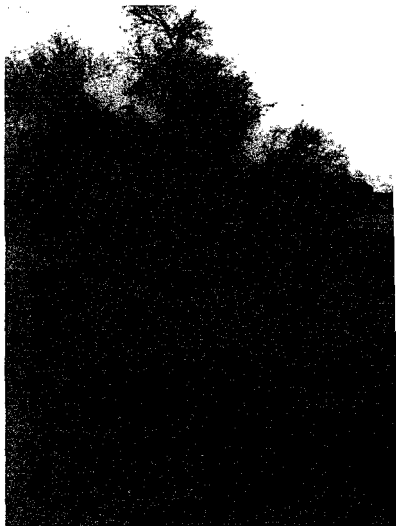
Lieutenant Colonel Kendall L. Peterson, *United States Army, Retired*

NEAR Yuma, Arizona, desert test facilities of the US Army Test and Evaluation Command (USATECOM) occupy almost a million acres of the arid wasteland in the Sonoran Desert. The sparsely populated area in the southwest corner of the state is bounded on the west by the Colorado River and includes many types of terrain with elevations ranging from 197 feet at the headquarters near the Imperial Dam to nearly 1,700 feet in the Gila Bend Mountains. In the Kofa Game Range, Castle Dome Peak (3,793 feet) is one of the landmarks of the hot, dry, dusty region.

Here, Army vehicles and their components are tested to determine their suitability for use in extremely hot, dry environments. The terrain and climate virtually assure ideal conditions for desert test missions. The test site boasts generous samples of all the surface types found in the world's desert areas, particularly sand, gravel, clay, and rocky desert surfaces. Clear skies, high temperatures, low humidity, infrequent rains, and occasional desert storms all contribute to the testing program.

Types of materiel evaluated include combat, tactical, and special and general purpose vehicles, as well as construction equipment and missile ground support equip-

ment. Military fuels and lubricants also are checked. Desert testing includes engineering and service tests to determine whether vehicle performance is degraded and if vehicle effectiveness and maintainability are affected. The tests are designed to provide a comparison with similar tests conducted at other climate test locations.



Headquartered at Aberdeen Proving Ground, Maryland, USATECOM is a subordinate element of the US Army Materiel Command (USAMC), the major Army command responsible for translating requirements into hardware. USATECOM's role in the development process is to provide the USAMC and certain other customers an independent, unbiased appraisal of Army gear. Its task is to determine how well pilot models and samples from the production line stack up against pertinent qualitative materiel requirements and production specifications.

At the desert test site, engineering tests determine power train and engine cooling, vapor lock, octane requirements, braking ability, air cleaner effectiveness, and fire control system performance. Test phases conducted as integrated engineering and service tests include durability, reliability,

maintainability, mobility, fire accuracy, and crew compatibility.

Engine and power train tests are conducted to determine their ability to operate, with adequate cooling, in conditions of high temperature and solar radiation under the various service conditions encountered in combat. Cooling ability is evaluated against the vehicle specification and designer's recommended temperature limits for the equipment unless there is a conflict with temperature limits recommended for the military specification lubricants. Marginal or unsatisfactory cooling ability is observed on many test vehicles under severe load conditions.

Although regulations permit the use of a desert kit to meet the high temperature extremes, experience indicates that it is not always possible to improve cooling materially merely by adding a larger radiator

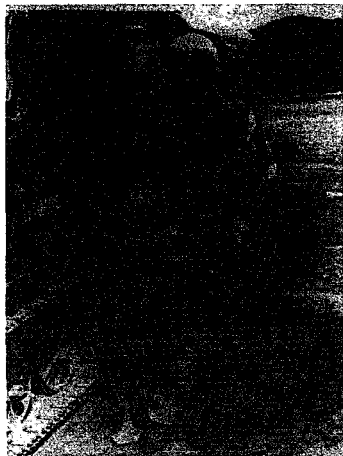
or water pump since these components may not be the critical heat transfer elements. The success of some simple low-cost designs, and the improvements which are sometimes possible by relatively minor modifications, such as elimination of hot air recirculation by proper baffling, suggests that the most economical solution lies in careful consideration of the environmental requirements at the inception of the cooling system design.

Braking ability normally is tested during the temperate climate engineering test; however, this ability may be affected by high temperatures, particularly with regard to brake fade. Brake fade is observed during operation on the mountain grade courses at Death Valley, California, and Oatman, Arizona. Deceleration rates and brake pressures and temperatures are recorded during these tests and measurements made of brake lining wear.

Military fuel specifications describe the range of fuels which are to be available in wartime. Testing is conducted, therefore, on vehicle fuel systems to assure that the systems will function properly with even marginal quality fuels under all climatic conditions. Vaporization of fuel within the fuel system affects the proper metering of fuel and, under severe operating conditions, may cause erratic engine operation, stop-

page, or inability to restart. The fuel vapor handling or vapor lock test is designed to detect such problems by subjecting the test vehicle to the worst conditions of temperature, load, and fuel volatility which may be expected in normal use.

Crew comfort and safety are addressed in the engineering and drive test of military vehicles. The service test is concerned with



A driver wearing a respirator emerges from the XM571 after a dust test

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the detection of additional problems in operating and maintaining the equipment and any reduced efficiency in performing crew functions. The engineering test objective is the detection of excessive surface and air temperatures, dust and ventilation problems, and a general review of human factors considerations involving safety.

Guidelines used to evaluate crew comfort and safety conditions are standards published by the USAMC's Human Engineering Laboratory. These state that prolonged ex-

**Typical Crew Compartment
Temperatures**

Outside Temperature	105 Degrees Fahren- heit	120 Degrees Fahren- heit
Surface Temperatures		
Floor Board:		
¼-ton truck	126	141
8-ton Goer	134	149
Inside Cab:		
8-ton Goer	122	135
Engine Cover (Cab Over):		
2½-ton truck	173	188
Inside Turret:		
Self-propelled howitzer	135	150
Medium tank	127	142
Air Temperatures		
Crew Compartment:		
5-ton truck	130	145
Armored per- sonnel carrier	119	134
Self-propelled howitzer	135	150
Medium tank	114	129

posure to an effective temperature of 85 degrees Fahrenheit should be considered the maximum limit for reliable human performance.

Midday ambient air conditions in the desert are generally at or above this limit which is equivalent to a dry bulb temperature of 105 degrees Fahrenheit at 20-percent relative humidity or 120 degrees Fahrenheit at five-percent relative humidity. A surface temperature of 115 degrees is cited as the maximum desirable since 120 degrees Fahrenheit is the threshold of pain. Tissue damage from burns may occur at tempera-

tures as low as 140 degrees Fahrenheit if prolonged exposure occurs.

The additional heat loads of vehicles, added to the heating of structures from solar radiation, create crew compartment temperatures well above the 85-degree Fahrenheit effective temperature as shown in the chart. A compartment temperature of 120 degrees to 140 degrees Fahrenheit is equivalent to over 90 degrees Fahrenheit effective temperature at minimum relative humidities. The effective temperature would be much higher in a confined area, such as a tank, where the presence of crew members adds additional moisture.

The importance of minimizing hotspots from the engine is readily seen from these temperatures. Less obvious is the fact that thin-skinned vehicles, such as trucks, are generally hotter since they heat up more quickly than vehicles with more massive structures such as tanks.

Test vehicles are operated under severe dust conditions to determine that the engine air filter system functions properly, to determine how frequently the filter requires servicing, and to determine the effectiveness of the air cleaner servicing procedures in the field. Most military vehicles are equipped with dry-type air cleaners which have very high efficiencies, but may not have sufficient dust capacity to meet operational or maintenance requirements.

In tests of wheeled vehicles on the dust course, when ground has been broken by previous passes, the billowing dust can hide the test vehicle. After approximately 100 miles on the course, vehicle and cab interiors are covered with dust, and windshields are almost completely opaque. Operator controls tend to bind or to operate stiffly when covered with sand and dust.



An articulated utility carrier, the *XM571*, churns up the dust on a test course



An *M109* 155-millimeter, self-propelled howitzer is fired on the desert terrain



US Army Photos

An M48A1 tank beats its way across the dust course

An absolute requirement exists for frequent inspection and lubrication.

Vehicles are tested to obtain comparative mobility performance by measuring speed and fuel consumption on natural terrain courses selected to be representative of the major terrain types. Observations are made of maneuverability and the ability to negotiate natural soil or terrain obstacles such as sand dunes, stony and rocky ground, and the sharp, steep banks typical of dry washes.

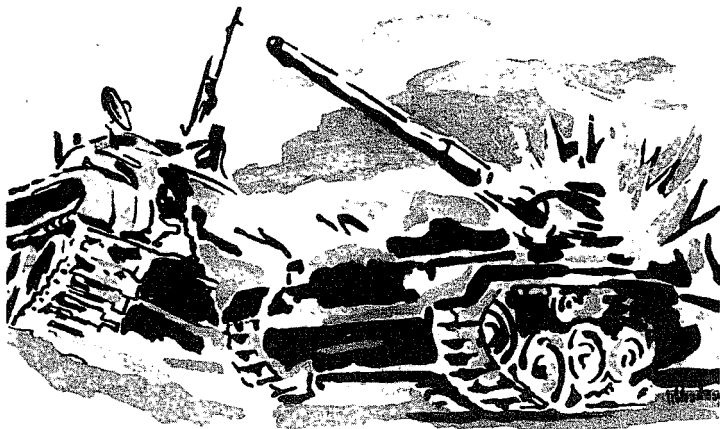
The tests are performed as integrated engineering and service tests using a variety of drivers to compensate for the effect of the human factor on performance measurements. Additional engineering tests are performed to measure vehicle performance in deep, loose sand since this represents the most severe soil condition. Sand tests include speed, slope-climbing ability, and drawbar pull. For wheeled vehicles, the

tests are repeated over a range of tire pressures to determine optimum performance and the best tire pressure for sand operation.

Tracklaying and all-wheel-drive wheeled vehicles are generally able to negotiate most desert terrains. But speeds vary widely on sandy soils and stony and rocky ground depending upon individual vehicle characteristics. Few vehicles are able to tow their rated trailed loads in loose, sandy soils. Mountainous areas and the steep walls of the larger dry washes restrict movement of the most mobile ground vehicles.

While the desert is a hard taskmaster, Army equipment responsive to its harsh demands is being built. Evaluating the performance of automotive equipment in the desert is an important part of environmental testing to insure that arms and equipment will be ready to function wherever and whenever needed.

ALAM HALFA--



Last Chance in North Africa

Sherwood S. Cordier

JUNE 1942 had seen Field Marshal Erwin Rommel at the pinnacle of his spectacular North African career. He had inflicted upon his foe one of the worst defeats in the annals of British military history, the debacle of the El Gazala campaign culminating in the fall of the key supply base and seaport of Tobruk. Then, the triumphant German and Italian forces had driven deep into Egypt, thrusting for the Suez Canal and the strategic oil riches of the Middle East. In the blistering desert heat of July, the British, under the leadership of General Claude Auchinleck, brought the Axis tide to a halt in a swirling series of complex and bitterly contested battles.

Sweltering in the heat of the long August days, British, Germans, and Italians labored

feverishly to build up their respective strengths. Rommel reluctantly was compelled to admit a host of difficulties arising from his long and over-stretched supply lines. Lack of sufficient fuel oil immobilized Italian escort destroyers. Most of the bulk supply vessels thus were forced to come into Benghazi and Tobruk.

As a port, Tobruk proved a disappointment handling only 600 tons a day. And long-range British bombers struck a heavy blow on 8 August smashing its main wharf and reducing the capacity of the port by 20 percent. Coastal cargo vessels were in short supply, a situation that did not improve as the Royal Air Force and the British Navy sent one after the other of these inviting targets to the bottom of the Mediterranean Sea.

The captured British military railroad from Belhamed to El Daba was of little value. Not one usable locomotive was left by the retreating British; 300 cars found at El Daba were bombed by the Royal Air Force. When German diesel locomotives arrived, there was little rolling stock left to pull.

Trucks, therefore, bore the brunt of the supply burden. Roads were atrocious, and German drivers drove, as Rommel put it, "like the devil." Soon, more than 35 percent of the vehicles were in the repair shops. Spare parts for the captured United States and British machines which comprised 85 percent of Rommel's force were virtually nonexistent. The long haul of 350 miles over difficult roads consumed much of the precious fuel in the act of bringing it to the front.

Air and Naval Offensive

The Royal Air Force and the British Navy pounded Rommel's supply lines relentlessly throughout August. Tobruk and other subsidiary ports were bombed by an average of 50 bombers every night. British transport planes even landed gasoline and oil on an airfield near Fort Maddalena, deep behind the Axis lines. Albacores from Malta refueled from this secret base and struck enemy convoys southwest of Crete. Bold forays were made by British submarines and commando parties along the coasts of Sicily, southern Italy, and Crete. Coastal railways were cut, railway bridges blown up, airfields raided, and even trains were shelled.

What was the German Air Force doing while all this was going on? Air Force Commander Lieutenant General Otto von Waldau was forced to admit that:

British combat effectiveness has been maintained, and indeed increased, by the assignment of new and excellently trained Spitfire squadrons from England. The employment of the Spitfire has given the enemy the confidence he needs to hold his own against our Me 109.¹

¹ Major General I. S. O. Playfair, *The Mediterranean and Middle East: History of the Second World War, United Kingdom Military History Series, Volume III*, Edited by Sir James Butler, Her Majesty's Stationery Office, London, Eng., 1960, p. 337.

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The Luftwaffe occupied a complex of airfields at El Daba only 250 miles from the important British docks, depots, supply dumps, and workshops in the delta, the Canal Zone, and the port of Suez. But the only bombing raids undertaken by the Luftwaffe were night ventures between 3 and 7 July and again from 25 to 30 July. The value of strategic bombing apparently was lost on the German Air Force. Designed and trained as a tactical air force, the Luftwaffe was powerless to return British strategic bombing, raid for raid. Of course, the acute shortage of gasoline was felt most keenly by the German air arm.

Another valuable factor was the British employment of Malta as an offensive base against the Axis supply lines stretching across the Mediterranean.

The results of this unremitting British air and naval offensive were soon evident to the Axis forces. In June, the Axis lost six vessels totaling approximately 20,000 tons to enemy action. August saw 12 Axis ships—more than 65,000 tons—sunk.

Only six percent out of 91,000 tons of supplies fell victim to British attack in July. But the Axis lost 25 percent of 29,000 tons of general military cargo shipped in August. Of the 22,500 tons of fuel sent on its way during that month, 41 percent erupted in flames from British shells, bombs, and torpedoes.

The German forces used twice as many supplies as successfully arrived in North Africa during the period from 1 to 20 August. German units were understrength by 16,000 soldiers, 210 tanks, and at least 1,675 vehicles. It was necessary to ration artillery ammunition and restrict its use.

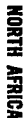
It is true that the Germans effectively employed some 500 trimotored Junkers transports to airlift replacements and reinforcements from Crete to North Africa. More than 24,000 soldiers and 11,000 Luftwaffe personnel were airlifted during July and August. Long-range, twin-engine Messerschmitt 110's successfully thwarted the efforts of British Beaufighters to shoot down the German air convoys plying this route.

Rommel's Best Veterans

But these men could not be supplied with heavy weapons, artillery, tanks, troop carriers, fuel, or ammunition. They imposed a greater strain on the already scarce distribution of these essential items. Furthermore, these new men served mainly as replacements rather than reinforcements. For 17,000 of Rommel's best veterans, men who had fought from the beginning of the African campaign, now had to return to Europe if they were to prevent the permanent destruction of their health. The loss of these soldiers, battle tested and experienced in the ways of warfare in the desert, was one of the heaviest blows Rommel had to sustain.

But, perhaps worst of all, Rommel's health now failed. Extreme exhaustion brought on frequent spells of unconsciousness. A host of other disorders followed in its train: nasal diphtheria, chronic stomach and intestinal catarrh, considerable circulation trouble, and great irregularity in blood pressure. An outstanding stomach specialist from the University of Wurzburg, Dr. Horster, was appointed as Rommel's personal physician and kept constant watch over the field marshal's health. Fresh fruit and vegetables were flown to Rommel's headquarters each day.

Rommel was in such miserable condition that he went so far as to request the



German Supreme Command on 21 August to replace him with a new acting commander.² Rommel asked that General Heinz Guderian be sent to take his place. The reply to this request was swift and short: "Guderian unacceptable." Indeed, the German Supreme Command reported on 24 August that it could find no panzer commander to spare for the African front. Under these circumstances, Rommel decided to stay with his command until the fate of the forthcoming Axis offensive had been decided. The German Supreme Command received a telegram from Dr. Horster stating that Rommel's condition had improved so that he could command a battle under constant medical attention, but it was essential to have a replacement immediately available.

Allied Strength Buildup

Events on the British side of the lines contrasted sharply with the difficulties which beset the Axis. An enormous quantity of supplies and equipment flowed into the hands of the 8th Army during the month of August when 386 tanks arrived, 132 of them from the United States. British artillery was buttressed by 446 new guns. New motor vehicles numbering 6,660 were unloaded, 3,371 of them from North America. From the United Kingdom alone came more than 72,000 tons of supplies. And 60 percent of bulk supplies came from India during this summer.

An even more impressive supply effort had been put in train for September. A massive convoy, carrying over 100,000 tons of supplies and equipment, was scheduled to arrive about the middle of September. Included in this convoy were 100 US, self-propelled, 105-millimeter artillery pieces which President Franklin D. Roosevelt had personally promised to Prime Minister Winston S. Churchill on the fall of Tobruk. It also was laden with 300 Sherman tanks, another part of Roosevelt's promise.

The US Army Air Force also entered the fray. By 11 August, it was decided that 24 US squadrons would eventually be committed to the Middle East to reinforce the 65 British and Commonwealth squadrons already operating in that theater. US long-range Liberator bombers, Mitchell medium bombers, and P-40 fighters would eventually come into play.

This tremendous buildup of Allied strength in the Middle East, furthermore, was but one part of a comprehensive and far-reaching Allied strategic plan. During the previous month of July, the Allies worked out strategic decisions for the struggle in North Africa and the Mediterranean. US opinion, led by General George C. Marshall, had argued for a cross-channel attack against the Continent. This view was strongly opposed by the British led by General Sir Alan F. Brooke, Chief of the Imperial General Staff, who pressed for an assault upon northwest Africa.

A compromise emerged from the debate between the two Allies, and final agreement was reached on 24 July. The cross-channel expedition was put off until 1943. Instead, a massive joint offensive against French North Africa was to be mounted under a US supreme commander not later than 30 October. The significance of these decisions is best expressed in the words of Roosevelt's cable to Churchill on 24 July, "I cannot help feeling

² Field Marshal Erwin Rommel, *The Rommel Papers*. Translated by Michael Collins, Edited by B. H. Liddell Hart, Harcourt, Brace & World, Inc., N. Y., 1958, p 271.

that the past week represented a turning point in the whole war and that now we are on our way shoulder to shoulder."³

On 30 July, Churchill announced his decision to fly to Cairo and thence onward to Moscow. Churchill wished to explain the Anglo-American strategic decisions personally to Joseph Stalin. The Prime Minister also was dissatisfied with the failure of the Middle East Command to score a smashing triumph.

Churchill and his Chief of Staff, General Brooke, landed at Cairo on 3 August. After intensive conferences and inspections, Auchinleck and Brigadier Eric Dorman Smith O'Gowan



Courtesy Colonel G. Burling Jarrett

General Sir Claude Auchinleck

were replaced in the "Cairo Purge," a move which has earned Churchill much criticism.⁴ The dismissal of these two high officers was summary and abrupt, and their accomplishments were not sufficiently appreciated and recognized at the time. Yet there was much to be said for a fresh and unwearied command team. On 15 August, General Sir Harold L. Alexander formally took over the Middle East Command. Lieutenant General Bernard L. Montgomery assumed command of the 8th Army at the same time. The "new team" brought to their task a new outlook and an untapped reservoir of dynamic energy.

The new Middle East Command was relieved of a crushing burden of responsibility when, on 21 August, a new Persia and Iraq command was established under General Sir Henry Maitland Wilson. This was a wise move long overdue. But, above all else, was Churchill's unswerving determination to con-

centrate the full weight of Great Britain and the United States in the struggle for North Africa.

It is surprising that Rommel essayed any further attack at all. The staff of the panzer army, after exhaustive study and analysis, considered an Axis attack to be a hopeless venture, bereaved of any possible chance of success.⁵ The withdrawal of all nonmotorized units to the Egyptian frontier was recommended. Rommel could then wage a skillful and highly mobile retreat, a game at which he excelled. Heavy losses might then be inflicted upon the oncoming British and perchance some disasters in the bargain.

But Rommel could not follow these wise suggestions. General Walter Warlimont, Director of Military Operations in the German Supreme Command, paid an important visit

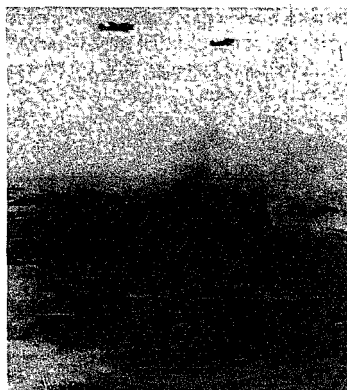
³ Sir Arthur Bryant, *The Turn of the Tide*, Doubleday & Co., Inc., Garden City, N. Y., 1957, p 345.

⁴ Correlli Barnett, *The Desert Generals*, The Viking Press, Inc., N. Y., 1961, pp 221-225.

⁵ Major General Baron Friedrich W. von Mellenthin, *Panzer Battles: A Study of the Employment of Armor in the Second World War*, The University of Oklahoma Press, Norman, Okla., 1956, pp 141-142.

to Rommel's headquarters in July. He conveyed instructions that Rommel must stay at El Alamein.⁶ Rommel's presence at that point, the German Supreme Command hoped, would focus British attention and forces in Egypt. General Paul L. von Kleist's thrust into the Caucasus and thence into Persia would thus encounter less resistance and have a much greater assurance of success.

Thus enjoined to hold his positions, Rommel was confronted with an unpleasant dilemma. He could dig in and await the inevitable enemy offensive, which the British did not intend to unleash until they possessed an overwhelming materiel superiority and had put all their troops through an intensive program of training, or he could try to forestall the British even though the prospects of success were dim. If he chose to pursue the second alternative, he must strike as soon as possible. By September, the balance of forces would be so heavily tilted against him that his chances of mounting an offensive would be gone.



Courtesy Colonel G. Burling Jarrett

Much of Field Marshal Erwin Rommel's fuel had to come into Tobruk

British defenses grew in strength and depth with each passing day. The more powerful the defensive network became, the more difficult it would be to achieve the surprise and speed upon which the German attack must depend so heavily. Finally, Rommel needed the advantage of the full moon for his approach march and deployment, and to make as deep an initial penetration of the enemy lines as possible. Under these conditions,

an Axis offensive had to be launched no later than the end of August. And, as might be expected, Rommel opted for the offensive course of action.

How did Rommel hope to win the forthcoming battle? From the sea to a point about 10 miles south of Ruweisat Ridge, the Italian infantry of 10th and 21st Corps, bolstered by the 164th German Infantry Division, would launch heavy raids against enemy positions. Then, to the south, between Alam Nayil and the Qattara Depression, the main blow would fall. A German and Italian spearhead would thrust east around the British left flank. German reconnaissance units would drive forward on the right flank, then the 15th Panzer, the 21st Panzer at its elbow, the Littorio Armored Division next, at its side the veteran Ariete Armored, and, "riding shotgun" for left flank protection, the 90th Light Division.

Concentrating between Bab el Qattara and the plateau at El Taqa, this force planned to move out at 2300, 30 August. During the night, they were to drive through to the area southwest of El Hammam, about 30 miles to the east. At 0600, 31 August, these formations

⁶ General Walter Warlimont, *Inside Hitler's Headquarters, 1939-45*, Praeger Publishers, N. Y., 1964, pp 246-247.

⁷ Von Mellenthin, *op. cit.*, p 148. Playfair, *op. cit.*, p 383. Barnett, *op. cit.*, pp 273-274.

were to wheel north and thrust to the sea, slashing the coastal road and encircling the enemy forces in the El Alamein positions. A decisive encounter was to be sought as the Axis forces smashed eastward into the British supply areas.

Rommel also hoped to capture the bridges over the Nile River at Alexandria and Cairo by a lightning *coup de main*. This venture would be undertaken by the reconnaissance formations in cooperation with the tough "Green Devils" of the Ramcke Parachute Brigade and the excellent Italian Folgore Parachute Division. Anxiously awaiting the arrival of these German-Italian units were the young officers of the Egyptian Liberation Movement, among them a young lieutenant, Gamal Abdel Nasser. Leaders of this movement already had been secretly flown out to Rommel's headquarters on 3 July and had maintained contact with the Germans since then. They eagerly anticipated the liberation of their country from the control of the British. To exploit the seizure of the bridges, the 15th Panzer and 90th Light Divisions were to dash on Cairo while the 21st Panzer captured Alexandria.

Outdated Maneuver

To achieve surprise, German and Italian tanks trundled to their camouflaged deployment positions in the south a quarter at a time. Halftracks, trucks, and prime movers made the journey in one move while supply vehicles wheeled into their places in the north. In addition, Rommel had constructed a large number of individual vehicle shelters or camouflaged boxes in the south. But these were built in such a way that the British could recognize them as dummies—and thus dismiss the possibility of an Axis attack in the south as a mere ruse while expecting more than ever a thrust by Rommel in the north. Above all, Rommel counted on the enemy not anticipating an Axis armored advance across the rough and sandy terrain of the south.

Several aspects of this plan draw critical fire. Fundamentally, it is the simple "left fake and right hook" maneuver which Rommel had employed frequently before. Surely, he should have realized that his enemy would know this tactic by now and have worked out a way to foil it. To rely upon this time-worn and threadbare maneuver would virtually forfeit in advance the elements most crucial to Axis success, surprise, and speed.

Rommel levied impossible demands upon his troops. They were required to fight their way forward 30 miles over ground which was known to be rough, infested with minefields, and which had not been scouted. This was to be done at night and within seven hours.

Why did Rommel choose to attack in this way? British defenses in the north, he was convinced, were much too strong for any Axis assault to succeed in penetrating that sector.⁸ Second, Auchinleck's resolute and brilliant military operations in the northern and central quarters of the El Alamein positions during July played a role of vital importance in deflecting Rommel's last great blow to the south. And it is clear that the German commander, as he subsequently admitted, seriously underestimated the extent to which the British had mined their southern sector and assured covering fire from numerous strong-points.

Crucial to the operation was the supply of gasoline and oil. On 22 August, Rommel indicated that he needed approximately 6,000 tons of fuel for his offensive. The Italian

⁸ Von Mellenthin, *op. cit.*, pp 142-143.

Supreme Command dispatched seven vessels laden with fuel to North Africa. There were 5,000 tons of oil and gas earmarked for the ground forces in these shipments, together with an equal amount of high-octane gasoline for the German Air Force. Field Marshal Albert Kesselring promised to airlift 500 tons of fuel, approximately 90,000 gallons, a day.

General Bayerlein reports that at a crucial conference at panzer army headquarters on 27 August between Field Marshal Ugo Cavallero, Kesselring, and Rommel, the Italian staff chief assured Rommel, "You can start your battle, Field Marshal, the fuel is already on the way."⁹ But only 1,500 tons of fuel were in Tobruk by 29 August. This meant an

allowance of two and one-half issues, approximately 150 miles worth, for each tank, self-propelled gun, or other motor vehicle involved in the offensive. Nevertheless, Rommel felt certain that if he did not act during that full moon, his last chance of an offensive would be gone forever. He, therefore, gave the order for the attack to open on the night of 30 and 31 August.

What happened to the fuel? Four of the seven tankers were sent to the bottom of the Mediterranean, including the vessel carrying the largest store of fuel for the army. The largest of the tankers that did run the gauntlet successfully, the *Giorgio*, brought aviation gasoline—to the disappointment of the panzer army. Kesselring made good on his promise, but most of the fuel brought by air was then drained on the long road up to the front and hardly amounted in any case to more than a trickle.



Armor

Field Marshal Bernard L. Montgomery

But the truly significant element in shaping the course of future events was the British preparation for Rommel's offensive. O'Gowan presented to Auchinleck on 27 July a detailed "Appreciation of the Situation in the Western Desert." In it, he accurately forecast that:

Rommel will certainly try to attack before the end of August and as Eighth Army defenses gain in strength and depth he will be more than ever tempted to avoid them and seek success in maneuver.

The British staff officer went on to point out that:

... the Eighth Army may have to meet an enemy's sortie developing into maneuver by the southern flank from his firm front on the general line Bab el Qattara—Taqa Plateau.¹⁰

Acting on the basis of O'Gowan's predictions, Auchinleck, in a major conference on

⁹ Paul Carell, *The Foxes of the Desert: The Story of the Afrika Corps*, E. P. Dutton & Co., Inc., N. Y., 1961, p. 256.

¹⁰ "Appreciation of the Situation in the Western Desert," 27: 7: 42.

30 July, developed and elaborated a new concept of fundamental importance. The British left flank would be "refused"—drawn back at right angles to the front, and immensely strengthened. Rommel would thus be confronted with a dilemma. If he chose to continue his advance to the east, the British would descend upon his exposed left flank and rear with great impact. If he turned north to cope with this looming threat, then he would run head-on against powerful and thoroughly prepared British defenses while enemy mobile units simultaneously harried his exposed right flank and rear supply lines.

Furthermore, an excellent position along which the British southern flank could be drawn back and strongly posted was opportunely at hand, the west to east ridge of Alam Halfa. This key position was now carefully prepared under Auchinleck's direction. To the south, the route of Rommel's expected approach was thickly sown with mines. No less than three consecutive belts of mines covered this area.

Into this situation, Alexander and Montgomery stepped. Later, Montgomery was to seize all the credit for victory in the encounter.¹¹ But it is amply clear that the credit for an accurate forecast of Rommel's intentions must go to O'Gowan. It is Auchinleck who deserves recognition for the basic tactic which was to frustrate those enemy intentions in a disaster of irredeemable proportions.

Discipline Stressed

Nevertheless, "Monty" did have extremely valuable contributions to make. Discipline within the reaches of the British High Command was tightened. Officers who protested orders or disobeyed them were summarily sacked. British troops were never again to disperse their strength in battle. The fundamental principle of concentration of forces was carried out in action, a most important tactical point. And, finally, Montgomery made a determined and eminently successful effort to work out the closest kind of cooperation between his 8th Army and the Royal Air Force. He went so far as to move his entire headquarters over to Burg el Arab, the site of the Desert Air Force Headquarters.

British positions in the north on the eve of the enemy attack were strongly held in depth by the 9th Australian, 1st South African, and 5th Indian Divisions. All were under Lieutenant General W. H. C. Ramsden as 30th Corps commander. To the south, the left flank was occupied by the 13th Corps led by Lieutenant General Brian G. Horrocks. The 2d New Zealand Division held the critical "shoulder" south of Ruweisat Ridge at Bab el Qattara and Alam Nayil. Behind the New Zealanders, at the eastern end of Ruweisat Ridge, was the 23d Armored Brigade comprising 100 Valentine tanks. Posted along the Alam Halfa Ridge was the newly arrived 44th Infantry Division, the 10th Armored Division under the command of the best British tank leader, Alec Gatehouse, and the army artillery, a concentrated mass of light and medium guns.

Covering the expected path of Rommel's thrust was the 7th Armored Division, made up of the 4th Light Armored Brigade and 7th Motor Brigade, led by Major General J. M. L. Renton.

All told, the British massed 350 tanks in the frontline, 164 of them Grants. They were thoroughly dug in to fire from hull-down positions and were carefully sited behind screens

¹¹ Field Marshal Bernard L. Montgomery, *Memoirs*, William Collins Ltd., London, Eng., 1958, p. 108.



Royal Armored Corps Tank Museum

The British used 164 *Grant* tanks in hull-down positions at the Battle of Alam Halfa

of 57-millimeter antitank cannon. The fire of both tank and antitank guns was coordinated with the supporting artillery batteries in a thoroughly worked out and comprehensive fire plan.

Against this formidable array, Rommel was compelled to pit 243 Italian machines patently inferior in every respect and so worn out that at least half of them broke down after a short run. German armor came to 203 tanks, 166 of which were Mark III's and 37 Mark IV's.

Under the glow of the full moon, the German and Italian forces set out on their last offensive. Shortly before 0200 on 31 August, the German armor blundered into the first of the extensive minefields laid by the British to entrap their unwary foe. The 7th British Armored Division fought a tenacious delaying action, exacting from the Germans a costly price for every lane cleared. Frequently, three assaults were necessary to carry a section of the minefields. A severe blow was the death of the commander of the 21st Panzer Division, Major General Georg von Bismarck, killed by mortar fire while leading his troops through the minefields in his motorcycle sidecar.

As if this were not enough, the night air reverberated with the roar of aircraft engines. A cascade of parachute flares and magnesium incendiaries made the desert battlefield as light as day. Wellington bombers and Albacore dive bombers then added their share to the devastation. One bomb killed the Africa Corps supply officer and wounded Lieutenant General Walther Nehring, the key commander of the Africa Corps. Bayerlein, the Africa Corps staff chief, immediately assumed temporary command of the corps.

By daybreak, the Axis forces were only eight miles east of their starting line. In the light of this decidedly unpromising beginning, Rommel was strongly inclined to abandon

the entire enterprise. But he decided to go forward to the point of his spearhead and see for himself what prospects a continued attack might have. Rommel arrived at Bayerlein's headquarters at 0900 and found that his troops had finally fought their way through the minefields. After mulling the matter over with Bayerlein, he decided to move on with the attack. Lieutenant General Gustav von Vaerst, the commander of the 15th Panzer, was now entrusted with the leadership of the Africa Corps.

Rommel's Crucial Decision

Above all, Rommel made a decision crucial to the course of this battle:

With the British armor now assembled for immediate action . . . it was impossible for us to continue with our wide sweep to the east, as our flanks would have been under constant threat from the 7th Armoured Division in the south and the 1st [sic] and the 10th Armoured Divisions in the north. This compelled us to decide on an earlier turn to the north than we had intended.¹²

Thus was Rommel impaled on the horns of the dilemma Auchinleck had set for him. Nothing could have fallen in with British plans and preparations better than Rommel's choice. For Rommel now steered his panzers straight for Alam Halfa Ridge.

After taking on ammunition and fuel, the 15th Panzer swung north at 1300 followed by the 21st Panzer on its left an hour later. A whirling sandstorm did give the Germans their only respite in the battle from the ordeal of British bombing.

A tenacious struggle raged throughout the afternoon as the British units along the ridge gave the Germans a hot reception. On the left flank, the Italian tankers of the Littorio Armored Division joined in the fray. To the right, Von Vaerst's 15th Panzer Division fought its way northeast, circling around the flank of the 22d Armored Brigade.

But the Ariete was still bogged down in minefields. The 21st Panzer was stopped cold and fuel ran out for the 15th Panzer. As night drew on, Von Vaerst was compelled to break off his attack.

All through the night, parachute flares and magnesium markers took the place of the sun. British artillery and bombs kept up an avalanche of fire. The 7th Armored Division played havoc with Rommel's supply columns and harried the exposed Axis rear.

Scrambling into their tanks the next morning with the slow-motion weariness of men staggered by two days and two nights of bitter fighting, unrelieved by rest or sleep, the panzer troops once more rumbled forward into battle. But the 21st Panzer could obtain no fuel and was forced to sit motionless. It also had borne the heaviest brunt of the previous day's combat—and the losses. So the burden of the attack on 1 September fell upon the 15th Panzer Division. Starting early that morning, the division drove hard around the east flank of the 22d Armored Brigade.

But the 15th-Panzer was halted in its tracks when heavily attacked on the right flank by the 72 Grant tanks of the 8th Armored Brigade. The 7th Armored Division stabbed into the German formations' vulnerable southeastern flank and rear. Salvo after salvo of shells from British guns churned enemy vehicles and weapons into wreckage. Montgomery reinforced his southern flank with the 2d South African Infantry Brigade and an infantry

¹² Rommel, *op. cit.*, p 277.

brigade from the 50th Division, together with strong supporting artillery and antitank gun units.

The Germans and Italians were remorselessly battered by the Royal Air Force. Between 1000 and 1200, Rommel records that his headquarters alone was bombed six times. Kesselring's airmen vainly sought to contest the British supremacy in the skies. United States and British fighters broke up the Luftwaffe Stuka formations, making dive bombing a suicidal venture, and Axis fighters were swept aside.

At noon, Rommel concluded that he must assume a defensive posture. He then considered the question of retreat.

It is at this point that the shortage of oil and gasoline played its greatest role in this battle. By the evening of 1 September, the panzer army possessed but one issue of fuel, sufficient for 62½ miles of travel per vehicle over normal terrain. The next morning, Rommel was informed of the destruction of the tankers upon whose arrival he had relied so heavily.

Foiled by British anticipation of his attack and tactics, Rommel had been baffled by the new tactics employed by the enemy high command. Overwhelmed with the sheer weight of the resistance he encountered, Rommel had been bombed day and night without abatement. Now, to crown it all, he was stuck, out of gas, in the desert. Little wonder that he resolved on the morning of 2 September to abandon this costly debacle and turn back.

The retreat was carried out in a series of stages. Royal Air Force and US planes continued to hammer the sorely pressed Axis soldiers. British aircraft flew more than 2,500 sorties throughout the course of this battle, including a record of 957 during one 24-hour period. Units of the US Army Air Force flew 180 sorties as well. The Luftwaffe did make a determined effort to cover the retreat of the panzer army, especially after Rommel had conferred personally with Kesselring. Emulating the foe, an effective area bombing attack by Junkers 88's fell upon the 5th Indian Division from 2200 on 3 September until dawn of the following day. Messerschmitt pilots now forced the British to divert their own fighter strength from bomber escort to offensive fighter sweeps. Deprived of escort, British bomber activity abated, to the great relief of the Axis ground troops.

By 6 September, Rommel had limped back to positions just east of the British minefields. Montgomery has been severely tasked for his failure to cut off Rommel's retreat and annihilate the stricken panzer army.¹³ True it is that the Axis army was involved in a situation of no small jeopardy and that a high degree of skill was required to extricate it from this perilous position. Nonetheless, the best answer to the criticism comes from Rommel himself:

There is no doubt that the British commander's handling of this action had been absolutely right and well suited to the occasion, for it had enabled him to inflict very heavy damage on us in relation to his own losses, and to retain the striking power of his own force.¹⁴

This sentence may well serve as the epitaph for Rommel's last great offensive in the desert war.

¹³ Barnett, *op. cit.*, p 249.

¹⁴ Rommel, *op. cit.*, p 284.



The European Nuclear Dilemma

J. E. Cadoux

TODAY, apart from France, all European countries openly accept the advantages of the deterrent capability of the United States. However, since Soviet nuclear weapons are capable of striking the heart of the United States, the US promise to use nuclear weapons for the protection of the European countries has lost much of its credibility.

The strategy presently accepted by the European North Atlantic Treaty Organization countries is no longer the strategy of massive retaliation,

but an adjusted version called flexible response. This strategy provides that, in the event of an armed conflict, the United States and its allies will, as long as possible, try to control the conflict by limiting operations to the battlefield before employing weapons of mass destruction.

France, on the other hand, has deprived itself of the protection of US deterrent weapons in order to be independent in its decisions with respect to the employment of nuclear weapons. It wants to be the master of events

that might dramatically affect its fate.

With its limited arsenal of nuclear weapons, France has committed itself to massive nuclear retaliation in the event of aggression. The limitations of this policy are obvious. Moreover, the cost of developing and maintaining its national, independent arsenal of nuclear weapons has led to technical and operational dilemmas which impair the value of the available defense potential. Public and military opinion is concerned about the lack of counter-strike alternatives.

Important Quality

Still, in comparison with other countries, France's posture has an important quality; it is consistent and realistic. On both sides of the Atlantic, the value of the US commitment to Europe is losing more and more of its persuasive power. Lacking an alternative proposal—in particular, a national solution proper for each country—the European members of the Atlantic Pact have resigned themselves to the present security system. Reliance on the nuclear deterrent provided by the United States will continue until Western Europe takes steps to provide its own nuclear defense.

Since European political unity seems unlikely in the near future, can France and the other West European countries find a solution which is politically acceptable to all sovereign nations yet strategically effective?

This means, of course, that the Eu-

ropean nuclear deterrent would have to be provided by existing French and British forces. Two contradictory conditions must be met to provide a true deterrent for each country:

- In order to insure compliance with the principles of the nuclear non-proliferation treaty, the right to use nuclear weapons will not be transferred in peacetime. A priori, any solution must not result in further nuclear proliferation. France and Great Britain must retain exclusive control over their nuclear weapons.

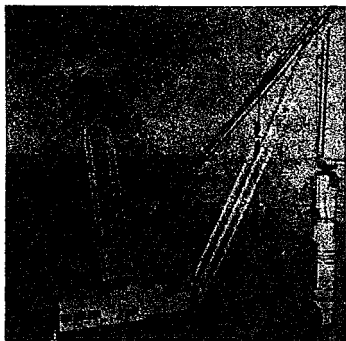
- Sovereignty requires that each of the countries concerned must be able to make an independent decision with respect to nuclear weapons employment. The credibility of the deterrent would be of little value if, at a crucial moment, another country could veto nuclear employment. No European country would exchange its present dependency on the United States for an identical dependency on the lesser deterrent capabilities of France or Great Britain unless the new solution offers freedom of action with respect to the employment of nuclear weapons.

Control System

A highly developed state of technology and dialectics makes it possible to establish a control system that would make this solution feasible. The following seems a workable procedure. In peacetime, nuclear weapons would remain under the exclusive control of the acknowledged nuclear powers in Europe—France and England. Without violating the nuclear nonproliferation treaty, a control system could be developed using the "permissive link" concept.

At a time of crisis, authority to use a certain amount of nuclear weapons would be transferred to a threatened country. Present telecommunications

This article was translated and condensed from the original, published in the REVUE MILITAIRE GENERALE (France) May 1970, under the title, "L'Impasse des Strategies Nucleaires Europeennes."



*Allgemeine Schweizerische
Militärzeitschrift*

French submarine-launched intermediate-range ballistic missiles

can provide a safe and instantaneous release of launching and security devices for nuclear weapons over long distances. A central command post established within the framework of an alliance would, for the benefit of a threatened European country, guarantee the release of a limited number of nuclear weapons for employment in precisely specified circumstances. Upon transfer, the requesting country would assume sole responsibility for employment of these weapons.

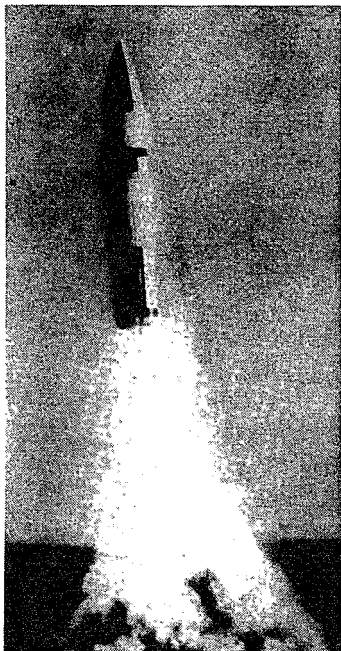
Defining the prerequisites for the transfer of authority to use a certain number of weapons is, of course, a delicate matter. Situations which would justify the release of nuclear weapons should clearly and undoubtedly threaten the integrity of a country's sovereignty. In peacetime, the principle of nuclear nonproliferation would be applied within the framework of an alliance treaty. However, in the event of an attack against one of the member nations, the principle would only apply in a qualified sense.

The willingness of all members of

the alliance to react in the event of an aggression against one by transferring an autonomous deterrent would put voluntary and organized solidarity into concrete form, not relying on unconvincing threats of joint action.

A few observations on the control system seem to be in order. Once the technicalities of transferring authority have been solved, the system can be designed to function beyond question.

Note that the system covers only the deterrent aspect of the nuclear weapons. It is generally recognized that de-



Air Force and Space Digest
The 1968 test firing of a *Polaris* missile
by the *HMS Resolution*

terrent weapons are not intended for actual use. Their existence is to deter, to discourage a would-be attacker. Employment would mean that they had failed in their primary role.

The permissive link holds the key position in the deterrent. Its existence is to threaten and to discourage a potential enemy from taking action which would precipitate retaliation. In fact, the nuclear weapons placed by the alliance at the disposal of a country would not be automatically used. The period preceding actual employment—that is, the period during which the weapons are transferred—would constitute an interim stage, an additional warning to the enemy at the time he attacks one of the alliance countries.

Once nuclear weapons are released for employment, the threatened member has a credible deterrent. At that time, use of the weapons would be left to the member's discretion, withdrawn from the influence of the other countries.

Destructive Counterattack

If the country under attack accepts the risk of exposing itself to a destructive counterstrike, it does so on its own; the neighboring states would not be involved. Yet a counterstrike reaching neighboring states would trigger the release of weapons to these countries, confronting the aggressor with the additional threat of a stronger nuclear strike. This system would increase the credibility of the deterrent. Each country under attack would have retaliatory weapons at its disposal, thus creating serious problems for the aggressor.

This system would not depend on rapid reaction to an attack because these weapons are intended for massive destruction and not for tactical

use. Weapons which inflict mass destruction do not require immediate employment in order to be an effective deterrent. But to be successful as a deterrent, the decision to use these weapons must be left to the country under attack. Furthermore, it is essential that these retaliatory weapons be able to survive a surprise attack aimed at their destruction. A detailed examination of the conditions which would release these weapons to national control would be needed.

Threshold Level

The major problem of all nuclear deterrent systems lies in defining the threshold for the release of weapons. This threshold is a key issue in all strategic deterrent systems. In fact, it controls what is of prime importance in a deterrent system—credibility and stability. If the threshold is set too low, it will be easily crossed. A minor aggression might touch off a massive counterstrike. Such a threshold is characteristic of a deterrent system which is unstable but credible, effective but highly dangerous.

Placed too high, the threshold creates a deterrent which is stable but not very credible because there is room for a great number of lower levels of aggression. It reduces the risk of a massive retaliation to the aggressor.

The stability and the credibility of the whole system of deterrence is ultimately determined by the level of the threshold fixed by one of the adversaries and how it is viewed and evaluated by the other. The new proposed system is distinctive inasmuch as there are two phases which trigger action.

In the first phase, aggression is recognized—admittedly an uncertain process. Yet miscalculations which could prematurely activate this first

phase do not necessarily have catastrophic consequences. Release of the weapons is not automatically followed by their employment. Actual use is left to the initiative of the country affected by the aggression. Therefore, the proposed system provides a real gradation, another control, and gives

raises the slightest doubt concerning the conditions under which the available weapons will be employed may cause a potential aggressor to improve and increase his own capability or tempt him to launch a preemptive nuclear attack.

It is of fundamental significance



Sentinel

Conventional forces, such as this mechanized battle group, would allow negotiations during the conduct of military operations

the adversaries a chance to exercise restraint before making an irreparable mistake. Hence, the deterrent is stable.

Often neglected where strategies of deterrence are concerned are the relations between potential enemies before a crisis—the reciprocal stability of the deterrent. Contrary to the opinion of many strategists, the system must not leave the slightest uncertainty as to the circumstances which will precipitate retaliatory action. A likely aggressor must be made fully aware of these circumstances and conditions. A deterrent strategy which

that a strategy of deterrence actually deter. It is equally important that the deterrent be stable. The system must never be set in motion by miscalculation or misunderstanding. Therefore, a genuine strategy of deterrence must be mutually understood by both sides.

This has been realized between the United States and the USSR by force of events and the state of nuclear parity. The installation of the "hot line" between Washington and Moscow was the result of the mutual fear that the deterrent system might be released by miscalculation or accident. The cur-

rent Strategic Arms Limitation Talks represent the beginning of a real concerted strategy between the United States and the USSR.

The objective of the new system would be to stabilize the deterrent offered the various European countries. It is important that this system not be provocative. For this reason, it should be planned in close consultation with the opponent. The frantic fear brought on by the embryo Chinese nuclear force, whose composition, intended purpose, and targets are unknown, make evident the degree of instability caused by the specter of a nuclear power concealing the nature of its deterrent.

Strategists of deterrence are by nature dialecticians in the philosophical sense of the term. The events for which they conceive logical deterrent systems are only probabilities. Any realization of these events is completely foreign to these systems. This is one aspect which many strategists do not want to admit. The true strategist of deterrence is a dialectician who presents rational scenarios depicting theoretical nuclear exchanges with an adversary. The sole objective is to leave an impression on the mind of his opponent.

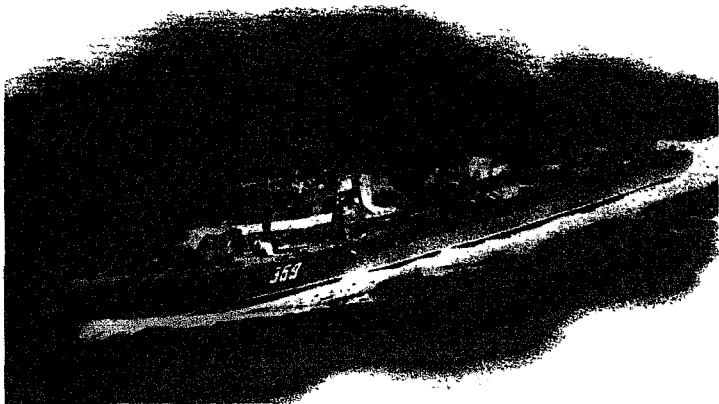
This clearly demonstrates that the value of a deterrent system is not in-

creased by declaring one's intention actually to use these weapons. The persuasive power of this declaration has only a dialectic value. Therefore, it is impossible to determine how valid an intention will be at a moment of crucial decision.

Reality must take a place beside the rational, yet abstract, deterrent systems. This can be provided only by conventional strategies whose weapons are intended for employment on the battlefield. The use of these weapons would not mean futile suicide, but an armed battle—each military action serving a reasonable, political purpose. The strategies of conventional weapons are designed to permit the warring parties to exercise control over events and facilitate restraint and negotiation during the course of military operations. These two types of strategies complement each other.

Without doubt, the adoption of two strategies would require Europe to make considerable intellectual and financial efforts, to provide balanced nuclear and conventional forces. However, if the two strategies serve all countries, justly distributed burdens would be easier to bear. In any case, a newly found unity in Europe would provide a solid starting point for a constructive development.

Challenge of the Mediterranean



Crossroads of United States-Soviet Relations

Robert A. Kilmarx

THE importance of the Mediterranean Basin to US foreign policy is dynamically affected by the current US orientation toward international politics. It is sensitive to the outcome of competing conceptions concerning the role of the United States in the world and the relative importance that is placed on various domestic versus international priorities.

Increasingly, US actions reflect a reconsideration of past policies aimed at containment of Communist expansion and the creation of favorable balances of power. This trend has

resulted in greater selectivity in determining vital interests and a reappraisal of the ability of the United States to influence the congeniality of the international environment.

US Interests

These developments have been fortified by public disenchantment with the war in Vietnam and new waves of optimism about the prospects of *detente* with the Soviet Union. The public has tended to downgrade previous assessments of US interests in the Mediterranean area in the context of a continuing political and military crisis in the Middle East and the risks of direct confrontation with the USSR. This process has occurred in spite of the fact that every President since Harry S Truman has held the view that US interests in the area should be classified as vital.

Viewed according to classical concepts of international relations, US interests in the Mediterranean can be evaluated according to many measures.

In the economic area, the importance of the Mediterranean to the

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US balance of payments is suggested by the fact that the net dollar inflow from trade and investment in the Middle East and North African states has run at about the rate of 1.7 billion dollars per year, even after deducting economic aid to the area.

The Middle East and North Africa, with about 76 percent of the known Free World oil reserves, supply about 42 percent of the Free World oil. This source of oil remains vital to the economic growth and political stability of Western Europe and Japan. If it should become unavailable, these allies would be partly dependent upon the USSR to meet their needs. If they obtained the oil from Arab States that are unfriendly to the West, they would have to pay a high political price. In either case, their association with the United States and with each other in their own defense would be greatly encumbered.

NATO Integrity

The security of the Mediterranean directly affects the integrity of the North Atlantic Treaty Organization and the security of our European allies. If the Mediterranean area were to fall into hostile hands, the fragmentation of NATO and the breakdown of European security might be expected. Already a growing gulf has developed between NATO nations on the Mediterranean Sea and those which participate in the defense of West Germany, France, and their neighbors to the north.

Airport and overflight rights, port facilities, and other services rendered to the United States and allied forces in and transverse the area have long been of great importance in the context of the global nuclear balance. The area may be represented as the key to land penetration of all of

Africa and the future stability of its new states.

At the less tangible level of values, the United States remains greatly indebted to the Mediterranean area for important contributions to its cultural, intellectual, and religious heritage. The adverse impact of its loss to the ideological and spiritual foundations of US policy would be incalculable.

Economic Value

These traditional formulations of US interests, however, are no longer readily accepted. The argument is made that the economic importance of the Mediterranean to the United States has decreased since we have turned to alternative sources of supply for our oil. It is even pointed up that the security of the United States should not be harnessed to primarily European interests that are not accepted even by such allies and near-allies as Italy and France.

It is claimed that the march of technology has even reduced the need for sea transit and overflight rights in the Middle East, thanks to the availability of giant tankers and large transport aircraft like the C-5. After all, it is maintained, the Europeans have given up most of their military commitments east of Suez while the United States takes a different geographical route to support its Asian commitments. Even the importance of spiritual and cultural links are downgraded as irrelevant to a *realpolitik* since the United States is becoming more concerned with material aims than with policing the world.

Such arguments tend to ignore the fact that the Soviet Union has chosen to make the area, and especially the Middle East, the testing ground for a global readjustment of East-West power relationships. Only in this area

has the Soviet Union shown a willingness to commit military forces to support its political goals by direct action. There, Soviet materiel, political interests, and prestige are more deeply



Air Force and Space Digest

Wheelus Airbase in Libya with its 11,000-foot runway is the latest airbase in North Africa to be evacuated by the United States

involved than anywhere else in the third world, including Vietnam.

This development more than compensates for changes in economic and communications patterns and shifting US national priorities. It surpasses the decline of ideology as a factor in Soviet external policy, for the Soviet challenge to US security and well being does not require Marxist trappings and Leninist invocations to be politically lethal. It helps explain the potential political impact of the shifting balance of strategic nuclear power in the world. The Soviets may not be driving to become number one in the world, but certainly they are seeking to overcome the problems of being number two.

As a result, the Middle East is the crossroad in more than a geographical sense. Even with a more modest view of our Nation's security interests in



US Navy

The nuclear-powered US cruiser *Long Beach* operating in the Mediterranean symbolizes US power in the area

the world, and with more selective guidelines on commitments of US resources and forces abroad, the Mediterranean remains essential to the well being and security of the United States. To deny this conclusion is to yield a major portion of the world's stage to new phases of Soviet global expansion.

Since the June 1967 Arab-Israeli War, there has been an accelerated deterioration of this country's position in the Mediterranean area. This deterioration began about the middle 1950's. Countries allied with or oriented toward the United States assumed a more independent, neutral policy or fell victim to political change which has radicalized their leadership and changed their orientation toward

the late President Gamal Abdel Nasser of the United Arab Republic (UAR) and the world Socialist and Communist movements.

Of the 22 odd states which may be considered as comprising the area of concern, less than half presently can be considered friendly to the United States. About 70 percent of the states still classified as friendly may develop a less friendly orientation in the future.

Contributing to this process has been the continuation of policies of qualified political and military independence by France and the planned withdrawal of British forces east of Suez. This British policy shift has been accompanied by a phasing out of political interest in spite of modest

commitments to strengthen the British naval presence in the Mediterranean. Even the victory of the Conservatives in British politics can only delay not reverse this trend.

The French have reasserted their political, economic, and cultural activity and have provided military aid to radical Arab States. From a NATO standpoint, the degree of interallied cooperation at the military level remains marginal, save for the maintenance of an international headquarters, the carrying out of *ad hoc* maneuvers, and limited efforts to improve air surveillance by joint action. The idea of political cooperation has seldom been realized in the Mediterranean.

Soviet Military Presence

These developments in the Mediterranean region have been accelerated by the strengthening of the Soviet military presence. This presence consists primarily of a major Soviet naval buildup in the Mediterranean, arms deliveries, including advanced weapons, to increasing numbers of Arab States, and, more recently, the deployment of Soviet Air Force and air defense units to the United Arab Republic. Soviet military intrusion has provided a base for diverse tactics of political and economic penetration.

On the naval side, the Soviet Fleet in the area, which has become permanent, includes up to 70 vessels. According to the US commander of the 6th Fleet, the number presently in the Mediterranean could be increased two or three times in a few days by the movement of Soviet combatant ships from the Black Sea. To a certain extent, the Soviet Mediterranean Fleet has already neutralized advantages long held by the United States. The Soviet Union is currently capable of interjecting its fleet be-

tween a client Arab State and the US 6th Fleet or even flirting with local intervention.

The military worth of the US 6th Fleet, on the other hand, has been weakened for several years by the effects of the priorities of the Vietnam war. In spite of recent programs to correct certain military deficiencies, its capabilities will be adversely affected by budgetary cuts resulting in reductions in the size of the US Navy. Its needs for surface-to-surface missiles, more modern fighter aircraft, improved antisubmarine warfare, and surface-to-air defenses will persist. After years of neglect, the US naval shipbuilding program is still less than the administration's request, considerably below the authorization bill, and much below the amount sought by the US House of Representatives.

Soviet Aid

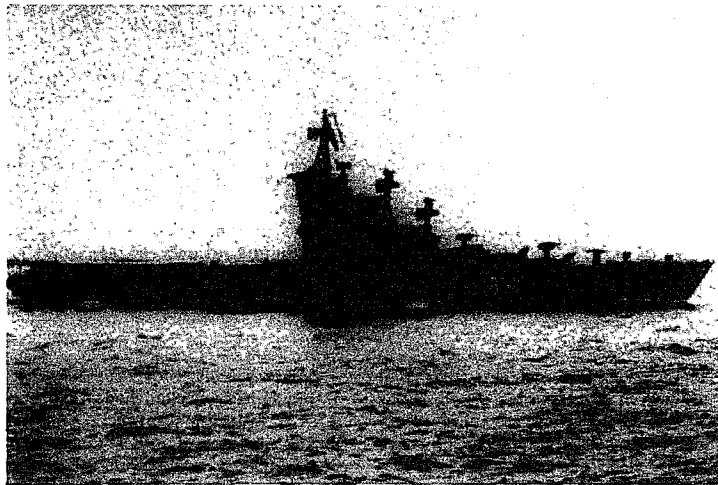
After the June 1967 war, the Soviet Union quickly replenished Arab supplies of military equipment and enlarged its force of military and technical advisors, notably in the United Arab Republic. These developments have been in keeping with the priority it has placed on the Mediterranean area in its military and economic aid programs since 1954.

Of the billions of rubles the Soviet Union has distributed throughout the world during the last 15 years, over 40 percent has gone to the Arabs. As of the end of January 1970, the Soviets had provided 250 advanced jet fighters to the United Arab Republic, 135 to Syria and 130 to Iraq; 35 modern bombers to the United Arab Republic; and a total of about 50 helicopters to these three states. More have followed. In addition, the Soviet Union has made available about 600 tanks, about 100 self-propelled guns, approximately

650 armored personnel carriers, and a large number of artillery pieces.

Soviet *Tu-16 Badger* medium bombers, 60 to 100 Soviet-manned *MiG-21J's*, and *Be-12* naval reconnaissance aircraft now operate from Egyptian airfields. Up to 80 Soviet-manned, low-

According to the US 16th Air Force, one of the Soviet's most significant achievements will be the establishment of permanent airbases along the rimland of the Mediterranean and with it land-based airpower, the extent of which we have not yet fully witnessed.



US Navy

The Soviet helicopter carrier *Moskva* represents one element in the challenge of the Mediterranean

altitude, surface-to-air missile sites (SA-3's) and up to 300 high-altitude missile sites, under over-all Soviet control, guard Egyptian airspace. Their deployments and the areas of their operation extend ever closer to the Suez Canal and to territory occupied by Israel. More advanced Soviet fighter bombers, for example, the *Foxbat*, with performance characteristics superior to the aircraft of the 6th Fleet soon may follow. More airfields are being modified to support advanced Soviet combat aircraft on bases that extend from Algeria to Syria.

The commanding general of the 16th Air Force recently stated:

Russia now has a nucleus of air bases utilized by Soviet aircraft and ground equipment and an infrastructure of competent military technicians, maintenance personnel, pilots, etc. to operate this equipment and serve as the basis for a rapid expansion of Soviet military capability in the area should the necessity arise.¹

Part of the political coin which Nasser paid for Soviet military as-

¹ Letter to the author from Major General E. B. LeBaillly, Commander, 16th Air Force, US Air Forces in Europe, 11 May 1970.

sistance, especially following the June war, was to make available base facilities. The Soviet Mediterranean Fleet was given storage and repair facilities, or the equivalent of naval base rights, at Alexandria and Port Said. Soviet bomber pilots were allowed to fly Soviet-made planes with Egyptian markings on missions in the Mediterranean. Somewhat similar arrangements have been made with Syria and may be in the offing in Algeria, Libya, and other Arab States. Soviet fighter pilots fly operational missions, blocking the earlier success of Israeli deep-penetration raids.

As a result, the Middle East air balance has shifted in favor of the United Arab Republic and its allies—in reality, in favor of the USSR.

US Withdrawal

For a decade or more, there has been a continual erosion of the US naval and airbase structure in the area. This has included withdrawal from five airbases in Morocco, and bases in Malta, Turkey, and Libya. Remaining bases are under ever-tightening controls of the host state which have curtailed operations and reduced their military value.

In Italy, there has developed a worrisome instability in internal politics along with acute economic problems which raises concern in regard to base support from Italian soil, especially for non-NATO objectives. Furthermore, Italy is a leading Western buyer of Soviet oil and has strong economic interests in the Arab world.

In the case of Greece, the crisis over Cyprus, as well as the adverse US response to the coup of April 1967, has placed our aid program in jeopardy and raised serious questions as to the future cooperation of Greece with US military forces.

Again, in the eastern Mediterranean, Turkey has taken a more neutral course in its foreign policy, and even visits by 6th Fleet ships to Turkish ports have been met by demonstrations. Between 1965 and June 1970, the United States turned over 40 to 45 million dollars worth of military facilities.

Also related to the Soviet naval presence in the Mediterranean is the Iranian *detente* which has been enforced by aid agreements with the USSR. The Iranians fear, as do the Turks, that the Soviet Union will eventually dominate the Middle East, including the Persian Gulf, if the Suez Canal is eventually reopened.

Spanish Trade

Spain, like many other countries, has also become aware of the advantages of improving relations with the Soviet Union. This has been reflected in a number of ways. Spain does 237 million dollars worth of business a year with Communist countries, over 25 million dollars of which is with the Soviet Union.

Spain now has trade and consul agreements with Romania, Poland, and Hungary. In addition, it has full diplomatic relations with Cuba. Also, Spain has been making efforts to open more trade and cultural contacts with the Eastern bloc, leading ultimately to the establishment of diplomatic relations with the USSR. The passing of General Francisco Franco from the Spanish political scene would open new risks, as well as provide new opportunities for changes, in Spain's orientation and acceptability in the Western World.

In North Africa, Libya precipitately moved into the radical Arab camp by a revolutionary coup, and the United States had to give up Wheelus

Airbase on Libyan soil. This base was our last air foothold in the region. It had been important as a training base and terminal for logistic support.

In Morocco, since the first Soviet Fleet visit in October 1968, there has been a marked warming of Soviet-Moroccan relations with the signing of scientific and economic agreements and the possibility of Soviet military assistance to Moroccan armed forces. Through Soviet manipulation of key Arab States, the prospect is raised that Tunisia, already the recipient of Soviet economic aid, will find itself constrained by the Soviet Union's Arab allies in the exercise of its policies.

Soviet Objectives

Each of these developments is in accordance with an apparent Soviet objective of exercising effective control over the rimland in the eastern and southern Mediterranean and thus outflanking Europe. The prospects of success in this policy have been enhanced by disputes over the future of Gibraltar, uncertainty concerning the future utilization by the West of bases in Malta, and the ticklish political and military situation in Cyprus—each of which remains to be resolved. Britain may relinquish its bases in Cyprus by the early 1970's. Use of facilities in these locations by unfriendly forces, or even their denial to the West, could greatly restrict the viability of our military presence in the Mediterranean and further contribute to the political erosion of the Western posture.

The attention of US decision makers has begun to focus on problems of Africa and the Mediterranean, with primary attention to the Middle East. Even to informed citizens, however, our Middle East policy must appear

to be somewhat ambiguous. Presumably, it aims at a policy of more even-handedness in US relations with the states in the area while, at the same time, reinforcing the commitment of the United States to assure the survival and security of the state of Israel.

The United States apparently seeks, at the same time, to set itself apart from each side in the Israeli-Arab disputes, yet influence arrival at a settlement through negotiations and subtle persuasion of the quasi-client states by the United States and the USSR.

In carrying out US policies toward the area, however, our control over events has been markedly reduced. Like many other actors in the drama, our policymakers thus feel boxed in, with little freedom of maneuver. As a result, we may overreact to constraints and underreact to interests.

Individual Countries

In regard to the states in the Mediterranean region, the focus of our policy seems to aim at individual countries rather than the Mediterranean Basin as a whole. US policy has tended to be restricted in its strategic focus. The area is seldom viewed as a whole or in a broad geopolitical context. Successive administrations have been preoccupied, more on an *ad hoc* basis, with such local territorial and national issues as Cyprus, Greece, Turkey, Libya, and, above all, the Israeli-Arab problem. Changes in policy direction have been piecemeal and limited.

US contingency planning for the area also needs to be continually reexamined to insure that it is based on valid assumptions concerning force readiness and capabilities, deployment times, postulated encounter scenarios, and base availability. The concurrent

impact of a series of recent budgetary reductions, tactical shifts, and changes of personnel undoubtedly have compounded the problem.

Admiral Horacio Rivero, Jr., Commander in Chief, Southern Europe, recently stated that:

... deficiencies in numerical strength (of NATO forces), in D-Day readiness, in staying power, and in modernity as well as in the mobility of our forces, place us in a situation where, if attacked by substantial Warsaw Pact forces, we may be forced to resort to nuclear warfare earlier than would be necessary were we able

to meet a conventional attack on fairly even terms.²

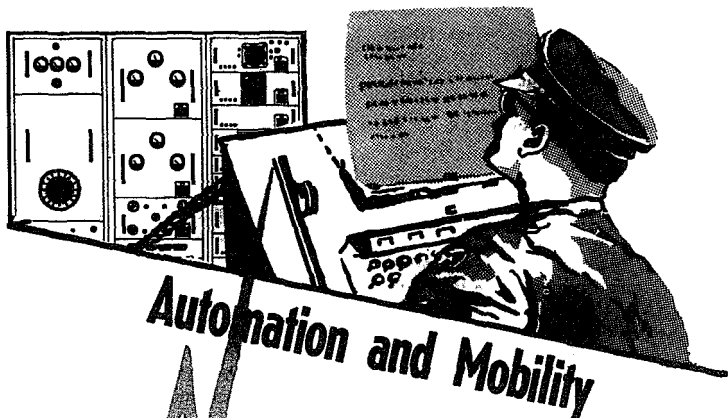
This situation has already reduced our military options. It limits our influence in the area and it contributes to the urgency of a more comprehensive national policy.

In the words of Hanson W. Baldwin, renowned former military correspondent to *The New York Times*: "... the future course of history may be determined by what happens . . . [in the Mediterranean]."³

² Speech by Admiral Horacio Rivero, Jr., to the Atlantic Treaty Association meeting in Naples, 12 March 1970.

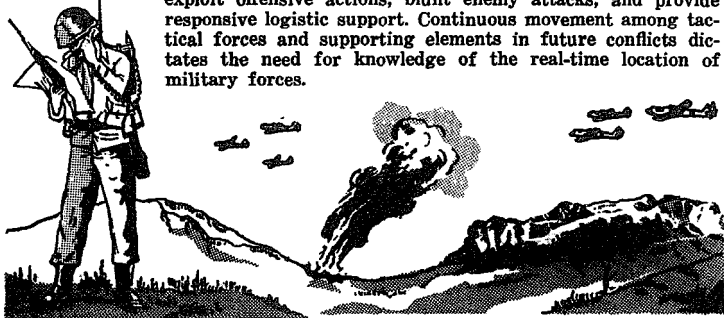
³ Letter to the author from Hanson W. Baldwin, 8 April 1970.





Major John L. Mentor, *United States Army*, and
Major Ronald J. Smircich, *United States Army*

MODERN technology has created highly mobile military forces, and with this increased mobility has emerged the need for commensurate developments in methods of monitoring and controlling movements within a theater of operations. The devastating effect of modern weapon systems requires extensive dispersion among military forces, resulting in the need for rapid and continual movement in order to exploit offensive actions, blunt enemy attacks, and provide responsive logistic support. Continuous movement among tactical forces and supporting elements in future conflicts dictates the need for knowledge of the real-time location of military forces.



Greater mobility and dispersion require a system for monitoring and controlling movements which will enable the commander to respond rapidly and effectively to hostile activity. Such a system also must provide for a logical development of movements control once the decision is made to move equipment, supplies, or personnel from one location to another. All arrangements would be planned, coordinated, and monitored by a control center which would have the responsibility for all tactical or logistic movements within a given area.

Three Systems

Currently, there are three automatic data processing systems being developed by the Army which will provide military commanders timely and accurate information on combat, combat support, and combat service support operations. These three automatic data processing systems within

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the army in the field are the Tactical Fire Direction System (*TACFIRE*), the Tactical Operations System, and the Combat Service Support System.

These systems provide near real-time information concerning activities in a combat zone. They furnish information concerning tactical troop movements, road conditions, movements schedules, convoy priorities, and fire-planning support. The advent of automatic data processing systems will bring the commander a new concept in methods for employment of military resources.

'NAPCOS' Proposed

However, the commander still needs a system by which he can automatically monitor all critical movement within his area of operations. We propose a Navigation and Positioning Computer System (*NAPCOS*) which would function with existing automatic data processing systems to provide real-time location of all vehicles and units in a given area.

This system for movements control can be developed from current technology. Each unit, convoy, or vehicle would have an electronic device which would transmit an assigned code to two or more ground or air receiving-transmitting units. The signals would be retransmitted to a computer system which would be programed to compute, by triangulation, the exact location of each unit.

This system would have the capability of automatically monitoring all critical movements within an area of operations. These critical movements may vary in size from one vehicle, such as the movement of a nuclear weapon, to the movement of convoys composed of several hundred vehicles. Information relayed to tactical operations centers, fire direction centers,

NAPCOS



and movement control centers by *NAPCOS* would provide the present time location of all critical vehicles or units in an area of operation.

The potential value of this system is not solely limited to positioning. In order to aid navigation in the field, especially over open or difficult terrain or in areas where reliable maps are not available, navigational information supplied by *NAPCOS* could be transmitted to the originating units, assisting them to orient themselves and plot specific routes to an objective. Prior input and programing with the Combat Service Support System, the Tactical Operations System, or *TACFIRE* would provide unit identification, location, mission, route, direction, speed, destination, priority, vehicular composition, and any other pertinent information desired.

The two existing automatic data systems designed directly to assist the tactical commander—the Tactical Operations System and *TACFIRE*—provide timely and accurate informa-

tion on intelligence, operations, and fire support. The integration of *NAPCOS* into these systems would provide real-time information on the location of tactical resources. By knowing the precise location of such resources, the commander will have continuous and immediate information on deployment of subordinate units. *NAPCOS* would thus give the commander immediate visualization of the execution phase of an operations order.

This concept can be illustrated at all levels of combat operations. At division level, control of tactical resources must permit rapid response by subordinate units to changes in mission, march procedures, organization, and control measures.

Located at the division tactical operations center, this system would immediately inform the G3 or commander of the progress of offensive, defensive, or retrograde operations. The commander could transmit the computer's navigational information to his units, allowing them to be di-

rected over specific courses to their objectives. This is especially valuable when units must change their course to avoid enemy contact, minefields, or contaminated areas.

Integration of *NAPCOS* into *TACFIRE* would allow the commander an immediate source of target information, especially in areas where reliable maps are not available. Units requiring supporting artillery fire need only give the distance and direction from their position to the enemy activity. Output on this unit's location, available in *NAPCOS*, plus this additional information, would allow rapid computation of fire data.

Radio Communications

The tactical commander would no longer have to rely upon radio communications for reporting unit location and unit movements. This would reduce the number of radio transmissions normally required between commanders and subordinate units, thus giving relief to the overtaxed communications systems in a battlefield area. Reduction of the number of radio transmissions decreases the possibility of the enemy jamming or interpreting friendly radio conversations.

NAPCOS also would be useful for small-unit operations. A company, battalion, or brigade could monitor the movements of a friendly combat patrol behind enemy lines. By knowing the exact location of the patrol at all times, the commander can be advised of the precise location and nature of any enemy activity encountered, provide fire support, resupply the patrol, or evacuate casualties.

Frequently, commanders are unable to provide these services for a unit in contact because the unit's exact location is not known. Dense vegeta-

tion, fog, darkness, the absence of terrain features, or errors in map-reading often cause patrols to report their position inaccurately. Additionally, this information could be relayed to the *TACFIRE* system, and not only would contribute to the accuracy of fire support, but also would insure the safety of friendly troops.

Army and Corps Areas

An example of the application of *NAPCOS* to the Combat Service Support System can be demonstrated at field army and corps support command headquarters. The assistant chief of staff, movement, has the primary responsibility for movements control in the field army and corps area. He directs the operation of the movement control center which has the responsibility for initiating and performing the necessary planning, programing, and regulatory actions essential to transportation movements management.

In any given area, limitations on available routes necessitate detailed planning of movements to insure that priority assignments are followed. The position of vehicles must be continuously monitored so that all movements are accommodated in relation to their importance. Thus, a continuous flow of movement would be maintained.

The movement control center utilizes the Combat Service Support System which is programed to forecast, schedule, and monitor transportation resources and personnel. Interfaced with the Combat Service Support System, *NAPCOS* would provide an immediate location of all movement as part of the monitoring process. In highly mobile situations, with limited routes available, disruption of road

networks may require rapid changes in routing. Computer analysis of the data received from *NAPCOS* would provide the movement control manager the information for the most effective method of immediate rerouting of vehicular movement.

Interfaced with the Tactical Operations System, *TACFIRE*, and the Combat Service Support System, *NAPCOS*, by providing immediate location of all units, would enable a

commander to make timely decisions for the employment of tactical and security resources, minimize voice radio transmissions within an area of operations, insure that critical movements receive commensurate priorities, secure the delivery of critical supplies as expeditiously as possible, insure that maximum utilization of road space is obtained, and provide target information for artillery support.

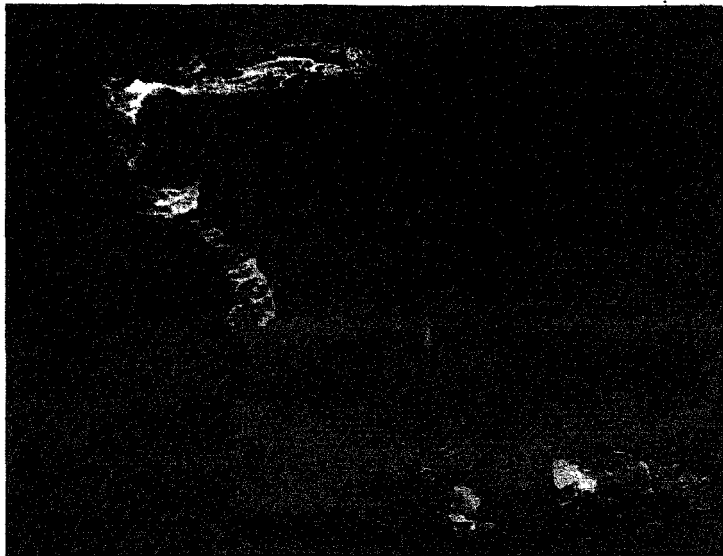
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The Military Review welcomes your comments on any material published. An opposite viewpoint or a new line of thought may be published in our Reader Forum and stimulate the exchange of ideas. If you are an authority on a subject, why not write an article for our consideration? If you have only an idea, query us; perhaps we can assist you in developing an acceptable article.

MILITARY NOTES

UNITED STATES

Submarine Cited



Jane's Fighting Ships

USS Sturgeon. The Lapon is a Sturgeon class nuclear attack submarine.

The nuclear attack submarine *Lapon*, in August 1970, was awarded the Presidential Unit Citation for extraordinary heroism. Nuclear attack submarines are designed to seek out and attack enemy submarines. Capable of a submerged speed of 30 knots, the attack submarines are armed with *Subroc* long-range antisubmarine missiles and antisubmarine torpedoes.—News item.

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'RU-21D' Turboprop



Beech Aircraft Corporation

The Army's *RU-21D*, in this first released photo, is equipped with an antenna array for special reconnaissance missions. Deliveries are scheduled to begin in August 1971. The twin-engine turboprop, powered by 550-shaft-horsepower turbine engines, is a version of the *U-21A* utility transport in use by the Army for more than two years. The Army has 129 of the *U-21* series.—News release.

Flying Rescue Seat

The Navy has awarded a follow-on contract to design a full-scale flying rescue seat for wind tunnel testing.

The device, named Stowable Aircrew Vehicle Escape Rotoseat (*SAVER*), is a gyroplane with an unpowered rotor. Forward thrust will be provided by a small turbofan engine.

When a pilot ejects, the entire seat will be blasted into the airstream where a drogue parachute will deploy. The folded rotor will open, the engine will start, and the seat will fly as a gyroplane—all within six seconds.

With *SAVER*, a pilot will be able to fly for 50 miles at 100 knots. The pilot can elect to jettison the seat for a parachute landing.—*Armed Forces Management*, © 1969.

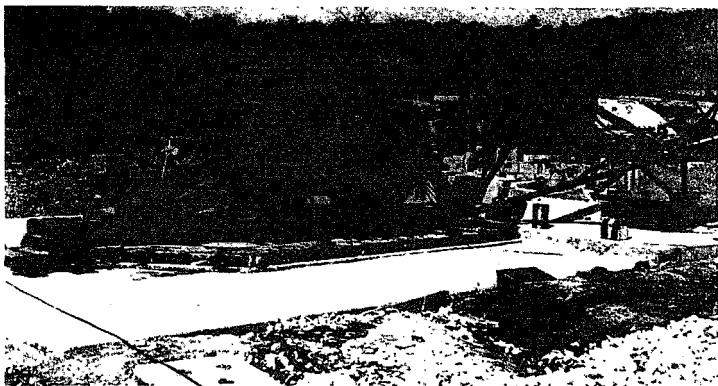
Night Vision System

An advanced Forward-Looking Infrared night vision system has been mounted on the nose of a *UH-1C* helicopter. The target acquisition and armament control system provides daytime and nighttime target detection and identification.—News item.

Automatic Loader for 'MBT70'



The prototype of a redesigned automatic loader for the US MBT70 main battle tank has been successfully demonstrated. The photograph shows a prototype of the MBT70 undergoing trials earlier this year. Production of the tank is expected in the mid-1970's. The loader first participated in firings mounted



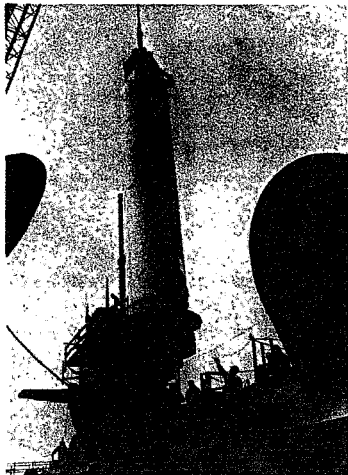
Photos courtesy of International Defense Review

on the open firing stand shown in the photograph, and was then installed in an MBT70 for further firings.

The loader magazine can accommodate both conventional ammunition and *Shillelagh* missiles in any sequence, and can automatically and selectively load the weapon upon remote command, providing the tank commander with an up-to-the-minute ammunition inventory.—*International Defense Review*, © 1970.

'Poseidon' Firing

The USS *James Madison* became the first ballistic-missile submarine to launch a *Poseidon* C3 missile. The *Madison* is the first of seven fleet bal-



Armed Forces Journal

A *Poseidon* missile is lowered into a tube of the USS *James Madison*, first of 31 submarines to undergo conversion to accommodate the new missile

listic-missile submarines to be converted during Fiscal Year 1970. *Poseidon* is larger than its predecessor *Polaris* and can carry a greater payload. With a range of 2,800 miles, *Poseidon* can strike any point on earth from under the sea.—News release.

Middle East Reconnaissance

The United States has sent its most advanced aerial reconnaissance system to the Middle East. For more than a year, the system, called *Compass Link*, has been relaying high-quality aerial reconnaissance photographs from Southeast Asia to the

Pentagon. The system allows fresh sets of photographs taken by U-2 aircraft of the Suez Canal area to arrive in Washington within 15 or 20 minutes. Exposed reconnaissance film is converted to electronic signals which are relayed from ground stations to satellites, arriving at a ground station near Washington, D. C.

Heart of *Compass Link* is a laser beam that scans the picture for light variations and converts the image to electronic signals for transmission through the satellite-ground station system. A laser beam is used to reconstruct the picture at the destination.—US Air Force release.

'XM-140' 30-Millimeter Gun

A US Army AH-1G *HueyCobra*, equipped with an XM-140 30-millimeter gun, is undergoing Army evaluation at the Mojave Test Range in California. The XM-140 is an electri-



Bell Helicopter Company

cally powered, single-barrel automatic gun that fires at a rate of 425 shots per minute. Its dual-purpose, high-explosive round is designed for use against light armored vehicles and emplacements.—News release.

Catamaran Carriers



Armed Forces Journal

Artist's sketch of submarine rescue ship *Pigeon*

Navy scientists envision use of twin hulls (catamarans) for aircraft carriers, ocean research platforms, and submarine rescue vehicles.

The first large Navy catamaran, the *Pigeon*, a submarine rescue ship, will join the fleet early next year. The 230-foot-long vessel makes 15 knots. A sister catamaran ship, the *Ortolan*, will join the fleet soon after the *Pigeon*.

A variation of the submarine rescue ship to be used as an ocean research platform, the *Hayes*, will also be launched next year.—*Armed Forces Journal*.

War Opinion

A majority of American youth feel that war is justified when a friendly nation's freedom is threatened, according to the results of a recent national survey conducted for the Magazine Publishers Association by Gilbert Youth Research.

The study, based on a national probability sample in the form of 3,000 personal interviews among males and females ranging in age from 14 to 25, was conducted during February 1970.

On the question of threats to a friendly nation, a total of 62 percent of the respondents felt that war was justified under those circumstances. A relatively high number of the young people surveyed—some 61 percent—also felt that war is justified if the

lives of American citizens living abroad are threatened. Only 40 percent of the respondents felt that war is justified if US vital economic interests are threatened, while 88 percent agreed that war is justified if the continental United States were to be invaded.

On military service, a high 82 percent of the males interviewed said they would have served in World War II if drafted, and a total of 55 percent reported that they would have volunteered for military service during World War II. A low eight percent of the young men would have refused military service during that conflict, and 10 percent were unsure whether they would have been willing to serve if drafted.—News release.

Major Medical Reorganization

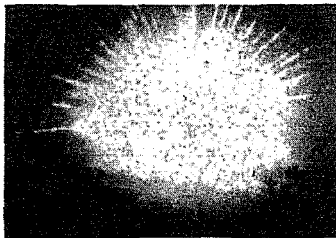
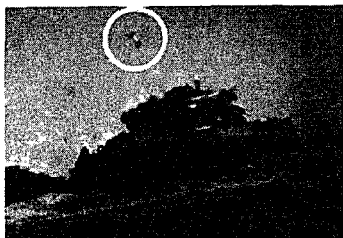
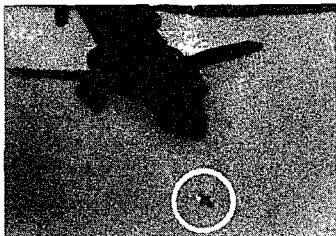
US Army medical doctors will soon move from battalion aid stations in combat and combat support battalions to the division medical battalion. Plans are also underway to replace the Mobile Army Surgical Hospital (MASH) with a Combat Support Hospital.

The result will be an increase in the number of doctors and range of medical skills centralized at the medical battalions. The step is regarded as a major change in the relationship of the combat soldier and his doctor. Helicopter medical evacuation is considered the biggest factor in enabling the Army to make this change.

As for the Combat Support Hospital, it will be a mobile facility providing not only the immediate surgery for traumatic injuries and ailments that MASH provides, but also will encompass a wide range of general medical services for combat personnel.

In the battalion aid station, doctors will be replaced by experienced Medical Service Corps personnel trained in special battalion operations courses for this duty. Thus, the aid station will still be the soldier's primary source of support for treatment not requiring surgery or highly specialized care.—Army News Features.

'TOW' Antitank Missile



This sequence of photographs shows the first aerial launch of the TOW antitank missile, fired from the Army's prototype AH-56 Cheyenne helicopter at Arizona's Yuma Proving Ground. The target was an old M4 Sherman tank. The Cheyennes have flown more than 700 hours in the current series of weapons tests, covering the craft's 30-millimeter belly cannon, 40-millimeter grenade launcher, 7.62-millimeter Miniguns and 2.75-inch rockets.—News item.

FRANCE

Aircraft



Interavia

Artists' concept of the *Mirage F1* and *G4*

The French Air Force intends to introduce a new fighter aircraft, the *Mirage F1*. There are two prototypes of the *Mirage F1* which fly at a speed of Mach 2.2. Delivery of the new all-weather fighter is to begin in 1972.

Another new aircraft, the *Mirage G4*, is scheduled to fly in 1971. This new reconnaissance and attack aircraft reportedly will be introduced in 1977.—*Soldat und Technik*, © 1970.

Military Service

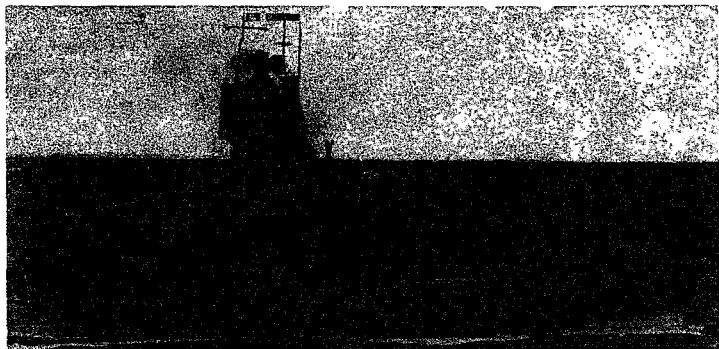
The French National Assembly has voted to reduce the period of compulsory military service from 16 to 12 months effective 1 January 1972. As a rule, men will be drafted at age 19; however, volunteers will be accepted at age 18. Medical students may defer their military service obligation until

they reach age 27. In some special units, military service can be fulfilled by serving separate six-month terms. The reduction of the term of military service is designed to draft all men eligible for service. The government rejected the introduction of a purely professional army.—*Wehrkunde*.

SYRIA

Armed Forces

According to a French source, the strength of the Syrian armed forces is approximately 100,000. The country's population numbers 5.4 million. The term of active military service is 30 months. The country is divided into five military and one naval district. The largest component of the armed forces is the army which accounts for about 80 percent of the total strength. An Information and



Herkennenig

Komar class patrol boat armed with Styx missiles

Psychological Activities Branch within the armed forces may be compared with the political advisor system utilized by Warsaw Pact armies.

In addition to the armed forces, Syria has a so-called People's Army, a paramilitary force, armed with light weapons. Organization is based on communes or factories. A second paramilitary organization, the *Futwa*, is concerned with the premilitary training in the schools. All students, both male and female, must attend a 21-day military training course each year.

Equipment

The weapons and the equipment of the Syrian armed forces are almost exclusively supplied by the Soviet Union. Military purchases account for 70 percent of Syria's total budget. Most units of the Syrian Navy are of Soviet origin—two *T43* minesweepers, six *Komar* class patrol boats armed with *Styx* missiles, and 18 patrol boats of the *P 4* and *P 6* class.

Training

Lower ranking personnel of the Syrian armed forces are trained by Syrian instructors. Army officer candidates are trained in a two-year course at the Officer Academy at Homs, Syria, which also serves as the infantry school.

Officer candidates of the Syrian Navy are trained at the Egyptian Naval Academy, and air force officer candidates at the Air Force Academy in Aleppo, Syria. Czechoslovakian two-seat *L-29* jet trainers are used for flight training.

The military academies of the USSR and other East bloc countries provide further education for higher ranking officers. A small number of officers attend courses at West European military academies.—*Wehrkunde*.

AUSTRALIA

Helicopter Purchase

The Royal Australian Air Force has announced the purchase of 12 *CH-47C Chinook* helicopters. The aircraft will be used for troop and cargo lift. The air force has two operational squadrons of *UH-1 Huey* helicopters. The Australian Army utilizes *OH-18 Sioux* and French *Alouette* light observation helicopters. The US Army has purchased more than 625 *CH-47* medium helicopters.—News item.

AFGHANISTAN

Strategic Road

Construction has been completed on a major road connecting the Soviet Union, Afghanistan, and Pakistan. The road traverses some of the most rugged terrain in the world—the mountains of the Hindu Kush. The most striking engineering feat is a tunnel which pierces the mountains at an altitude of 12,000 feet.

The Afghan Army provided laborers for the construction of the road. Technical expertise was supplied by engineers from the Soviet Union. The Soviet engineers and their families are expected to remain in Afghanistan to supervise maintenance of the road. Bulldozers, bridge-building equipment, and a communications system required for the construction of the road were made available by the Soviet Union. The road provides the Soviet Union with an outlet to the Indian Ocean via Pakistan.—News item.

WEST GERMANY

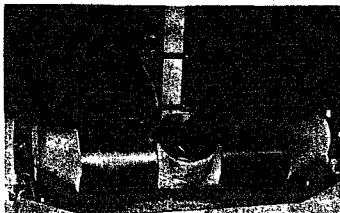
'M113' With 120-Millimeter Mortar

A modified *M113* armored personnel carrier mounting the *Tampella* mortar will replace the 81-millimeter and 120-millimeter mortars in infantry battalion heavy weapons companies.

Swim capability is maintained with a reduced ammunition load. Limited traverse requires movement of the carrier for radical shifts in deflection.



Tampella mortar mounted in *M113*



Soldat und Technik Photos

When mounted, the mortar has limited traverse

The mortar can be removed from its mount and fired from a base plate carried on the vehicle.

Other data on the *M113* mortar carrier:

Traverse:	Left	18.5 degrees
	Right	25 degrees
Elevation:	Maximum	80 degrees
	Minimum	45 degrees
Range:	Maximum	6,200 meters
	Minimum	400 meters
Ammunition load:		63 rounds
In water:		23 rounds
Rate of fire		
per minute:		Maximum 15 rounds
Speed per		
hour:		Maximum 35 miles

—*Soldat und Technik*, © 1970.

MILITARY BOOKS

BONN AND JERUSALEM: The Strange Coalition. By Inge Deutschkron. 357 Pages. Chilton Book Co., Philadelphia, Pa., 1970. \$13.95.

BY COL IRVING HEYMONT,
USA, Retired

This book sheds light on one of the few undocumented aspects of the complex Middle East situation. The author traces the relations between Israel and the Federal Republic of Germany up to the establishment of diplomatic relations in 1965. He emphasizes both the psychological and political factors arising from the complex interplay of Arab pressures, East and West German relations, the emotional pressures stemming from the complete German defeat in World War II, and the genocide practiced by Adolf Hitler against the Jews.

The secret arrangements between Israel and Germany that were made and modified in the years preceding the establishment of formal diplomatic relations have been reconstructed based on interviews with many of the participants and the available reports. Of particular interest, is the account of the secret arrangement, following the Arab-Israeli war of 1956, whereby Germany furnished grant military aid to Israel and the subsequent use of that arrangement by the United States to furnish military assistance to Israel. Although much is still to be learned, this book is the most definitive treatment on the subject now available. The book will be of great interest to the specialist on the Arab-Israeli conflict.

"TELL BAKER TO STRIKE THEM HARD!": Incident on the Marias, 23 January 1870. By Robert J. Ege. 146 Pages. The Old Army Press, Bellevue, Nebr., 1970. \$7.00.

BY MAJ DAVID P. PERRINE, *USA*

One hundred years before the My Lai incident, Major Eugene M. Baker, with over 200 men of the 2d US Cavalry and 13th Infantry, attacked a Piegan Indian village in the Montana Territory. The results were 173 killed and 140 prisoners taken, most of them suffering from smallpox. Casualties among the troops were one man killed and one broken arm resulting from a fall from a horse. Major Baker was later accused of being drunk and striking the wrong Indian camp.

This work examines official Army records of the conduct of Major Baker and the accusation of massacre. The book is well organized and presents pertinent facts leading up to the incident. Copies of official Army correspondence are included. Interesting to note is the public hue and cry raised over the affair. Newspaper headlines blared out "massacre"—acting upon reports from nonparticipants of the engagement. Both Generals William T. Sherman and Philip H. Sheridan, under heavy political pressure, remained calm, investigated the affair, and expressed confidence in Major Baker and his men.

Indian War buffs will find this book informative and excellent background material for conditions existing in the 1870's. The story is not without parallel even 100 years later.

ARMS BEYOND DOUBT: The Tyranny of Weapons Technology. By Ralph E. Lapp. 209 Pages. Cowles Book Co., Inc., N. Y., 1970. \$5.95.

By LTC DAVID W. BLACKLEDGE, USA

Dr. Lapp, a physicist who worked on the Manhattan Engineer District project, has been a persistent critic of weapon proliferation, particularly nuclear armaments. In this book, he renews his attack on the "military-industrial-political complex." Military and industrial interests pursue new weapon systems simply because they are technologically feasible. In the past, the political impact of spending huge sums has carried the weapons culture along on its own momentum.

Dr. Lapp says a recent series of military and technological embarrassments has lost public confidence in military judgment and finally made the complex vulnerable to attack. He sees the Senate debate on the *Safeguard* system as the start of a campaign to bring the military and industrial interests under control.

The author opposes the US development of a credible first-strike capability on the grounds that it would only invite Soviet counteraction. Bitterly outlining his problems in refuting the "insider scientist" in Senate hearings, Dr. Lapp does not resolve the problem of public debate of secret national security matters. Some readers may question the categorization of weapons such as the atomic cannon as military fiascos because they became obsolete before being used in combat. Even though he is hopeful for the success of the Strategic Arms Limitation Talks, Dr. Lapp believes the only feasible control of weapons proliferation is a unilateral cutback in defense spending.

RACE TO OBLIVION: A Participant's View of the Arms Race. By Herbert York. 256 Pages. Simon & Schuster, Inc., N. Y., 1970. \$6.95.

By STANLEY L. FALK

For over a quarter of a century, Herbert York has been more or less intimately connected with nuclear weapons. He served as a science advisor to Presidents Dwight D. Eisenhower and Lyndon B. Johnson, as a top defense research manager under Eisenhower and President John F. Kennedy.

Convinced of what he regards as the "futility" of the arms race, he has become an outspoken critic of the *Safeguard* antiballistic missile (ABM) system. This book is a powerful summary of his views.

According to Dr. York, both the United States and the Soviet Union have overreacted to each other during the long nuclear weapons buildup since World War II. The result, he argues, has been more arms and less safety for mankind "than would have been the case had a more reasonable approach been followed."

Current technological trends and programs, including the ABM and Multiple Independently Targeted Reentry Vehicle, declares Dr. York, have done even more to threaten strategic stability and, in fact, to weaken national security. He warns that the rapid advance of technology may soon remove from statesmen the power to decide whether or not to use nuclear weapons and turn this fearsome responsibility over to automatic devices. That the "ultimate decision" should be made by a machine, he concludes, would be the "ultimate absurdity."

Dr. York's sobering critique is well worth a careful reading. Not everyone will agree with his presentation, but few will doubt his sincerity.

INSIDE THE THIRD REICH. Memoirs by Albert Speer. 596 Pages. The Macmillan Co., N. Y., 1970. \$12.50.

BY JOHN J. CLARK

Among the reminiscences of the Third Reich elite, Albert Speer's memoirs, covering his association with the Nazi Party from 1930 to 1945, provide the most insight.

Adolf Hitler first appointed Speer his personal architect and city planner. Later, as Minister of Armaments and War Production, he was the second man in the state. Speer remained one of the intimate circle privileged to see Hitler at work and relaxing. This book is a superlative portrait of the dictator and the many facets of his antithetical personality.

Speer conducts us through the patchwork of fiefdoms that comprised the Third Reich. Much of this has been written before, but Speer gives to it the pace and sweep of a novel.

Here, too, is a suspenseful account of strategies, victories, and defeats. The Nazis envisaged only a short war, and when their enemies held fast, they had no concept of how to negotiate peace. The basic failings spelled disaster: failure to mobilize the economy until 1943; the trap of a two-front war; failure to concentrate on submarine production; and refusal to mass fighter aircraft for the protection of the homefront. Devoid of over-all strategic planning, Nazi leaders could take the offensive but could not appreciate the subtle advantages of retreat.

Speer had an immediate opponent in the Allied strategic bomber forces. His ingenuity displayed in sustaining production under day and night bombing makes intriguing reading. The outcome was a tribute to his talent for organizational improvisation and also

to Allied blundering. The latter would invariably select an appropriate strategic target and, on the verge of decisive results, just as certainly switch away, thereby affording Speer time to recoup and mend.

The book is thoroughly documented and extensively indexed. It constitutes, therefore, excellent source material for those wishing to research particular aspects of Nazi administration.

THE UNITED STATES AND CHINA: The Next Decade. Edited by A. Doak Barnett and Edwin O. Reischauer. 250 Pages. Praeger Publishers, N. Y., 1970. \$7.50.

BY MAJ MONTE R. BULLARD, USA

This book is a rare combination, in one volume, of divergent views and approaches to the China debate. Most important, it provides a relatively up-to-date analysis of the primary source of trouble in Asia: Communist China.

The list of contributors is impressive from any viewpoint. It includes distinguished China scholars from 10 universities; the President of the American Asia Society; journalists from the *Toronto Globe*, *The New York Times*, *National Review*, and the Chairman of the Board of *Newsweek* and *The Washington Post*; former editors of *The China Quarterly* and the *Far Eastern Economic Review*; Canadian diplomats and businessmen who have negotiated with Communist China; Government officials from the US State Department and the Institute for Defense Analysis; former US Government officials; and Senators Jacob K. Javits and Edward M. Kennedy.

This approach of including contributors with diverse viewpoints results in a well-balanced overview of the China question from political, economic, and strategic considerations.

VIET CONG REPRESSION AND ITS IMPLICATIONS FOR THE FUTURE. By Stephen T. Hosmer. 192 Pages. D. C. Heath & Co., Lexington, Mass., 1970. \$8.50.

By COL WILLIAM E. LEGR0, USA

The most important part of this book is not its documentation of Communist repression strategy and operations, but its evaluation of South Vietnamese expectations in the event of a Communist victory in the south. The author believes that the southerners' propensity toward accommodation will depend largely on their expectations of safety or of bloody retribution inflicted by the Communists.

Repression, the Communists' own word for it, includes all of the measures they use to eliminate, neutralize, and "reform" their enemies. Other authors have used "terror" to describe these practices. Although vivid, it is perhaps too restrictive. At the lower end of the spectrum of violence, repression means warnings and compulsory indoctrination; moving up the sanguinary scale one finds confinement, hard labor, and execution.

Dr. Hosmer, who has been with the Rand Corporation since 1961, where he is the head of the Social Science Department of the Washington office, has written several studies on Vietnam and insurgency. This book is based upon a Rand study. From his analysis of captured Communist documents, he has compiled a systematic survey of repression in Vietnam, with chapters describing Communist organization for repression and the Hue experience and its implications.

What about Communist conduct in the event of cease-fire? Might not the Communists continue repression, at least in contested areas? The documentary evidence seems to support this likelihood. If experience is evidence,

the use of repression during any subsequent elections also should be expected. The prospect for local accommodations between the opposing sides, although a popular idea with some observers, appears slim.

After digesting the scenarios Dr. Hosmer offers, in which the Communists achieve a measure of success, most readers will probably be left with the disquieting feeling that even the most moderate Communist applications of postwar repression will be bloody indeed.

MILITARY THEORY AND PRACTICE IN THE AGE OF XENOPHON. By J. K. Anderson. 419 Pages. University of California Press, Berkeley, Cal., 1970. \$12.50.

By LTC ROBERT MCQUIE, USAR

Military history of the more distant past tends to become pretty much of a blur. Professional soldiers, however, often have a recollection that, back at the beginning, the cumbersome Greek phalanx was overwhelmed by the flexibly organized Roman legion. A new table of organization and equipment changed the history of the world.

This book is about the old table of organization and equipment, the Greek phalanx before the Romans appeared. The author describes the army of Sparta, and its weapons, logistics, tactics, and organization. He feels that it was neither as simple nor as cumbersome as usually described. The book is scholarly and well printed, with good photographs.

A work focused on such a remote field of military activity is likely to be of interest to but few readers except for one disturbing thought.

The reader closes this book with a question in mind. Is the division organization the legion of our age—or the phalanx?

THE MILITARY BALANCE, 1970-71. The Institute for Strategic Studies. 128 Pages. The Institute for Strategic Studies, London, Eng., 1970. \$2.50.

Despite evidence of a new political climate, such as the opening of Strategic Arms Limitation Talks and the Middle East negotiations, the buildup of arms and armed forces has continued in critical sectors. The United States has its first operational Multiple Independently Targeted Reentry Vehicle. The Soviet Union goes on deploying the huge SS-9 and now has superiority in land-based intercontinental ballistic missiles.

Defense costs impose a massive strain on Israel and the United Arab Republic. In the Arab world, Soviet arms and military personnel have been increasing. There are more Soviet divisions on the Chinese border than in 1969, but no fewer in Europe. In spite of the launching of the Chinese satellite, there is still no evidence of operational missiles.

These are some of the assessments contained in the 1970-71 edition of *The Military Balance*, one of the annual publications of The Institute for Strategic Studies. This handbook lists the strength and equipment of the armed forces of 94 countries throughout the world. It has been expanded to bring in Latin America and sub-Saharan Africa and to give a wider coverage of the Middle East. It has a section on regional balances which has been extended this year to include a comparison of the strategic weapons of the North Atlantic Treaty and the Warsaw Pact, and the balance between the Soviet Union and China.

The final section includes a list of international defense production projects and a note on fissile material and

its enrichment and reprocessing in the non-Communist world. In its new form, *The Military Balance* is an essential reference book for the journalist, scholar, student, soldier, and anyone interested in the problems of international security.

THE SOLDIER KINGS: The House of Hohenzollern. By Walter Henry Nelson. 506 Pages. G. P. Putnam's Sons, N. Y., 1970. \$8.95.

BY COL WALLACE F. VEAUDRY, USA

This book is an outstanding detailed history of a family that, in the author's words:

... were not just makers of much of German history, but teachers to the German people, shapers of the German character, and molders of the German ethos.

The author traces the growth and ascendancy of the Hohenzollerns from Burchard I, who died in 1061, through the burghers of Nuremberg, electors of Brandenburg, King in Prussia, to the King and Emperor Kaiser William II.

The final chapter describes the total dissolution of all that had been built by this amazing family as Prussia was wiped off the map by order of the Allied Command in 1947.

It is an exciting book that includes exceptional detail that can only result from painstaking and thorough research. Each of the 18 chapters draws the reader on with insights into the character and personality of the members of the Hohenzollern family and their period in history.

Although the Fredericks and Williams or Frederick Williams can become confusing as one progresses through history with this family, the reader is assisted by an exceptionally fine genealogical table found in the back of the book.

NEW BOOKS RECEIVED

CONVERSION OF INDUSTRY FROM A MILITARY TO CIVILIAN ECONOMY. A Five-Volume Series. Edited by Seymour Melman. Praeger Publishers, N. Y., 1970.

THE DEFENSE ECONOMY: Conversion of Industries and Occupations to Civilian Needs. Edited by Seymour Melman. 528 Pages. \$19.50.

POTENTIAL CIVILIAN MARKETS FOR THE MILITARY-ELECTRONICS INDUSTRY: Strategies for Conversion. Edited by John E. Ullmann. Foreword by Seymour Melman. 341 Pages. \$18.50.

THE CONVERSION OF SHIPBUILDING FROM MILITARY TO CIVILIAN MARKETS. Edited by Daniel M. Mack-Forlist and Arthur Newman. Foreword by Seymour Melman. 209 Pages. \$15.00.

CONVERSION OF NUCLEAR FACILITIES FROM MILITARY TO CIVILIAN USES: A Case Study in Hanford, Washington. By Aris P. Christodoulou. 101 Pages. \$12.50.

THE CONVERSION OF MILITARY-ORIENTED RESEARCH AND DEVELOPMENT TO CIVILIAN USES. By Marvin Berkowitz. 649 Pages. \$22.50.

THE I.R.A. By Tim Pat Coogan. 373 Pages. Praeger Publishers, N. Y., 1970. \$8.95.

MAN-OF-WAR: A History of the Combat Vessel. By Captain Donald Macintyre and B. W. Bathe. With a Preface by Captain Edward L. Beach, US Navy, Retired. 273 Pages. McGraw-Hill Book Co., N. Y., 1969. \$19.95.

DECISIONS OF ROBERT S. McNAMARA: A Study of the Role of the Secretary of Defense. By James M. Roherty. 223 Pages. University of Miami Press, Coral Gables, Fla., 1970. \$7.95.

CRUCIFIXION BY POWER: Essays on Guatemalan National Social Structure, 1944-1966. By Richard Newbold Adams. 553 Pages. University of Texas Press, Austin, Tex., 1970. \$10.00.

OPERATION OVERFLIGHT: The U-2 Spy Pilot Tells His Story for the First Time. By Francis Gary Powers. With Curt Gentry. 375 Pages. Holt, Rinehart & Winston, Inc., N. Y., 1970. \$6.95.

THE EUROPEAN CHALLENGE. By Louis Armand and Michel Drancourt. 256 Pages. Atheneum Publishers, N. Y., 1970. \$5.95.

THE WARTIME JOURNALS OF CHARLES A. LINDBERGH. By Charles A. Lindbergh. 1,038 Pages. Harcourt, Brace, Jovanovich, Inc., N. Y., 1970. \$12.95.

SCORCHED EARTH: The Russian-German War, 1943-1944. By Paul Carell. 556 Pages. Little, Brown & Co., Boston, Mass., 1970. \$12.50.

THE SUPREME COMMANDER: The War Years of General Dwight D. Eisenhower. By Stephen E. Ambrose. 732 Pages. Doubleday & Co., Inc., N. Y., 1970. \$10.00.

THE RIOT MAKERS. By Eugene H. Methvin. 586 Pages. Arlington House, New Rochelle, N. Y., 1970. \$10.00.

ALEXANDER THE GREAT. By Peter Green. 272 Pages. Praeger Publishers, N. Y., 1970. \$12.95.

THE MILITARY PRISON: Theory, Research, and Practice. Edited by Stanley L. Brodsky and Norman E. Eggleston. 205 Pages. Southern Illinois University Press, Carbondale, Ill., 1970. \$7.50.

Inter-American Peace Force

The first instrument for the defense of the American Continent resulted from a unilateral action by the US Government: the Monroe Doctrine of December 1823. In essence, this document declared that the United States recognized the European colonies remaining on the American Continent, but would consider as a threat to its own security any attempt by a European power to recover any of their emancipated colonies. . . .

It was not until 1889 at the first continental conference, however, . . . that the principle of arbitration for the solution of all conflicts between nations of the Americas was adopted. Slowly the idea of Pan-Americanism was being firmly entrenched. At the Fifth Conference (in Santiago), it was resolved that any aggression to an American nation would mean an aggression to all American nations. . . .

With the approval of the Charter of the Organization of American States (OAS) at Bogota in 1948, the principles of continental solidarity were reiterated and the peace and security of the hemisphere continued to be the main objective. Article 25 of the Bogota Charter reads that the American states:

" . . . will apply the measures and means established in special treaties upon the occasion of an armed attack, an aggression or any other occurrence or situation which may threaten the American peace."

This document reveals the desire of the American states to fight subversion.

Possibly because the threat of subversion had not yet been fully understood, all collective actions were hindered or at least made difficult. As stated in Article 15 of the Charter, "no state

or group of states has the right to intervene, directly or indirectly, whatever the reason, in the internal affairs of another." This is the principle of nonintervention.

The Communist movement has for a long time been trying to establish itself in Latin America. Guerrilla actions have spread to Venezuela, Colombia, Peru, Bolivia, and other countries. Terrorism is practiced in practically every state.

In 1966, the Communists held the now famous Tricontinental Conference in Havana. . . . It was on this occasion that the Organization for Latin American Solidarity was set up. This is a coordinating and controlling organ of guerrilla operations in the hemisphere. In Guatemala, the Communists succeeded in assuming power, albeit for a short time. In Cuba, the takeover of the country was complete. The recent revolutionary movement in the Dominican Republic demanded the military intervention of the OAS. These occurrences prompted statesmen and military leaders to consider the organization of a permanent inter-American force. . . .

The fear of violating the principle of nonintervention contained in the Charter of the OAS has led several countries to reject it. In fact, to identify from its inception an insurrection or revolutionary movement, so common in Latin America, as Communist inspired is a very difficult task. . . .

The existence of a strong multinational military contingent at the disposal of the OAS could lead the small Latin American countries to interpret the fact as a manifestation of the imperialistic designs of the larger countries of the hemisphere and could easily create an intolerable situation. . . .

It would be much more acceptable if each country organized and trained a force of a size compatible with its possibilities. The standardization of armament and equipment could be ob-

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tained through military assistance treaties with the United States. Uniformity of doctrine and combat procedures could be established in conferences, seminars, and the exchange of officers in military schools under the supervision of the Inter-American Defense Board. . . .

Obviously, the present legal instruments (such as the OAS Charter) should be updated and adapted to the present circumstances of combating subversion—with greater emphasis on more power and more flexibility in their actions. . . .

In conclusion, an inter-American force for employment as a preventive instrument should not preclude the organization of economic and anti-poverty programs by the individual nations, measures which represent the true way of combating subversion in our continent. . . .

MAJ Dover Santa Rosa Caldas,
Brazilian Army

Limited War

Referring to "The Why and How of Limited War" (July 1970), I would like to register a bit of dissent at the whole idea of "limited" war.

What is limited war? Is it any war which takes place outside the United States? . . . "How is it possible for any belligerent to limit the size of a war?" The answer to that is simple and obvious: When the level of violence reaches the maximum tolerable point, surrender; give up or water down the objective; abandon the field to the enemy; keep fighting, but do not try to win. This is how we limited the war in both Korea and Vietnam. This, indeed, appealed to the enemy who could not win, but took all the fruits of victory.

Limited war is a foolish concept on at least two counts.

. . . . To go into a "small" war, hoping it will not get too big, is criminal stupidity. [We must] define our objectives and be willing to achieve them as expeditiously as possible, using whatever force is necessary. Otherwise, we set ourselves up for the frustration and shame tearing our Nation apart today. The only way we should "bluff" an enemy is to be thoroughly capable of thrashing him in the field and, most importantly, have the courage and will to do so if necessary, without hesitation and undue anguish over world opinion, or the method used. . . .

While the idea of limiting war to "little" ones, rather than a catastrophic global nuclear exchange,

is a very appealing one, it must be remembered that it makes no difference to the soldier . . . whether it is a big war or a little one. . . . Is it worse to have your head blown off by a 250-pound bomb or by a hydrogen bomb?

Is it our illogical approach to war that is behind youthful reluctance today? Who wants to die for nothing in a dragged out war that we are obviously not really trying to win? To quote Pogo: "We have met the enemy, and they is us!" . . .

Nobody respects a voluntary loser. . . . There is no such thing as being "too powerful." There is such a thing as being too dumb. Craven pursuit of "limited" war is a coward's way out, and it just cannot work. It never has. When will we learn?

CPT W. W. Strong, USN

Put Glamour Back Into Soldiering

"Sir, the battalion is formed," the adjutant reports. The battalion commander replies, "Take your post." As the adjutant takes his post, the commander reviews his troops. They look like a fighting outfit wearing their starched fatigues with stripped pistol belt, spit-shined boots, helmet with camouflage cover, and branch scarf.

This picture has become more and more prevalent in recent years. For some obscure reason, the AG-44 uniform has been relegated to rare occasions. As a consequence, the parade has become one more example of a generally drab and colorless Army. I say it is time to dust off the bugles and the drums, shine the brass, break out the sabers, and make the parade what it was intended to be—a pageant of color, bravado, and, yes, an expression of unit pride. Pride in its history, its traditions, and in itself.

"Join the Army and see the world." The recruiting poster is a picture of perfection—a noncommissioned officer in neat Army blue uniform with decorations, spit-shined shoes, and a million-dollar smile. The young man looking at it at Midwest City, USA, fancies himself as being the man in the poster. Enthused, he joins the world's greatest Army.

Enduring the rigors of in-processing at the replacement depot, he is surprised at the care taken in fitting him with his class "A" uniform. Once uniform issue is accomplished, he is sent to his basic-training unit where, for eight weeks, he is turned, twisted, and molded into a soldier.

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He can jump, run, crawl, and do all the things a soldier does—all? Not quite, he still has not seen himself in any situation where he resembled the glamorous recruiting poster. Perhaps that will come later. In the meantime, he cannot wait to get home and show himself off in his uniform to Mom and Dad and his best girl—and he does, with pride. He is escorted proudly around the town by all the folks—even the most bitter “anti-military-industrial complex” neighbor cannot get angry at Johnny, the kid next door on his furlough.

The leave, an interlude of glamour and pride, is too soon over. The second eight weeks are more informal than basic training was. He has a job to learn—and he does, and he does it well, but again there is no glamour. Finally, he reports to his first real live unit, the real Army. He puts on the unit crest which is a living reminder of a glorious tradition, and, for a few brief moments, he is with the regiment at Chickamauga, San Juan Hill, and Belleau Wood, then he gets put back into the real world.

It is hard to visualize glory and tradition when all you do is pull KP, police the area, water and mow the grass, and, of course, do guard duty—all in fatigue uniform. In between details, the soldier actually gets to work at the job he was

trained for, but only infrequently as part of a team. Even in his regular unit, he is very often assigned tasks as part of a composite force representing the battalion at a function.

What is that function? A parade! Yes! You know, color and pageantry. What is the uniform? Ah, yes, the uniform will be fatigues, neatly starched and pressed, stripped pistol belt, helmet with camouflage cover, bloused trousers, spit-shined boots, individual weapon, and branch scarf.

It is time this trend is revised and some glamour put back into soldiering. I suggest some aspects of soldiering should even be fun!

- Ban work uniforms from the parade ground.
 - Require drill and ceremonies.
 - Encourage competition between units in drill and ceremonies.
 - Make Organization Day a reminder of the unit glories instead of a mammoth beer bust.
 - Hold formal guard mount periodically.
 - Maintain unit integrity.
 - Push for an ultimate objective of a full-dress uniform to be issued to the individual soldier such as presently issued by the US Marine Corps.
- These are some aspects of soldiering that should be fun.

MAJ Ruben A. Candia, USA



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