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

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January 69

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

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Military Review

Award Article

The Military Review announces the selection of the following article from the November 1968 issue as a MILITARY REVIEW AWARD ARTICLE:

"Armored Forces in the Middle East"
Leo Heiman

The author discusses the rapid collapse of Soviet-trained Egyptian armored forces in the Middle East war of June 1967. The numerically inferior, but better led, trained, organized, and indoctrinated Israeli forces routed two enemy armored divisions, five tank brigades, and several armored artillery regiments. He suggests that Soviet planners must absorb part of the blame, but most credit should go to the Israeli doctrine of leadership by personal example, dedication, devotion, initiative, surprise, and shock effect.

★ ★ ★

COMING:

Colonel Samuel H. Hays, United States Army, in "Judge Not Lest Ye Be Judged," discusses the officer efficiency report system and the need for change if selection for assignment and promotion is to be done without long-term damage to the officer corps. He suggests periodic use of the forced choice type of rating used in 1947-48, bonus points for command time, and some use of the peer-rating system.

Colonel George S. Webb, Jr., United States Army, in "How War Gaming Paid Off in Combat," describes the organization, and explains the techniques and methods used for war gaming in the 2d Field Force, Vietnam. This was done without sophisticated electronic equipment and was based on the "incountry" experience and intuitive good sense of mature officers intimately familiar with the environment and opposing forces. He lists and describes numerous gains which accrued to the 2d Field Force as a direct result of these war games.

1922 VIR 1969

India

Wing Commander Maharaj K. Chopra, *Indian Air Force, Retired*

INDIAN defense planning was placed within a new framework in the wake of the Chinese attack in the winter of 1962. During the previous 15 years since independence, the reconstruction of the armed forces had been taking place in an orderly manner. However, planning in the sense of precise identification of a threat to national security, fixing of targets, provision of resources, and achievements of results within a specified time span were something new.

Behind this new approach was the compulsion of events. From the estimates of the threat and inquiries held into the causes of the reverse suffered by the Indian armed forces, two crucial conclusions were drawn. One was that the Chinese aggression was the portent of a long-term aggression for which *ad hoc* devices would not do. The second was that a massive, organized, and sustained effort was needed to build up an adequate defense. Both of these demanded a highly disciplined approach.

The actual reconstruction of the armed forces commenced immediately on the cessation of hostilities, but 1963 was spent mainly in reviewing the political and strategic situations and the condition of the armed forces. The Five-Year Defense Plan was officially inaugurated in the following fiscal year to cover the period 1 April 1964 to 31 March 1969. We are now on the eve of the second defense plan which, as officially announced, is on the anvil.

The long-standing military equation prior to 1963, built on the supposition that the threat emanated only from Pakistan, underwent kaleidescopic transformation. It is true that there were still elements in the country

which, with their Communist orientation, sought to play down the Chinese aggression. But to a vast majority of Indians, led by the government, it was Red China who India would have to reckon with in the future.

Armed Forces Strength

The defense budget amounted to one billion dollars in 1963.* The Chinese had given it a sudden spurt, for this was 40 percent more than the average military expenditure incurred by India in the years 1947-62. The strength of the armed forces was a little over half a million. The army, which constituted the bulk of this strength, comprised a dozen divisions which included a few units for mountain warfare. The air force had a strength of 20,000 divided into about two dozen squadrons not fully equipped. With its strength of 16,000, the navy had 14 combat ships, including an aircraft carrier, cruisers, and destroyers.

In early 1963, there were nearly two million boys and girls in the National Cadet Corps receiving training for periods from two to three years. The Territorial Army numbered about 50,000. This group was recruited from the civil sector for a five-year term and received five to 10 weeks' training each year.

In the old infrastructure, India had about 20 ordnance factories. A committee of Parliament noted in the late 1950's that eight of these had been set up before the Second World War and another eight during that war. The main output of these factories comprised small arms, some special metals, clothing, and leather goods. Altogether, they supplied nearly one-half the requirements of the army and one-fourth the requirements of the air force. The balance had to be imported. Some plans had been made for building tanks.

Defense Projects

In addition, there were six defense undertakings, modeled on incorporated companies, concerned with the building of aircraft, ships, machine tools, and heavy machinery. Aircraft included the interceptor *Gnat*, the fighter bomber *HF-24*, the transport *Avro 748*, and *Alouette* helicopter. None of them yet had come off the production lines. The dockyards were mainly for maintenance and repair of ships and production of general maritime engineering supplies and equipment.

In the purchase and production of weapons and equipment, India had sought collaboration from a number of countries from the Free World, as well as from the Communists. Engineers from Britain, France, West Germany, and the USSR had given technical advice. This collaboration was strictly on a commercial basis and, in general, for minor equipment. India's nonalignment had precluded military aid of the type to which the members of a military alliance become eligible.

Finally, in regard to war material, the Parliamentary Committee noted

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Wing Commander Maharaj K. Chopra, Indian Air Force, Retired, is military correspondent for the English-language Indian newspaper, The Indian Express. *A frequent contributor to the* MILITARY REVIEW, *he is the author of "New Winds Over Southeast Asia," which appeared in the September 1968 issue.*

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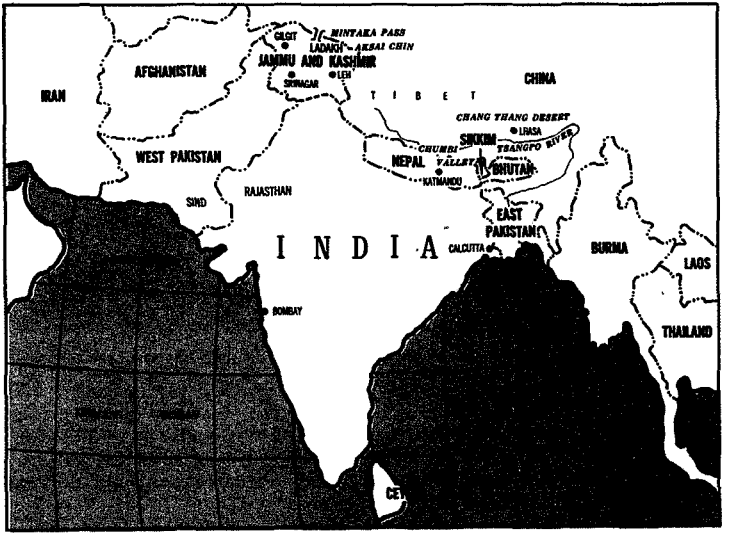
* At the official exchange rate of one dollar equal to 4.76 rupees. On 5 June 1966, the rupee was devalued, and the dollar became equal to 7.5 rupees. In terms of foreign exchange, the financial dimension of the plan has acquired a new size. But as foreign exchange forms only a small fraction of the total allocation, the old exchange rate is used to maintain the plan perspective.

that, even though the government establishments were not able to cater adequately for defense, the civil sector, in particular, and the industrial potential of the country, in general, were not tapped.

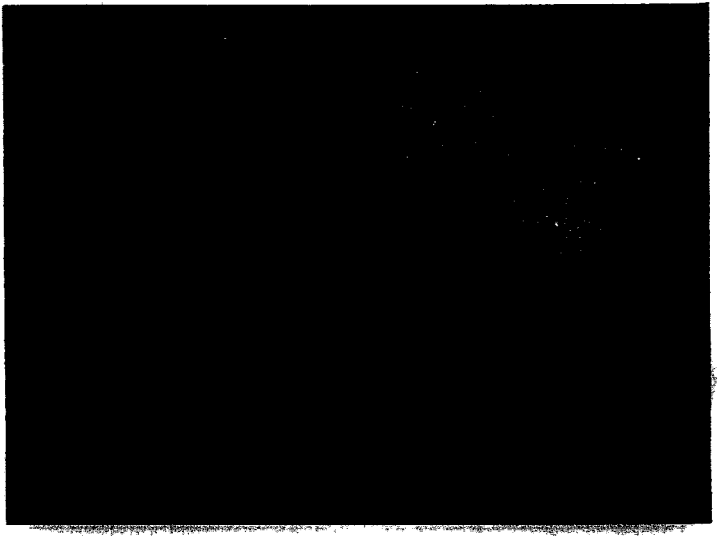
Another aspect which had a vital bearing on the war was the question of logistics in the border areas. While roads had been built in many sectors of the Himalayas, they were mostly for economic objectives. The Border Road Development Organization, set up in the late 1950's, had just begun to lay strategic communication lines. These were, of course, confined to the lower reaches of the mountains and hardly had been extended to Ladakh or the North-East Frontier Agency. These two areas form the western and eastern ramparts of the Himalayas where the fighting took place. The more remote outposts were almost isolated.

The report of India's defense posture in 1963 also included the statements that there had been negligible training in jungle and high-altitude warfare, that military intelligence was poor, and that the weapon systems of the armed forces were in need of overhaul.



The Ministry of Defense Report of 1964-65 spelled out the second defense plan. It envisaged the:

- Building up and maintenance of a well-equipped army with a strength of 825,000 men.
- Maintenance of a 45-squadron air force, including programs of replacement of the older by more modern aircraft.
- Program for a phased replacement of the overage ships of the navy.



This *Leander* class frigate, shown under construction in Bombay, has now been launched

- Improvement of road communications in the border areas.
- Strengthening of the defense production base.
- Improvement of organizational arrangements in the fields of training and supply.

The total expenditure on defense during the period of the plan was estimated at 10.5 billion dollars.

Two events led to certain modifications in the plan although its main contours remained unchanged. One was the war with Pakistan in 1965 which, apart from its impact upon weapon systems, underlined the urgency of improving mobility. Strategic roads were thus undertaken not only in the mountains, but also in the desert. The desert area stretches north of the Arabian Sea and embraces Sind of Pakistan and Rajasthan of India. The second event was the staggering of the fourth Five-Year Economic Plan which was scheduled to commence in 1966, but postponed for three years.

Economic difficulties, while not impinging upon objectives, have rather inflated the costs. The present decision is that the fourth economic plan would commence in April 1969. This would be abreast of the second defense plan, and the two plans no doubt would have significant mutual impact.

An appraisal of the defense posture on the eve of the second plan shows an estimated total defense outlay of 9.7 billion dollars during 1964-69. This expenditure would be slightly below that envisaged in 1964. It is 28 percent of the federal budget and four

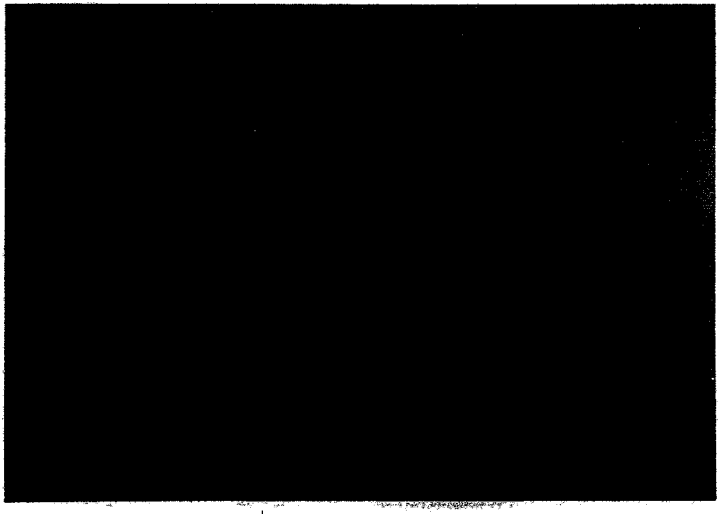
percent of the national income. Of the two key sectors of defense to which the budgetary allocations have been directed—personnel and weapons—the latter would be deemed crucial.

It has been found that, while the character, strength, organization, and deployment of forces are, undoubtedly, a matter of vital importance, they are not difficult to manage. This is due to the fact that India has a vast population and possesses firm military foundations and traditions on which an appropriate superstructure can be raised. This can be done, however, only with the help of tools which are not easy to obtain. Therefore, the development of modern equipment and weapons has been considered a matter of highest priority by Indian authorities.

A significant deviation of policy has taken place in this connection during the plan period. Contrary to previous practice, India has gone in for military assistance from friendly countries consistent with nonalignment until such time as her own production base develops the desired capacity.

In September 1964, it was anticipated that the United States would provide a credit of 60 million dollars to renovate the ordnance factories for the production of small arms and ammunition. A grant of 60 million dollars, which might be renewed, was expected for support of mountain divisions, air defense communications, and border road construction. The Soviet Union would help build factories for *MiG* aircraft and supply a number of light tanks, helicopters, and missiles. The United Kingdom would provide a credit of 13.2 million dollars for the construction of three frigates.

The war with Pakistan has upset



An Indian-built *Vijayanta* medium tank

this arrangement. Only a part of the US credit has been forthcoming, and the grant has not been renewed. Britain is building the frigates, but an earlier expectation that she might supply a number of destroyers has not materialized. The Soviet Union is fulfilling her part of the commitment and, in addition, is supplying submarines and fighter bombers.

Another policy deviation relates to the civil sector which, contrary to past practice, has begun to be associated with the production and supply of military hardware of a subsidiary character. A new body, the Department of Defense Supplies, has been set up. It is responsible, among other items, for utilizing the national industrial capacity for defense.

Reconstruction

The main effort has, of course, been directed at the ordnance factories and defense undertakings. All old factories are under a process of renovation or reconstruction, and four new ones have been added to those already in existence. These are all turning out thousands of items.

India is now self-sufficient in small arms, including the newly built 7.62 semiautomatic rifle. She has begun to produce large-caliber guns, including mountain guns. Some quantities of the *Vijayanta* tank, modeled on the British *Chieftain*, have been built. A great variety of subsidiary items is coming out of the factories, including vehicles, rocket propellants, clothing for mountain warfare, special aluminum and steels, and chemicals.

There are now seven defense undertakings for major weapons of war. Of these, the largest is the Hindustan Aeronautics which is concerned with the production of aircraft, mainly the *Gnat*, the *HF-24*, and the *MiG-21*. The complete manufacture of *MiG's*, rather than merely assembly, is likely to begin next year. India is also building a small transport plane—the *HS 748*.

Three of the seven undertakings are concerned with shipbuilding and ancilliary industry. A coastal minesweeper, a cargo ship, a tanker, and a dredge have been constructed or are nearing completion. The first of the three *Leander* class frigates has been launched. India's electronics program envisages a heavy expenditure during the next few years.

Research Institutions

In addition to factories and defense undertakings, there is the Defense Research and Development Organization. Its current year budget of 30 million dollars is modest, but is three times that of 1963. Manned by a large team of scientists, it comprises nearly three dozen research institutions. These are handling about 1,000 projects of various types concerned with food, work capacity, leadership training, field weapons, electronics, aeronautics, naval research, and engineering equipment.

The problem of manpower has not been as smooth as expected in the beginning. Due to the war with Pakistan, recruitment had to be stepped up above the prescribed tempo. As a result, a large number of officers had to be drafted on a short-term basis. Some of them have now been absorbed and others released. In other fields, such as training which had to be reduced, the aftermath of the war has been cleared.

Symptomatic of the developments in training is the decision to establish a giant new air force academy to become the center of all air training. Under

construction for one year, it is expected to be completed by 1971. The army now has a number of jungle warfare schools, and its High-Altitude Warfare School, located in a snowbound part of Kashmir, is probably unique in free Asia. In general, the trend has been to intensify, as well as extensify, training and even utilize civil institutions where necessary.

It is officially stated that, except in certain special categories, the armed forces have now been built to the prescribed strength. As before, the army constitutes the bulk of this strength, but, among the services, the air force has gained more in proportion.

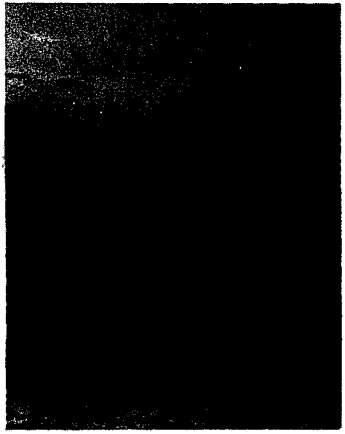
The three services are now being renovated, reequipped, and modernized. This task is far from complete and will spill over into the second defense plan. For some time to come, the very old and the very new must jostle along together in the armed forces.

Nearly one-third of the strength of the army is made up of mountain divisions, a distinctive innovation which goes to the heart of the Himalayan defense. The semiautomatic rifle has totally replaced the old .303 rifle and become the standard infantry weapon. The latest field guns are replacing the 25-pounder, while the *Vijayanta* has begun to be introduced into the armored divisions where the *Centurion* is still the main tank.

This *MiG-21* was built in India for the Indian Air Force

Among the new acquisitions of the air force is the surface-to-air missile which is being deployed for defense of some of the major towns and vital points. Many sensitive sectors of the

border have been provided with radar coverage. All three combat planes under manufacture in India are being supplied to the air force in varying quantities. These, along with *Su-7* fighter bombers, would be among the more modern weapons, alongside which the *Canberras*, *Hunters*, and



Photos courtesy Directorate of Public Relations (Defense) India

Prime Minister Indira Gandhi visits a Himalayan Pass area where Indian mountain divisions face a heavy concentration of Chinese forces

Mystères would operate. For transport, India depends upon the *An-12*, *C-119*, and *HS 748*. The helicopter wing has been considerably expanded.

The submarine has come to the Indian Navy while some of the Indian-built vessels are at various stages of supply. The frigate under construction is expected to be commissioned in 1971. Most of India's combat fleet, however, consists of the old ships of the early 1950's.

There has been little significant change in the strength of the Territorial Army. However, the now compulsory National Cadet Corps will revert to its voluntary character and its strength cut down considerably. Much is expected from the National Service Corps, a new, work-oriented organization providing an alternative choice to the National Cadet Corps.

The Border Security Forces, established in 1965, constitute a new element in the scheme of paramilitary defense. They are under civilian control, and their training, imparted on the military model, is less intense than that of a soldier. Their duties are of a combined military and police nature. While checking infiltration, they also prevent smuggling, sniping, and sabotage in the border regions.

Road Construction

During the last six years, nearly 2,000 miles of roads have been constructed in the sensitive sectors of the Himalayan border. The Srinagar-Leh Road—which is the line of communication to Ladakh and is extremely vulnerable, being close to the cease-fire line in Kashmir—has been supplemented by another road to the east. In the same western part of the Himalayas, the Hindustan-Tibet Road has been completed. To the east, roads have been built to Sikkim and Bhutan and up and across the North-Eastern Frontier Agency. Many airfields also have been constructed.

India's road construction program has been hastened in view of the fact that the enemy, too, has been active in this field. China has extended her network of roads to the borders of Bhutan and Sikkim and into the Chumbi Valley. The link of Lhasa with Katmandu, the capital of Nepal, is now complete. The Lhasa-Kashgar

Road is improved. China has also constructed a road from Kashgar to the Mintaka Pass in the Pamirs to join the road under construction by Pakistan from the pass to Gilgit.

After the war with Pakistan, many hundreds of miles of roads were planned for the desert tract of Rajasthan along the Indo-Pakistani border. Nearly one-third of these are completed.

Defense Environment

How have the armed forces shaped up? How adequate are they to discharge their responsibilities? What line of development confronts them?

The answers to these questions depend greatly upon the context in which the defense is being built. Presently, it is marked by at least four prominent features. First, is the problem of India's territorial integrity, the maintenance of which is the primary function of the armed forces. Internal as well as external pressures continue to keep some sectors of India's borders under travail.

Internal pressures are rather persistent in the northeast between Burma and East Pakistan where certain tribes, the Nagas and Mizos in particular, continue to create conditions of unrest and violence. It is a strange type of turmoil for, amid the strife, there is uninterrupted rapport between the government and the rebels. However, the fact that up to two divisions have had to be deployed in the past is indicative of the extent of trouble. Quite often, the trouble becomes aggravated by the assistance in arms and training given the rebels by Pakistan and Red China. India's search for a solution by peaceful, democratic methods does not enable her to dispense with military force.

Matters are worse in still another territorial field. The cease-fire line in Kashmir symbolizes India's conflict with Pakistan, extending to many other areas of mutual relations and leading to an escalation of military power on both sides. At the same time, China continues to occupy Aksai Chin which is a standing emblem of New Delhi's confrontation with Peking.

Possible Collaboration

A second feature of India's defense is that she not only has to reckon with Pakistan and Red China individually, but with their possible collaboration. Despite the "cultural revolution," there is no letup in Peking's military might; if anything, the People's Liberation Army is closer to the levers of political control than ever before.

There is probably some truth in the estimate that Red China is not yet in a position to undertake any large-scale territorial aggrandizement. However, her bellicosity, aggressiveness, and perpetual attempts to create conditions of insurgency in border areas have deep political and military ramifications which India cannot ignore. Some Indians even suggest that India's true buffer in the north is not the Himalayas, but the Chang Tang Desert across the Tsangpo. They state also that India's security demands guaranteed neutralization of Tibet. The military undertones of a thesis of this kind are obvious.

Until recently, India has been almost wholly pinned down to border defense. Now, the perspectives are widening, thanks to the defense buildup during the last five years, and are embracing regions beyond the frontiers. This is a third feature of India's defense preparation. Looking east, one notices that India is actually much

closer to Southeast Asia than is sometimes thought. The southernmost island of the Andamans is only 100 miles from Indonesia.

In Southeast Asia, Britain is planning to retire, and some countries are developing a new defense posture. The future of the Indochina states is in the balance, and the superpowers are building new strategies. All that is happening here is, of course, not of a military nature, but much of it has military repercussions which are of significance for many lands, including India. Sooner or later, the security of the entire Indian Ocean is likely to come to the fore, from which again, because of her geographical position and trade interests, India cannot isolate herself.

Nuclear Weapons

A final feature facing India's defense planners is the problem of nuclear weapons. India has not signed the Treaty on the Nonproliferation of Nuclear Weapons indorsed by the United Nations General Assembly last June. Many reasons of a political, economic, and emotional nature are behind this, but one which has agitated the Indian mind the most is of a military nature.

Indians take their line from the nuclear threat which Red China rapidly is developing, and they are not prepared to be deprived permanently of the vital means to counter it. Indians do not take seriously the UN Security Council assurances of security against the threat of nuclear aggression. Whether or not India should join the nuclear arms race is thus an open question which the Indian policymakers constantly will have to consider in developing a military posture.

In Parliament and elsewhere, Indian statesmen say that the India of 1969 is much better than the India of 1962. In general, the nation's morale, which ebbed after the Chinese aggression, is high after having done well against Pakistan. There is a great awareness of the security problems. Amid the numerous economic difficulties the nation has faced, there has been no stinting over the resources made available for defense.

On Schedule

The Five-Year Defense Plan is being implemented more or less on schedule. While still employing many types of old weapons, India is equipping the three services with a large number of new ones, some under manufacture in her own factories. She realizes that the process of modernization will be prolonged, tedious, and expensive, but she also is aware that the process is not beyond the country's means. Meanwhile, the prevailing deficiencies can be substantially offset by intensive training and optimum use of arms. With improved logistics and infrastructure, the armed forces are well positioned to give a good account of themselves.

The immediate test to judge their effectiveness would lie in their capability to meet the threats from Red China and Pakistan. No Indian leader, however optimistic, can brook with equanimity the prospects of having to confront a combined thrust by these two neighbors. While such a contingency is there, it is not one that is likely to arise in the near future. Even if it does, the enemies would have to consider the high vulnerability of Pakistan, divided as she is in two wings 1,000 miles apart, and the fact that the war may become general, in which case the balance of forces may not remain one-sided.

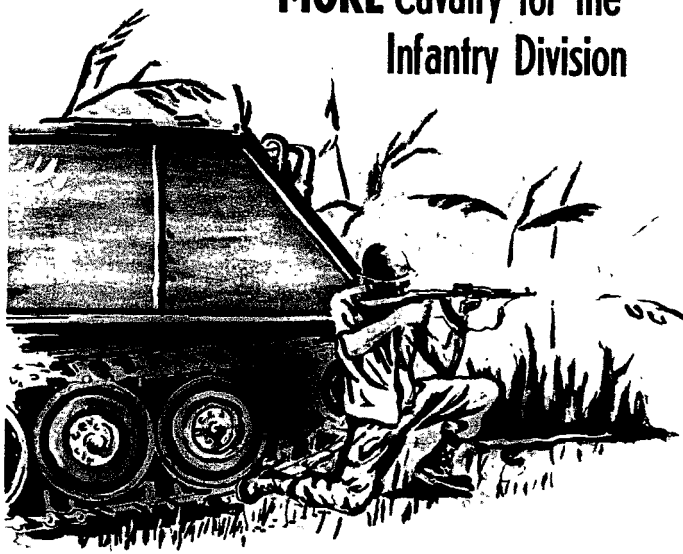
The critics of the government point

to shortcomings in the balance sheet of defense achievements—particularly the slow pace of modernization, inadequacies of air striking power and of naval strength, and the absence of nuclear weapons. In a democratic country such as India, all this criticism cannot be brushed aside. It, therefore, is bound to figure in the formulation of the second defense plan. This plan also is likely to consider streamlining the high command and further introduction of structural changes in the defense services to meet the needs of new weapons with their superior firepower and mobility.

Numerically and qualitatively well manned; armed with weapons which are a mix of the new and the old, the former being modern, but not sophisticated; powerful enough for defense but not offense; and possessing a high degree of political and military reliability, the Indian armed forces await further buildup. The condition of their equipment, the character and dimensions of the threat to national security, and wider strategic compulsions justify the need.

In a world in which peace is the slogan and war is the practice, no country can hold its own without an adequate defense mechanism. On the eve of the second defense plan, the dominant feeling in India is that this mechanism is not quite perfected.

MORE Cavalry for the Infantry Division



Colonel George S. Webb, Jr., *United States Army*

WITH the large manpower requirements for the war in South Vietnam, it is imperative that the maneuver elements deployed to Vietnam be the most effective that this Nation can provide. The problem is to determine which are the most effective maneuver units for the type war we are fighting in Vietnam.

From their performance, we can conclude that existing tables of organization and equipment (TOE's) units have proved themselves in the combat environment of Vietnam, and no new maneuver organization is considered necessary. The firepower and mobility of US forces in Vietnam have provided a superiority on the field of battle which the enemy cannot match. However, some US maneuver units have enjoyed greater success at less cost in lives and materiel because they possess greater firepower, protection, and mobility than other US maneuver units. These characteristics are at a premium in the war in Vietnam.

The first US infantry divisions and brigades to deploy to Vietnam in 1965 arrived with few or no mechanized or armor battalions. The 1st US Infantry Division arrived without its tank battalion and with no mechanized infantry battalions. However, it did have its organic cavalry squadron.

Elusive Enemy

As combat experience has been gained in South Vietnam, the value of mechanized and armor units in the war has been recognized, and the number of such units has been greatly increased. The enemy we face rarely stands and fights pitched battles or attempts to hold specific terrain. He tries to be as elusive as he can—to be everywhere and nowhere at the same time. He attacks only where he believes he has undisputed superiority and when he thinks we will not be able to change the situation before he can accomplish his mission.

When faced with such an elusive enemy, the ability to apply overwhelming firepower to any threatened point within the shortest possible period of time becomes of paramount importance. Firepower delivered by air or artillery alone, although of considerable importance, cannot in every case hope to turn the tide of battle. Once ground forces are locked in close combat, it is frequently impossible to apply air or artillery fire support effectively. This is why rapid ground reinforcement by units possessing great firepower is so essential.

Firepower and Mobility

More so than in either World War II or the Korean War, units in Vietnam must possess firepower and mobility in generous proportions. Mechanized and armor units possess these two characteristics to a greater extent than infantry units. Furthermore, they do not depend on landing zones (LZ's) in order to reinforce another ground element. Suitable LZ's are not always available within a reasonable distance or, if available, cannot always be secured in time.

Mechanized and armor units, adequately supported by artillery and air, are designed to bring overwhelming firepower to bear in isolated areas faster than other ground maneuver units. Experience has shown that there is a greater requirement for the maximum possible mobility and firepower than for the ability to stand and slug it out for an extended period.

In the 2d Field Force, Vietnam, area, the increase in armor has included an armored cavalry regiment and a tank battalion. In addition, the 1st and the 25th US Infantry Divisions have each converted one infantry battalion to a mechanized infantry battalion.

The 2d Field Force, Vietnam, portion of the Republic of Vietnam (RVN) covers 11,500 square miles or 18 percent of the total land area of the RVN. During the dry season,

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Colonel George S. Webb, Jr., is with the Office, Deputy Chief of Staff for Military Operations, Washington, D. C. He is a graduate of the US Military Academy, West Point, New York; holds an M.A. in International Relations from Tulane University, New Orleans, Louisiana; was graduated from the US Naval War College, Newport, Rhode Island; and the US Army War College, Carlisle Barracks, Pennsylvania. He has served with the 8th US Army in Korea; the 2d Armored Division, Fort Hood, Texas; and in Vietnam with the 25th Infantry Division and Headquarters, 2d Field Force.

tanks and armored personnel carriers (APC's) can negotiate all but the perennially inundated swamp areas and the mountainous terrain. During the wet season, tank movement is generally restricted to roads and higher, well-drained areas. Trafficability for APC's is essentially the same during both seasons, but rates of movement are slower during the monsoon season.

Battalion Conversion

The conversion of infantry battalions to mechanized infantry battalions at the specific insistence of the commanders in the field is evidence that a higher percentage of these battalions is desirable in Vietnam. But are mechanized infantry battalions the best maneuver element available for the job to be done?

A US infantry division normally consists of a mixture of four types of maneuver units—the infantry battalion, the mechanized infantry battalion, the armored cavalry squadron, and the tank battalion. No fixed number of these battalions is prescribed; instead, the organization is built to fit the mission. Emphasis thus far in the 2d Field Force, Vietnam, area has been on increasing the number of mechanized infantry battalions in the infantry divisions.

To convert an infantry battalion to a mechanized battalion requires an increase of 75 men, 83 lightly armored, full-tracked combat vehicles, and five highly armored, full-tracked recovery vehicles. This small personnel and equipment augmentation results in a tremendous increase in armor-protected firepower and battlefield mobility which has made the mechanized infantry battalion such a popular unit in the Vietnam war.

The cutting edge of a division is found in its maneuver elements and the sum of the individual rifle squads, tank crews, and APC crews which make up this cutting edge.

There are three rifle companies in the mechanized infantry battalion. Each has three rifle platoons and a weapons platoon. Each rifle platoon has four APC's which provide transportation for the squads and an armor-protected vehicle from which they can fight. The APC can swim and is capable of traversing any of the terrain in the 2d Field Force, Vietnam, area of South Vietnam with the exception of the thick swamps in the Rung Sat special zone and the mountainous terrain. This comprises less than 10 percent of the corps area. The weapons platoon has one APC and three full-tracked, 81-millimeter mortar carriers.

Armored Cavalry Squadron

The armored cavalry squadron has three armored cavalry troops and an air cavalry troop. The armored cavalry troop has three cavalry platoons and a total of seven APC's and three tanks or armor-protected combat vehicles. Six of the seven *M113* APC's in the cavalry platoon are identical. The seventh transports a 4.2-inch mortar, but is fought in most situations the same as the other six APC's.

The tanks of the armored cavalry squadrons presently in use in Vietnam are the *M48* series main battle tank. They make ideal vehicles to negotiate the rubber plantations and thick jungle during the dry season and to keep open main supply routes for military and civilian traffic the year round. Their employment in relief columns has been particularly successful. While these tanks are limited largely to roads, trails, and higher, well-drained terrain during the monsoon season,

they provide the best protection available against small arms fire, mines, and recoilless rifles.

The tank battalion has three tank companies with three tank platoons. The tank platoon has five tanks.

One rather startling fact emerges from a comparison of the fighting power among the line platoons of the mechanized infantry battalion, armored cavalry squadron, and the tank battalion—the combat strength of one armored cavalry platoon roughly equals the combined strength of one mechanized infantry platoon and of one tank platoon. The cavalry platoon has seven APC's and three tanks while the mechanized infantry platoon has four APC's and the tank platoon five tanks. During the monsoon season, when tanks are largely roadbound, the armored cavalry platoon has seven APC's that can be fully deployed compared to the four APC's in the mechanized infantry platoon.

A comparison of the mechanized infantry battalion, the tank battalion, the armored cavalry squadron, and the straight infantry battalion is shown in Figure 1.

For an increase of 75 men—or approximately nine percent in personnel strength—and 83 APC's, a division commander can have a mechanized infantry battalion in place of an infantry battalion. For an increase of 56 men—or approximately six and one-half percent in personnel—90 APC's, and 27 tanks, a division commander can have an armored cavalry squadron in place of an infantry battalion.

This comparison, however, does not tell the entire story. The cavalry platoon of the armored cavalry squadron must be augmented to achieve its full fighting potential when the *M113* APC is used in lieu of the *M114* as is being done throughout Vietnam. Where the TOE calls for two or three men in the *M114*, this should be increased to six men when the *M113* is substituted for the *M114*.

The *M113* can be properly manned and fought with a six-man crew, but not with a two or three-man crew. With a six-man crew, there is a driver, a vehicle commander, a grenadier, and three machinegunners. Two of these machinegunners man *M60* machineguns while the third mans a .50-caliber machinegun which fires primarily to the front. The *M60* machineguns fire to each flank, and the grenadier fires to the rear. This arrangement

UNIT	TABLES OF ORGANIZATION AND EQUIPMENT STRENGTH	LINE PLATOON STRENGTH
Infantry Battalion	849	44 men
Mechanized Infantry Battalion	924	47 men and 4 armored personnel carriers
Armored Cavalry Squadron	905	42 men, 7 armored personnel carriers, and 3 tanks
Tank Battalion	599	20 men and 5 tanks

Figure 1.

gives the APC crew all-around protection..

The 11th Armored Cavalry Regiment has developed the armored cavalry assault vehicle (ACAV)—an *M113* with protective gun shields for its three machineguns. All *M113* APC's in Vietnam are manned in a manner similar to the ACAV so that the crew has all-around protection. To ignore this tactic can prove to be a costly mistake.

Mechanized infantry battalions have a squad of 10 men plus a driver assigned to their APC's, but there is only sufficient room for approximately six or seven of these men to be employed while the vehicle is prepared to move or actually moving. It is not unreasonable or misleading to allege that an *M113* APC with a six-man crew is as effective in the Vietnam war as an *M113* APC with an 11-man crew.

The augmentation which provides for a total of six men in each armored cavalry APC is all that is required. The additional dismount capability provided by the full infantry squad is not required that often to make it essential in Vietnam. Thus, each cavalry platoon should be augmented by 16 men. This adds 48 men to each cavalry troop and 144 men to each squadron. The comparative strength chart then looks like that shown in Figure 2.

Army News Features

The *M48* is the tank being used by the armored cavalry squadrons in Vietnam

Even at these augmented armored cavalry squadron figures, the much greater firepower and versatility of the armored cavalry squadron compared to the infantry battalion, mechanized infantry battalion, and tank battalion make it the most effective and economical maneuver unit for use in the infantry divisions in the 2d Field Force, Vietnam, zone. For an increase of 125 men (13½ percent) over the mechanized infantry battal-

ion, and the addition of seven APC's, and 27 tanks, the armored cavalry squadron provides two and one-half times as many combat vehicles in its line platoons.

Armor-protected, full-tracked combat vehicles have proved their effectiveness in Vietnam. If the mechanized infantry battalion—which requires 75 more men than an infantry battalion and 83 armored, full-tracked combat vehicles plus supporting equipment—is considered a bargain in the Vietnam war, then we must look closely at the armored cavalry squadron.

For only 125 additional men, seven APC's, and 27 tanks, plus supporting equipment, a commander can have an armored cavalry squadron which has 150 percent more combat power than a mechanized infantry battalion. A commander gains almost as much with the addition of one augmented armored cavalry squadron as he would with one mechanized infantry battalion and one tank battalion. This evolves from the fact that the armored cavalry platoon has seven APC's and three tanks or roughly the same strength as a mechanized infantry platoon and a tank platoon combined since these latter have four APC's and five tanks, respectively.

Yet an augmented armored cavalry squadron has only 1,049 men compared to a total strength of 1,523 men in a mechanized infantry battalion plus a tank battalion. This means that an armored cavalry squadron provides roughly the same combat power as a mechanized battalion and a tank battalion for 31 percent fewer people.

A considerable fringe benefit also comes with an armored cavalry squadron—an air cavalry troop with 26 helicopters. The air cavalry troop with its reconnaissance, fire support, communications, and resupply capabilities is a highly effective organization. The aerorifle platoon can be used to block Viet Cong trying to evade search-and-destroy forces, to probe suspect locations, to assess bomb damage in remote areas, as an immediate reaction force in convoy security operations, or in area reconnaissance missions. If the aircraft and pilots are not available now to form additional air cavalry troops, this particular fringe benefit would have to be delayed.

How difficult would it be to convert infantry battalions to armored cavalry squadrons rather than mechanized infantry battalions? The conversion of infantry battalions to mechanized infantry battalions is done in Vietnam

UNIT	STRENGTH	LINE PLATOON STRENGTH
Infantry Battalion	849	44 men
Mechanized Infantry Battalion	924	47 men and 4 armored personnel carriers
Armored Cavalry Squadron	1,049	58 men, 7 armored personnel carriers, and 3 tanks
Tank Battalion	599	20 men and 5 tanks

Figure 2.

by providing the necessary equipment —primarily APC's—and track vehicle mechanics. This conversion has not proved difficult. It proceeded smoothly and rapidly in the US 25th Infantry Division. The total time allocated to the changeover of a battalion was approximately one month. However, all this was not lost time since training conducted near the division base camp contributed to the security of the camp.

The same procedure could be applied to converting infantry battalions to armored cavalry squadrons except that seven APC's, 27 tanks, and 108 tank crewman would have to be added to each infantry battalion over and above the APC's and personnel required to mechanize an infantry battalion.

Obviously, the tanks and tank crewmen are the critical items. If each infantry brigade in an infantry division were to convert one of its infantry battalions to an armored cavalry squadron, the division would require a total of 81 tanks and 324 crewmen. Since this conversion would, more than likely, be accomplished on a scheduled basis rather than on a crash basis, the armor personnel and equipment requirements could be phased into the divisions at the rate desired dependent on the availability of tanks and tankers.

Armor

The armored cavalry assault vehicle is an *M113* armored personnel carrier with protective gun shields for the caliber .50 and *M60* machineguns

It should be noted that the tank battalion which is normally organic to an infantry division could provide 54 of the 81 tanks required and all of the tank crewmen and tank mechanics needed for the conversion of three infantry battalions to armored cavalry squadrons. By this move, the division commander would not only improve

the firepower and mobility of his brigades, but enhance the over-all armor capability of his division since he could muster 81 rather than 54 tanks, not counting his organic armored cavalry squadron. He could do this without any over-all increase in division strength since the conversion of three infantry battalions to armored cavalry squadrons would cost a total of 600 men and the strength of the division's tank battalion is 599 men.

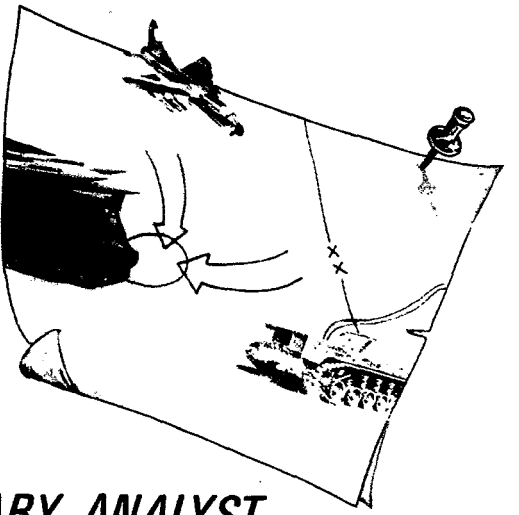
With the introduction in the 2d Field Force, Vietnam, zone of the additional armor units, the supply system started to procure and stock the requisite repair parts and float vehicles to support this increase. With the approval of a conversion to armored cavalry squadrons rather than to mechanized infantry battalions, the supply system could immediately initiate steps to raise the present stockage levels to the required levels. These levels would not increase much above present levels.

If, where possible, the division tank battalion were used to provide the bulk of the men and equipment for this conversion—mechanized infantry battalions to armored cavalry squadrons—there would be an increase of only 27 tanks in the division and no additional APC's would be required. The APC's in the tank battalion could fill the requirement. With adequate prior planning, the proposed conversion to armored cavalry squadrons should not prove unduly disruptive.

By converting infantry battalions to armored cavalry squadrons, we can obtain a considerable increase in combat effectiveness at relatively small cost.

COMMENTS INVITED

The Military Review welcomes your comments on any material published. An opposite viewpoint or a new line of thought will assist us and may lead to publication of your ideas. If you are an authority on a certain 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.



THE MILITARY ANALYST in Research War Gaming

Lieutenant Colonel Robert M. Walker, *United States Army, Retired*

War, like most things, is a science to be acquired and perfected by diligence, by perseverance, by time and by patience.

—Thomas Jefferson

WITHOUT denying that Jefferson's comment is probably just as correct today as it was in Revolutionary times, he properly might have added that success in war is completely dependent on the ability of trained and knowledgeable men to apply the principles of the war-science.

What is true of war is also true of research war gaming; the same background is required, and the same objective application is necessary because research war gaming is a directly paralleling art.

A research war game is a laboratory experiment in the military art of the future. Just as a medical laboratory develops and tests vaccines for the use

of doctors in protecting their patients against disease, so the research war game develops and tests concepts of tactics, organization, and materiel of the future for military professionals to use in accomplishing their national defense mission.

Any laboratory, of course, requires a place to work, tools, machines, and people. In the research war-game laboratory, these are represented by a secure and carefully designed wargaming facility, mathematical models, computers, and operations and military analysts.

Skilled Personnel

Of these, skilled people are the only true essential. Specially designed wargaming facilities are only a convenience, models are only mathematical representations of the real object, and computers are only machines that speed up calculations. But skilled and trained people, well versed in all phases of military tactics, materiel, organization, and administration, are the pivot on which the research war game turns.

Research war games can be as basic as checkers and as simple as childhood games. They can be as complicated as the mathematical proof of Albert Einstein's theory of relativity and as sophisticated as a million-dollar computer. They can be almost completely automated, or they can be hand operated. However, whether simple or complex, automated or hand operated —and despite the fact that skilled scientists, analysts, and mathematicians all make major contributions to the war game—in the end, the research war game, like its real-life counterpart, war, must be a reflection of the judgmental and experience-based decisions of a military decision maker.

Military Knowledge

In a recent research war game, of the 60 documents developed during a single assessment cycle, 38 percent were of the military directive type such as operations orders, movement plans, and artillery fire plans requiring the same detailed skills in purely military functions that an actual battle would have required. An additional 46 percent were war-game operating documents requiring both the application of military know-how and analytical techniques. Only 15 percent of the documents were computer-produced, while the remaining one percent accounted for the report of the assessment cycle. Thus, 85 percent of the documents produced and used during the assessment cycle required extensive and forward-looking military knowledge in those who produced them.

There is no single type of research war game that can be called completely representative of all research war games. In fact, even two successive war games of the same general type, using the same methodology and with the same teams of personnel involved, probably will be quite different. The exact manner in which a research war game is conducted will always depend

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Lieutenant Colonel Robert M. Walker, US Army, Retired, is an Operations Analyst with the Combat Operations Research Group, supporting the US Army Combat Developments Command, at Fort Belvoir, Virginia. He served in the Pacific during World War II. A 1952 graduate of the US Army Command and General Staff College, he was Features Editor of the MILITARY REVIEW *from 1956 to 1959. He subsequently served on the staff of the US Army Air Defense School, Fort Bliss, Texas.*

on the objectives of the war game. Since these usually differ, sometimes dramatically, each separate war game tends to be a "case" all of its own.

Types of War Games

Of the different types of research war games currently being conducted, some are designed for quick analysis of military operations on a national level, while others provide for lengthy and detailed assessment of squads or even individual soldiers in close combat. Some are fully automated, while others use a minimum of computer assistance and require extensive manual manipulations and calculations, but most research war games do have certain aspects in common. All research war games generally:

- Are conducted to satisfy finite research objectives.
- Involve mathematical representations or models of organizations and materiel in assessing the results of battle.
- While objective to varying degrees, produce guidance and indication of trends or insights rather than positive affirmation.
- Follow a common pattern of pregame preparation, conduct of the game, and analysis and reporting of results.
- Use military decision as an input, but do not produce military decision as a result.
- Produce results no more valid than the quality of input data on which the combat actions are assessed and the military decisions involved in the assessment.

One type of research war game which illustrates these points is *Syntac* (Synthetic Tactics), developed and operated by the Combat Operations Research Group under the sponsorship of the US Army Combat Developments Command. Its purpose is to analyze concepts of organization, tactics, and materiel for future field armies. *Syntac* is usually conducted as a closed war game—the player teams have only the amount of information and intelligence that a commander could usually expect to have in actual combat. The war game can accommodate units varying in size from individuals or squads to field armies, and requires considerable computer assistance.

'Syntac' Composition

The play of the *Syntac* war game is implemented by a blue team, representing friendly forces, a red team, representing the enemy, and a control group. These teams are physically separated although located close together for convenient exchange of information necessary to the conduct of the game.

In the control group will be found intelligence, air operations, artillery, close combat, movement, and logistics controllers, each with methods and procedures for controlling and assessing combat actions in his particular field of interest. Each of these controllers, in addition to applying the techniques of operations analysis in his work, must also be fully qualified to make the objective military tactical and analytical decisions on which the validity of the game will depend.

The player teams must be completely versed in the organization, tactical philosophy, and capabilities of the force they represent. The military decisions they will make on how their forces will conduct military operations and react to intelligence concerning the opposing force are a key contribution to the success of the game. Obviously, both players and controllers

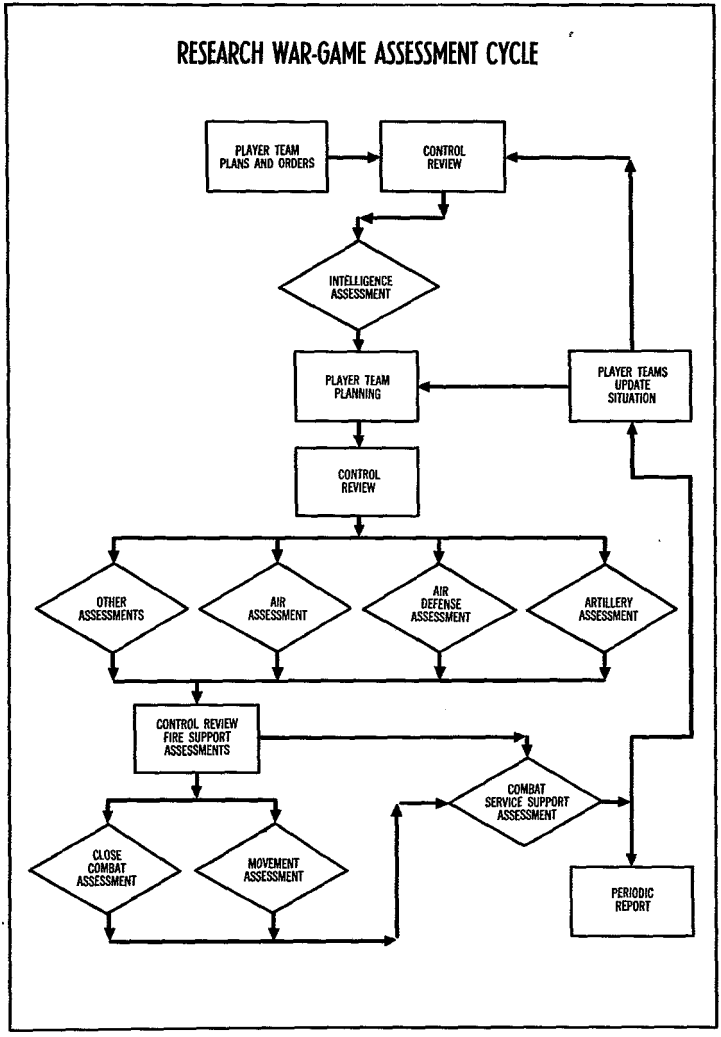

RESEARCH WAR-GAME ASSESSMENT CYCLE
PLAYER TEAM PLANS AND ORDERS
CONTROL REVIEW
INTELLIGENCE ASSESSMENT
PLAYER TEAM PLANNING
PLAYER TEAMS UPDATE SITUATION
CONTROL REVIEW
OTHER ASSESSMENTS
AIR ASSESSMENT
AIR DEFENSE ASSESSMENT
ARTILLERY ASSESSMENT
CONTROL REVIEW FIRE SUPPORT ASSESSMENTS
COMBAT SERVICE SUPPORT ASSESSMENT
CLOSE COMBAT ASSESSMENT
MOVEMENT ASSESSMENT
PERIODIC REPORT

Figure 1.

must have extensive military backgrounds.

The dynamic play of a *Syntac* war game is conducted in fixed-time combat periods, or assessment cycles. Thus, a fixed period of combat is conducted and results obtained and evaluated. Then, with the forces modified to reflect casualties and materiel losses assessed in the previous cycle, a new cycle is started. The more detailed the assessment required, the longer will be the real time involved as compared to the game time of the assessment cycle. In a recent *Syntac* war game conducted on a battalion level of assessment, approximately one week of real time was required to complete the dynamic play and assessment of each six-hour combat cycle.

Directive Starts Game

A *Syntac* war game is started by a directive establishing the objectives of the game, the level of units to be considered, special rules of play, and the general background or scenario for the game.

With the assistance of the player teams, the control team draws up detailed troop lists and provides the player teams with a special situation to get the game underway. The player teams deploy their forces according to applicable doctrine and send their deployment to control.

The intelligence controller provides the player teams with intelligence concerning enemy dispositions, movement, materiel, and capabilities. The player teams develop their battle plans, including operations orders and appropriate annexes, and develop a concept of how they are going to conduct the operation. To assure that they get the information on the enemy they desire, they also provide control with a set of essential elements of information (EEI).

Control evaluates these plans, surveying them with a particular eye on operational feasibility, military appropriateness, and logic. The first steps of the assessment cycle (Figure 1) have now been completed, and controllers prepare to assess the effects of the players' plans in terms of casualties, materiel destruction, and movement of the forward edge of the battle area (FEBA).

TANK DUEL INPUT INFORMATION

INPUT INFORMATION	RED	BLUE
TIME TO LOAD, AIM, AND FIRE ONE ROUND (SECONDS)	20	10
NUMBER OF ROUNDS AVAILABLE (BASIC LOAD)	10	15
RATE OF MOVEMENT (METERS PER SECOND)	5	5

Figure 2.

Much of the game progress to this point has involved military decision and knowledge of military administration. Virtually every action taken by players or control has required detailed knowledge of how to deploy and employ a military force, and how to prepare the paperwork that implements the deployment and combat play. Only the general objectives of the game have demonstrated an orientation toward research, and these have been expanded to form questions for which a war game can expect to pro-

vide reasonable scientific guidance to form a basis for action by military decision makers.

Air, artillery, and close combat controllers evaluate the player plans, determine the military effects of their planned operations, and provide these results to the computer which prints out a unit status report showing any

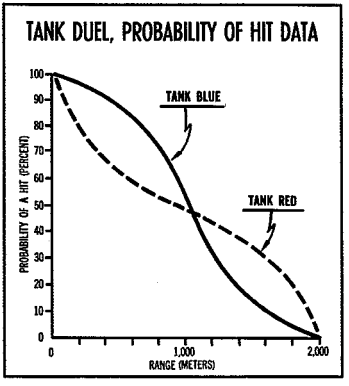


Figure 3.

reductions in personnel strength, materiel damaged or destroyed, and the combat effectiveness of the units. Upon receipt, the control group computes force ratios of the opposing battle elements and directs a movement of the FEBA. The trace of the new FEBA and disposition of units is forwarded to the players with appropriate intelligence so that they can develop new plans for the next cycle.

The work of the player teams in determining EEI, developing a concept of operations, planning fire support, and producing operations orders requires extensive military knowledge and familiarity with the basic skills of the combat commander.

In the control group, mathematical and analytic models are used by military analysts in evaluating player plans; a computer is used as assistance in assessing the results; and major decisions are made by the analysts, especially in the area of military feasibility and in assuring that both quantitative and qualitative military realism are reflected.

Models Employed

The models used have been developed by operations analysts and mathematicians, and are based partially on historical data of World War II, Korea, and Vietnam. They consider not only the firepower potential of the weapons, but also go into such details as whether the force is attacking or defending, type of position occupied, the protective posture of troops, ammunition supply, speed of movement, weather, terrain, and many other variables concerned with success or failure in battle.

In training war games, models can appear as miniature tanks and soldiers deployed on a sand table. In *Syntac*, however, operations research models are mathematical simulations of interactions in a military operation. Such an artillery model, for example, would consider at least the operational characteristics of the artillery pieces firing, the combat effectiveness of the artillery unit, ammunition availability, and intelligence concerning the location of the target. It would also consider the target vulnerability; whether the personnel were in foxholes, prone, or standing; whether the target was moving; and other varying conditions that might modify the effectiveness of the fire.

In considering models, it is important to remember that they:

- Only represent or simulate those characteristics of materiel or battle interaction that are needed to satisfy the objectives of the war game.
- Are designed by mathematicians and scientists, but usually involve judgmental application by military analysts.
- Are not designed to consider the intangibles of battle such as morale, *esprit*, or leadership. No across-the-board method of simulating these battlefield intangibles has yet been evolved.

A description of a mathematical model concerned with a gun duel between two tanks, Red and Blue, shows how these models operate and where military analysts must make decisions in their application.

For any war-gaming mathematical model, input data concerned with rates of fire, ammunition availability, and rates of movement are needed. These "rules of play" are shown in Figure 2.

The expected effects of their fire in terms of kill probability and range are shown in Figure 3. Tank Red has a distinct edge in kill probability at the longer ranges, while tank Blue has the advantage at the shorter ranges of fire. To compensate for Red's increased early kill chances, Blue has a higher rate of fire available to him. In this model, it is assumed, for the sake of simplicity, that any hit means a kill and terminates the duel.

There are eight decision points in this model (Figure 4). Players representing tanks Blue and Red must make decisions at the appropriate times as to whether their tanks fire; all other decisions are made by control, referring to stored data, game rules, or stochastic processes.

In *Syntac*, stochastic decisions are actually made through the computer, although they can be manually accomplished if necessary. If the odds are 80 percent, for example, that Blue gets a hit on Red, the controller might take a bag of 100 marbles, with the marbles numbered from one to 100. He assigns a "no" answer to marbles one through 20 and draws a marble from the bag. If the number on the marble is 20 or less, Blue scores a miss. If the number is 21 to 100, Blue gets a hit.

Analysis of Results

When all the planned cycles of a *Syntac* war game have been completed, the military analysts of the player teams and control group turn to analysis of the results obtained in the game. Not only do they critically inspect the game results in terms of military experience and judgment, they also perform a detailed analysis of the entire spectrum of game play to evaluate its realism as a basis for military decision.

In this activity, their experience and military know-how along with an intimate knowledge of research practices and methods are of supreme importance. They look at tactics, logistics, fire support, movement, and communications. Do they reflect the latest in Army teaching and thinking? Do they follow appropriate doctrine? Do they express logical military operational methods as demonstrated in valid military decision and judgment? How could the game have been modified to answer better the questions raised by the game objectives?

Each military analyst evaluates not only what he has done, but also what every other player and controller has accomplished during the play of the

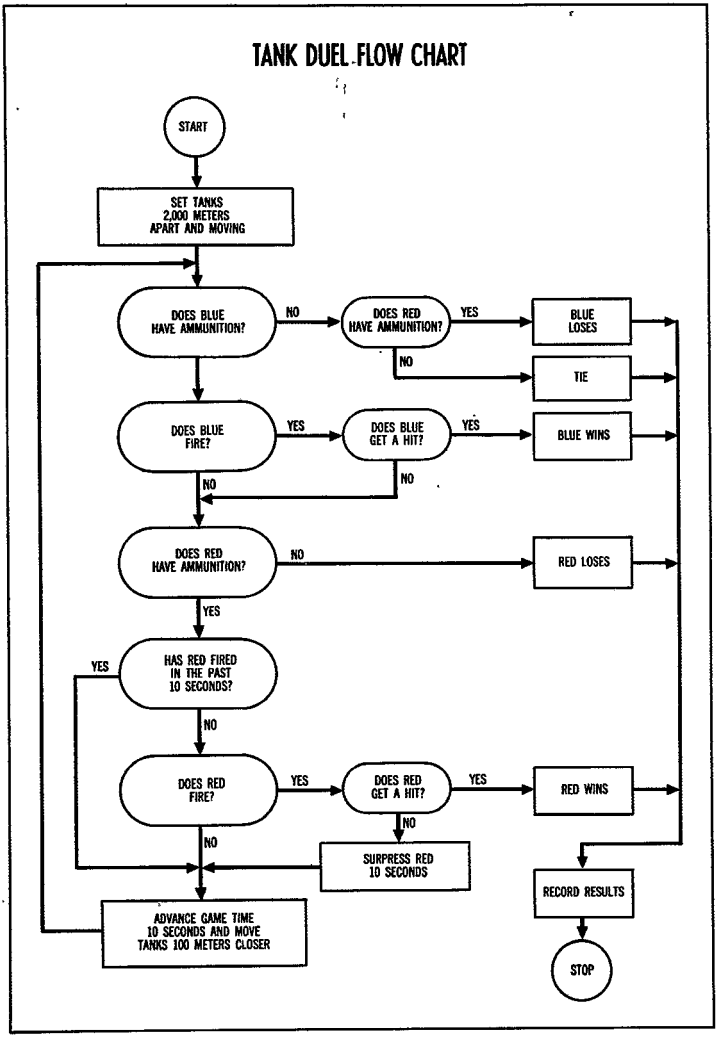

TANK DUEL FLOW CHART
START
SET TANKS 2,000 METERS APART AND MOVING
DOES BLUE HAVE AMMUNITION?
NO
DOES RED HAVE AMMUNITION?
YES
BLUE LOSES
NO
TIE
DOES BLUE FIRE?
YES
DOES BLUE GET A HIT?
YES
BLUE WINS
NO
NO
DOES RED HAVE AMMUNITION?
NO
RED LOSES
YES
HAS RED FIRED IN THE PAST 10 SECONDS?
YES
NO
DOES RED FIRE?
YES
DOES RED GET A HIT?
YES
RED WINS
NO
NO
SURPRESS RED 10 SECONDS
RECORD RESULTS
ADVANCE GAME TIME 10 SECONDS AND MOVE TANKS 100 METERS CLOSER
STOP

Figure 4.

game. This critical cross-analysis not only bares all errors in military judgment and decision, it also establishes a broad concensus to assure that the final report of the war game reflects a maximum of validity and a minimum of ambiguity in recommendations made.

When all this has been accomplished, the senior operations analyst collects, consolidates, and evaluates the military analysts' results, insights, and recommendations. The game and its analysis are now complete and ready for assembly into the war-game final report.

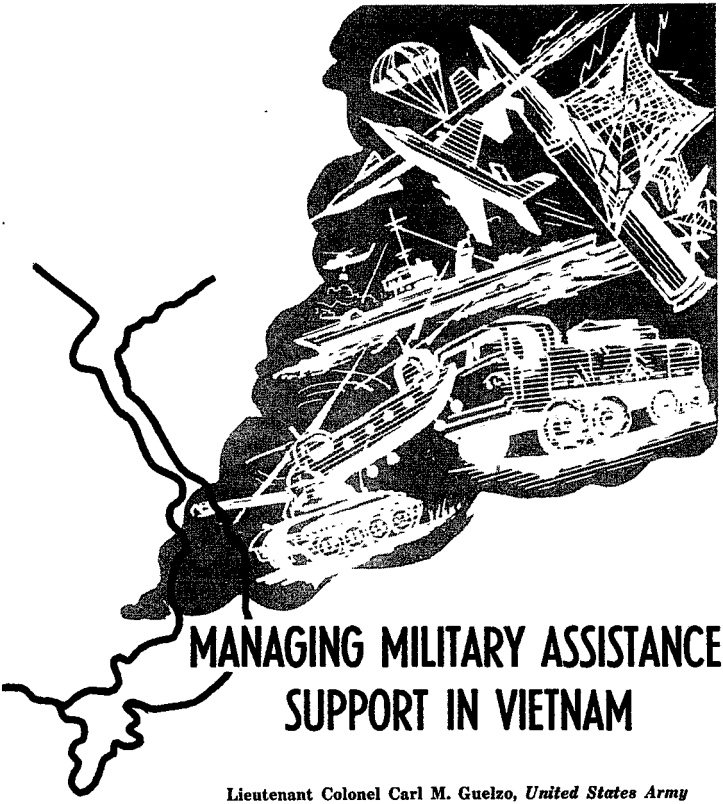
The validity of research war-game reports is a direct reflection of the validity of the military tactics, concepts, and general military knowledge of the people who conduct the war game. The higher their qualifications, the greater validity of results that can be expected.

This is demonstrated in considering the background and qualifications of the people selected to conduct the military war game. In a typical *Syntac* war game, for example, the control group would comprise seven players. Thus, there are 14 military analysts plus a game director involved directly. In a recent *Syntac* game with this setup, of the 15 people participating, 14 were exprofessional officers.

It should not be thought, however, that only former officers and civilians participate in research war games. In at least one such research game currently functioning, every one of the active participants is an individual on active duty. In such a war game, the active duty officer not only has a personal interest in assuring the validity of game results, he also adds to his professional qualifications by gaining firsthand knowledge of both the processes and effectiveness of research war gaming.

In the end, the research war game can produce no military decision. This is, and must be reserved to, the province of the men who will put their military judgment to use on the battlefield, not in the comfortable security of the gaming facility. Yet research war games have proved themselves again and again in providing research results, insights, and recommendations on which valid military decisions concerning future concepts, organizations, tactics, and materiel can be confidently based.

The research war game, as an operations analysis tool, is of comparatively recent development. With a growing availability of digital computers to speed computations and an accelerated understanding of the use of mathematical models for assessing simulated combat results, research war gaming has become a major and increasingly important element of military research and development. However, the research war game, like war itself, can never be a function of machines or mathematics. In the end, the knowledge and judgment of military-experienced analysts must be the central feature that assures maximum validity of the results of the research war game.



MANAGING MILITARY ASSISTANCE SUPPORT IN VIETNAM

Lieutenant Colonel Carl M. Guelzo, *United States Army*

MILITARY assistance furnished Vietnam is termed grant aid because the materiel is supplied without cost to the recipient, but here, similarity with most other grant aid recipient nations ends. Vietnam was the first nation to which was applied a variation on the Military Assistance Program (MAP) theme known as a Military Assistance Service-Funded Program (MASFP).

Why the change from MAP to MASFP?

The cost of the war in Vietnam is high, and a sub-

stantial portion of these costs results from the military assistance provided the government of South Vietnam. Continuing to include these costs in the MAP which is funded at the Department of Defense level would distort the cost picture when these costs could more accurately be attributed to the several military departments. Replacement of the MAP in March 1966 with the MASFP serves to identify these department-peculiar costs more clearly by having each military service budget for its respective share of the Vietnam military assistance effort.

Unique Logistic System

The logistic system of the Army Republic of Vietnam (ARVN) is unique for its nostalgia. For the logisticians of longer service, a look at the ARVN is a look at the logistic system of the US Army of a decade past. The technical services are there: ordnance, engineers, quartermaster, signal, and medical, all with their neatly defined supply responsibilities. Only the ARVN transportation corps lacks a supply responsibility, but amply justifies its representation in the system with an extensive movements function. Chemical is absent in name, but ordnance performs its supply function.

Although the ARVN organization for logistics may be familiar, the management aspects are not. The management of logistic support under the MASFP differs so vastly from the prevailing US system that misconceptions are easy to form. A number of people —including otherwise knowledgeable logisticians—have a distorted view of military assistance programing. Some think programing is synonymous with requisitioning, and others think it means delivery. Neither idea is correct, for programing is simply a means of registering requirements for money and equipment—the first step in a long logistic process.

Active Program

The exigencies of combat make the Vietnam logistic program a highly active one. For example, during calendar year 1968, execution of the Fiscal Year (FY) 1968 program was completed, the execution of the FY 1969 program was begun, planning for the FY 1970 program entered its final stages, programs for FY 1971-73 were treated to a general update, and a new program for FY 1974 was added.

The progress of the war is reflected in the changes which flow through the program as requirements are revised and personnel strengths altered to meet existing and expected conditions. The FY 1967 program was changed 143 times during the execution phase.

The FY 1968 program had 83 recorded changes in the first half of the fiscal year. Five major changes were made in the FY 1969 program three

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Lieutenant Colonel Carl M. Guelzo is with the Office, Deputy Chief of Staff for Logistics, Washington, D. C. He holds a Master's degree from the University of Tennessee at Knoxville, and is a graduate of the US Army Language School and the 1962 Regular Course of the US Army Command and General Staff College. His assignments include duty with the 3d Infantry Division during the Korean War; with the Armistice Affairs Division, United Nations Command, Korea, and Headquarters, US Army Advisory Group, Korea; with the Transportation School, Fort Eustis, Virginia; and with Headquarters, Military Assistance Command, Vietnam. He is the author of "The Higher Level Staff Advisor" which appeared in the February 1967 issue of the MILITARY REVIEW.

months before the start of the execution phase.

For purposes of management control, all equipment and supplies furnished under the MASFP are grouped into two general categories: dollar lines and major items. Small, low-dollar value, high-volume items, including spare parts and consumables, are consolidated and programed as bulk quantities of dollars rather than by individual item. Various sizes of nails, for example, are placed in a larger grouping entitled "construction supplies" and programed as so many thousands of dollars rather than so many hundredweight of specific types of nails.

Receipt of Requirements

The flow of requisitions and supplies begins when requirements are received by the ARVN technical services and computed in final form in cooperation with their counterpart US advisors. These requirements flow from the technical services into the Office of the Assistant Chief of Staff for Military Assistance at Headquarters, US Military Assistance Command, Vietnam (USMACV), where they are processed and transmitted to Headquarters, US Army, Pacific (USARPAC). Here, the service aspect of the MASFP becomes apparent.

Headquarters, USMACV, is in the Commander in Chief, Pacific (CINCPAC)-Joint Chiefs of Staff chain of command, but USARPAC has been designated by CINCPAC as its agent for the management of the Army portion of the MASFP. Approved annual programs and the stream of program changes thus flow along an Army channel from USARPAC to responsible logistic management agencies in the United States. Funds flow back down the same channel for requirements which have been approved.

Once again, in conjunction with the US advisors, the ARVN technical services submit requisitions against the approved dollar amounts, but here the channel is split in three directions: items peculiar to the military assistance supply system are generally received from the US Army Depot Command, Japan; medical items are stocked in Okinawa at the US Army Medical Depot, Ryukyu; but most of the requisitions are funneled into the International Logistics Center (ILC) of the US Army Materiel Command which, in turn, parcels out these requirements to the appropriate continental United States (CONUS) supply agency.

Distinct Advantages

This procedure may seem unduly complex, but it has three distinct advantages:

- A clear audit trail is maintained to permit detailed management control over these expenditures of large sums of public money each year.
- The logistic system of the ARVN is permitted to function as an independent system and not merely as an adjunct to the US logistic system in Vietnam. This procedure discourages any attempt to superimpose the US supply system on the ARVN system.
- The principal framework of the old MAP logistic system is preserved against the day when a return to peacetime military assistance procedures will be possible.

In contrast, management of the major items portion of the MASFP is much simpler. Major end items, mostly those in the procurement of equipment and missiles, Army, appropriation category, are programed both as dollar

requirements and item quantities. Requirements originating in tables of organization and equipment (TOE's), tables of allowances, tables of distribution, or other authorization documents are computed by the ARVN technical services in cooperation with their US counterpart advisors and flow up the programing channel.

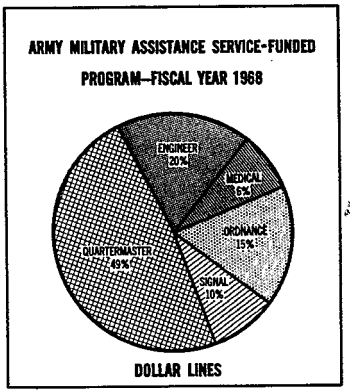


Figure 1.

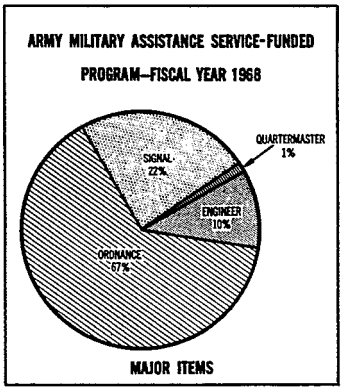


Figure 2.

No requisitioning action is necessary here, for ILC performs that service on behalf of Vietnam. When requirements are approved and funded, the items are shipped directly to Vietnam. Major items have thus often been called "push" items since they are "pushed" to Vietnam on the basis of requisitioning action taken by ILC. In contrast, the components of dollar lines are termed "pull" items because they must be "pulled" into Vietnam by specific requisitioning action of the ARVN technical services.

The dollar lines portion of the MASFP, as might be expected, absorbs most of the funds budgeted each year and generally averages around 90 percent of the total. Figure 1 shows the distribution among the five technical services which have supply responsibilities. Quartermaster items, including petroleum products, dominate the dollar line program. The other technical services usually experience fairly stable shares of the dollar lines from year to year.

Technical service shares of the major items portion of the program, however, are much different as shown in Figure 2. Although major items absorb only about 10 percent of the dollar value of each annual MASFP, ordnance, with high-value weapons and vehicles, accounts for two-thirds of the total. Signal, with expensive communications equipment, and engineers, with their heavy construction items, account for almost the entire remainder of each year's program. The quartermaster share is quite small, and medical simplifies its logistic support problems by concentrating equipment requirements in the dollar lines area.

In general, the logistics system

works quite well. Supply agencies in the United States have given prompt attention to Vietnam requirements, and the response, considering supply, transportation, and production problems, has been excellent. The lag time between programing and delivery may run from a few weeks, for items either now on the depot shelves or coming off production lines, to two years. The longer lag time is the more prevalent. However, this type of response is satisfactory even at the extreme end of the time range.

The process of programing, securing approval of funds, and requisitioning can all be done in a matter of a few days despite the apparent complexity of the procedures. Unfortunately, the moment changes occur in the number of authorized personnel spaces and units, reverberations are heard in the logistics offices.

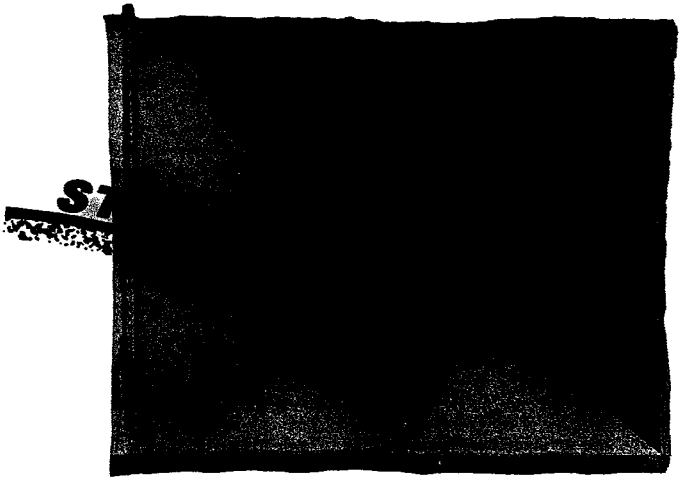
The ARVN may be in the process of filling up quite satisfactorily with authorized quantities of equipment, but when more people are added to existing units or more units are added to the force structure, the supply system registers a shortage. When the depot shelves in the ARVN and CONUS are bare, the amount of time required to let contracts, establish production lines, bore gun tubes, or bolt together vehicles dwarfs the few days needed to program through MASFP channels.

Every change in force structure thus opens a time gap separating the approval of personnel authorizations and the buildup of on-hand stocks to the newly authorized levels. The ARVN is not authorized to maintain depot stocks, and the extra five percent above TOE quantities permitted for maintenance float leaves a thin margin with which to absorb the increased requirements of force structure changes.

Existing laws and regulations limit programing against anticipated changes, thereby preventing any attempt to get a little ahead. The MASFP logisticians are thus always trying to catch up. The time lag between programing and receipt is long enough, and the intervals between force structure increases short enough to prevent on-hand quantities of equipment from ever reaching full authorizations.

Materiel, however, is only part of the story. Logistics consists of much more than simply providing a source of supply, for personnel augmentations have implications far beyond the mere provision of items. When personnel rolls are expanded, housing must be found, and if shelter is not immediately available, cantonments must be built. Weapons, ammunition, radios, and vehicles must be programed along with adequate quantities of construction materials. Medical facilities must be expanded, and additional training areas provided. These ancillary projects and the maintenance facilities, recreational areas, and other aspects of logistic support are equally subject to time lags.

The MASFP system is unique, but by being different, it is not necessarily less efficient or responsive than US procedures. The CONUS sources of supply have performed admirably in supporting the system. The logistic support of the ARVN, as for any military force in active combat, is a function of time—a constant process of trying to get ahead, but with a feeling of accomplishment if one can approach staying even.



THE JOINT CHIEFS OF STAFF

Major John F. McMahon, Jr., *United States Air Force*

This country is not getting the kind of top-level military advice it must have and could have. The talent is available but the organization and functioning of the Joint Chiefs of Staff is faulty. The result is deficient strategic appraisals, divided or compromised views, and even complete absence of important studies. Reflecting the seriousness of this situation, the President and the Secretary of Defense are turning increasingly to individuals and agencies other than the JCS for military advice.

* * * * *

The most obvious reason that the Joint Chiefs of Staff cannot fulfill their vital obligations to the country lies in the fact that all members . . . simply cannot do two full-time jobs concurrently.*

* Thomas D. White, "The Impossible Role of the Joint Chiefs," *Newsweek*, 11 June 1962, Volume 59, Number 24, p 28.

THIS statement by former Air Force Chief of Staff General Thomas D. White delineates one of the most frustrating and distressing situations still in existence in the Department of Defense. The present organization and functioning of the Joint Chiefs of Staff are conducive neither to a totally effective and efficient formulation of national military strategy nor to the solution of related military problems.

Military Views Absent

Many decisions concerning numerous military problems have been compromised or rejected on a *quid pro quo* basis due to overriding service interests. The absence of a coherent national military viewpoint in these important studies has caused the President and the Secretary of Defense to turn to sources other than the Joint Chiefs of Staff (JCS) for military advice. As a consequence, there are many brilliant temporary functionaries with limited experience operating in these Government agencies which, in offering the advice sought, tend to downgrade military influence in the detailed direction of military operations.

Major John F. McMahon, Jr., is assigned to the Deputy Directorate for Plans and Policy, Headquarters, US Air Force. He has served as a jet instructor pilot at Greenville Air Force Base, Mississippi, and at Craig Air Force Base, Alabama. He was on the faculty of the US Air Force Academy from 1961 to 1963, and served in Vietnam with the 390th Tactical Fighter Squadron. Major McMahon received his M.A. in Political Science from the University of North Carolina, Chapel Hill, and is a 1967 graduate of the US Army Command and General Staff College.

There appears to be a trend which, if not reversed, may totally eclipse the expertise of the military professional and create in its stead an "expertise" born not of years of practical experience and training, but of the expedient formulations of inexperienced nonmilitary professionals.

Authorization Report

The House Armed Services Committee, in its authorization report for Fiscal Year 1969, notes that:

. . . *too much emphasis has been placed upon the recommendations of persons who lack actual military experience and a frame of reference which can best be gained by long immersion in military matters over a period of years. Not enough emphasis, it is felt, is placed upon the recommendations of those who have attained their knowledge through years of doing and being exposed to the actual threat of extinction by a determined enemy. . .*

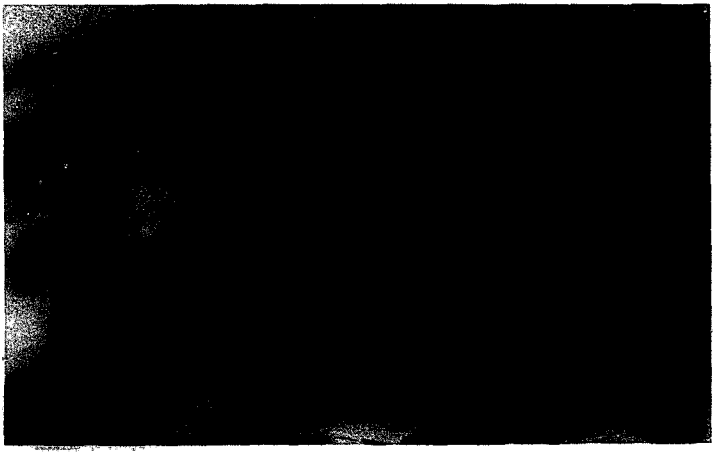
Thus, the formulation of military strategy must be entrusted to men who have spent a lifetime studying the art. As important as the analytic process is, our strategy makers, nevertheless, must initiate their actions from a broad-based knowledge of the art and, then, proceed through an empiric-analytic process to formulate a viable military strategy.

The time has come to focus attention on streamlining the organization and functions of the Joint Chiefs of Staff. With no lessening of their duties as heads of their services, the military chiefs, in recent years, have had to assume greatly increased responsibilities in their capacity as members of the JCS. They now direct, through the combatant commands, US military operations world-

wide. Along with this, the Joint Chiefs are responsible for strategic planning in which they prepare strategic plans and provide strategic direction of the Armed Forces. These objectives and capabilities plans must be constantly revised and updated in order to be prepared for military operations in a myriad of differing situations.

As principal military advisors to the President, the National Security Council, and the Secretary of Defense, they are increasingly being drawn into many of the major military alliance problems which, in turn, constitute more time and effort on behalf of the JCS. There is little doubt that arms control and disarmament matters—including space treaties, nuclear test bans, and nonproliferation—will require more and more time and effort on the part of the JCS and the Joint Staff.

The global commitments which have grown out of our position of world leadership since World War II and the great strides made in communications and weapons delivery techniques make it imperative that our defense system be highly responsive to all situations. It is significant, too, that the role of the Joint Chiefs of Staff has changed appreciably since World War II. No longer is their influence greatest as chiefs of their respective services. Rather, as members of the JCS in the command channel from the President to the unified and specified commands, their greatest influence is in the strategic disposition and employment of our combined forces deployed throughout the world.



Absence of a coherent national military viewpoint has caused the President and Secretary of Defense to turn to other sources for advice

The occurrence of nonmilitary personnel rendering military advice is a result of the military men dividing their responsibilities in the JCS. They must devote their time and energy simultaneously to two full-time jobs.

It is inevitable, therefore, that at times service-oriented views are championed, thereby needlessly fragmenting military thinking.

A chief does not always vote in the JCS as his service desires. However, it would be too much to expect the head of a service, as a rule, not to be loyal to the concepts and doctrines espoused by his service. Thus, too often in critical situations, the President and his policy advisors are confronted with a military position reflecting individual service views rather than differing military judgments.

In examining the organization and functions of the Joint Chiefs of Staff and in seeking means to improve their effectiveness as national military advisors, planners, and strategists, a reorganization of the Department of Defense should not be necessary. Rather, streamlining the present JCS system should be adequate.

Evolution of JCS

The JCS system is a product of World War II. The Joint Chiefs of Staff originated as a nonstatutory body in December 1941 when it became necessary to provide US counterparts to sit in conference with the British Chiefs of Staff Committee. Initially, the JCS consisted of the Chiefs of the Army, Navy, and Army Air Corps. In July 1942, Admiral William D. Leahy was added to the JCS as the Chief of Staff to the President. This basic organization remained in effect without benefit of legal status until the passage of the National Security Act of 1947.

One of the major organizational problems during World War II was the extremely heavy burden on each Joint Chief. This was due to his remaining as head of his service in addition to his duties on the JCS. Our success in World War II was due mainly to the quantity and quality of men and materials, our industrial capacity, and the existence of ample time for debating, compromising, and decision making. In a closer contest or in a more sophisticated weapons environment, the lack of efficiency and proper functioning of the JCS system could have been disastrous.

Role Established

The National Security Act of 1947 statutorily established the role of the Joint Chiefs as the principal advisors to the President and the Secretary of Defense. It provided the Joint Chiefs with a Joint Staff which was limited to 100 officers. The chiefs were given the responsibility for establishing unified commands in strategic areas. They were to provide for the strategic direction of the Armed Forces, including the direction of operations conducted by commanders of unified and specified commands. However, the roles and missions problem within the separate services was left largely unsolved.

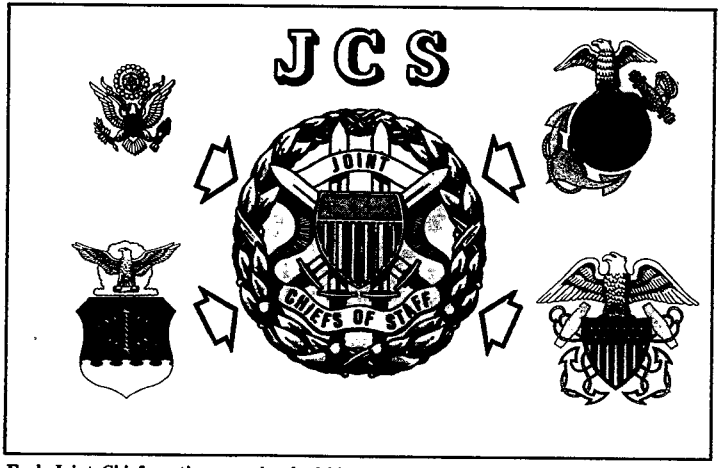
The Key West agreements of 1948 attempted to define the roles and missions problem. The Joint Chiefs were tasked with the "general direction of all combat operations" and with designating "one of their members as their executive agent" for unified commands and certain other operations. These agreements failed to resolve the problems of roles and missions. Therefore, further amendments to the act of 1947 were deemed essential.

In August 1949, the position of a "nonvoting" Chairman of the Joint Chiefs was created. This was obviously an attempt at creating unity among the Joint Chiefs. The impor-

tance of the JCS as a vehicle in the reconciliation of divergent service positions and in reaching agreed solutions to some of the most pressing military problems was now recognized. To assist the JCS in their burgeoning role, Congress increased the size of the Joint Staff to 210 officers.

Studies preliminary to the reorganization in 1953 recognized the difficulties caused by the double role of the service chiefs. Instead of resolving the basic problem and reorganizing the JCS along functional lines, the 1953 act remained preoccupied with unification. In this instance, emphasis was placed upon improving the JCS so that the chiefs might better perform their roles as military advisors and strategic planners.

As Joint Chiefs, they would no longer serve as executive agents for the unified commands. The Secretary of Defense, on the advice of the JCS, now designated a military department to serve as the executive agency. As service chiefs of the designated departments, they were instructed to provide for the strategic direction and operational control of the forces and for the conduct of combat operations. The divorcing of the chiefs from their traditional operational role was not only a result of the quest for centralization of civilian control, but more to remove them from a task where disunity spelled doom in an era of thermonuclear weapons.



Each Joint Chief continues as head of his own service, thus having two full-time jobs

The Reorganization Act of 1958 marked the last statutory change to the Joint Chiefs of Staff organization. The act continued the trend toward unification. However, it was concerned more with the problem of allocating functions among the subordinate units of the Department of Defense. The JCS received a prominent position in the strategic direction of the Armed

Forces. The Joint Chiefs now had the responsibility to determine the relationship between strategy, support, and force requirements.

JCS duties were to be the primary responsibility of the service chiefs. The law provided that the latter individually direct their Vice Chiefs to perform such duties and exercise such powers as the chief deemed necessary. This provision was in lieu of separating the Joint Chiefs from their services. It was a calculated attempt to make the Joint Chiefs realize that their primary concern should be JCS duties and not their service affairs.

Size Is Changed

The 1958 statutes increased the size of the Joint Staff to 400 officers. No longer were the military departments the executive agencies for the unified commands. The role of the separate services was reduced to that of organizing, training, and equipping the forces to be employed by the unified commands. Strategic and tactical planning was to be completely unified. All combat forces were to be in unified commands which were to be singly led and prepared to fight as one, regardless of service. It was obvious that the separate services were divorced totally from the operational chain of command—except for one link—the service chief.

In all of the organizational efforts described, one key aspect remained unfulfilled. Although well organized and with the emphasis on unity, the Joint Chiefs of Staff still lacked proper functionalization. The chiefs remained legally and practically committed to the operational chain of command, as well as to the administrative chain of command. The undesirability of the "two-hat" concept had been recognized in 1953 and in 1958, yet only feeble attempts were made to rectify the situation.

As a result of the expansion of the unified command concept and the relegation of the separate services to "supporting agencies," the authority of the individual service chief was supplanted by the corporate authority of the JCS. The administrative fusion of the services was not accompanied by a fusion of their loyalties which, in almost every case, remained attached to the individual services.

Proprietary Issues

The 1958 changes to the JCS pointed to a hoped-for reduction in service-vested interests as the importance of the unified and specified commands became overriding in all defense matters. However, although strategic issues generally have not clouded JCS performance in recent years, proprietary issues still exist. Fundamental issues of strategy and service existence have reached a point of consensus gratifying to those who have championed the JCS system. Nevertheless, a great deal of staff work and command effort is being assigned to issues which deal with marginal gains and losses of resources, forces, and weapons.

It is, perhaps, expecting too much of any individual to assume that, by putting on a different hat, he can change his basic outlook while occupying the office of the Chief of Staff of his parent service. The compulsion to represent his own service and, if possible, to see that a particular service point of view prevails would not rest as heavily on an individual serving solely as a Joint Chief as it now does on the service chief in a dual role. Intangible though they may be, pride

of service, tradition, and *esprit de corps* are significant factors in maintaining the presence and elan of the services concerned.

On many major issues, backgrounds of varying experience lead to different judgments and conclusions as to the best course of action. The Joint Chiefs of Staff are encouraged to express themselves openly and free of the restraints of their service connections in the interest of the soundest possible defense program. The rationale for decision in the Pentagon rests with the fact that the defense program must be examined in its entirety with each of the elements being considered with respect to the total program.

Single Objective

Competing service programs and systems are now judged on the basis of their contribution to the defense effort as a whole. Balance within each program and within the entire effort is sought always with a single overriding objective—the defense of the Nation. Members of the Joint Chiefs of Staff have to be national military planners and strategists first and last.

There is little doubt that, as long as the separate services exist, their interests will remain in competition with each other. This, in itself, is healthy for it provides alternative views and positions. However, fragmented service thinking cannot be permitted at the expense of a well-structured national military judgment. There is no need for watered down or compromised problem solutions. What is needed is a synthesis of the best military thinking in our Nation.

Along with the problem of divided loyalties, there is the ever-increasing workload of the Nation's five top military leaders. During 1967, the JCS personally rendered 1,070 out of a total of 2,690 decisions which amounted to about 20 per week, or more than six per meeting. Additionally, the organization of the Joint Chiefs of Staff processed 10,936 papers and more than 738,700 messages during the 12-month period. The 1967 workload is indicative of the burden that has increased steadily for the past 10 years.

For example, in 1958, the Joint Chiefs made 887 decisions and processed 4,785 papers and 189,267 messages. This increase is attributed entirely to the greater requirements placed on the JCS by higher authority. There has been considerable expression for doubling the staff to 800 people.

Complex Problems

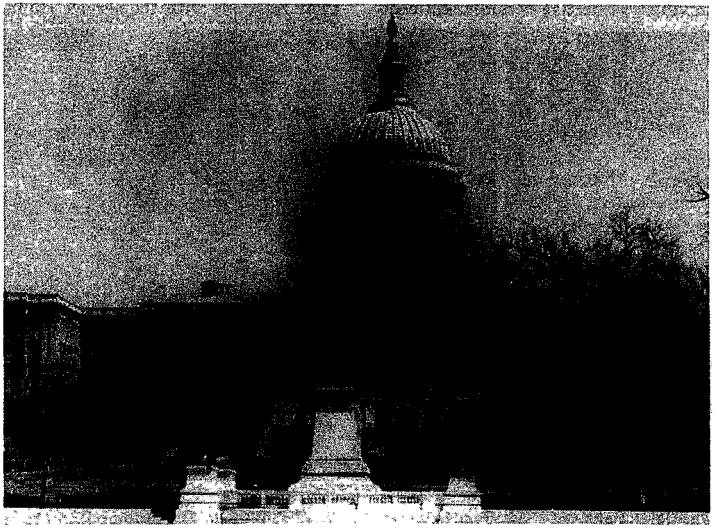
It seems reasonable to assume that the military problems of the seventies and beyond will become more complex and demanding of our military knowledge. The roles of the JCS are expanding beyond the present major roles of strategic planning and the directing and supervising of all military operations carried out by the principal combatant commands.

The annual JCS development and revision of the Joint Long Range Strategic Study, the Joint Strategic Objectives Plan, and the Joint Strategic Capabilities Plan require full-time effort and consideration on the part of the Joint Chiefs and the Joint Staff if a viable national military posture is to be maintained. Judgments brought to bear on the national military plans and the subsequent operational commitments of the combatant commands must be unbiased and nationally oriented if military men are to retain their rightful role in the national defense program.

Looking to the future, one can see the workload of the JCS becoming increasingly demanding of time and effort. The Joint Staff will, of necessity, become the principal staff advisors to the Joint Chiefs since all military operations will be conducted pursuant to plans developed by the JCS. The service staffs will focus their efforts on administrative and support functions. Unified and specified commanders will look to the JCS for instantaneous, timely, and effective direction and advice. There will be no time for extraneous debate or justification seeking. In effect, the proper functioning of the JCS in the next decade will be a *sine qua non* to the effective operation of the defense system.

The process for unification of the Defense Establishment has reached its practical limits. The time is at hand for more substantive changes along functional lines. Strong leadership, as well as the increased emphasis on progressive management techniques in the Department of Defense, have eliminated the need for further unification to achieve a more responsive Military Establishment. However, a clearly defined military policy is still lacking and there is little evidence that it will be achieved through the defense hierarchy.

It is the responsibility of our military professionals to bring to bear their military expertise and to offer to the President a coherent national military policy that is worthy of the faith the Nation places in them. This



US Army

Congress has sought to change the dual-role concept, recognizing the heavy burdens imposed by the present system

can be done only through a system that is functionally conditioned. Therefore, it is most essential to orient the JCS properly by streamlining their organization.

Rather than operate under the present system, it would be desirable to relieve the chiefs of their responsibility for their respective services. All command relationships with the parent service would be severed, and the Joint Chiefs would be concerned solely with national military matters. The chiefs would be representative of the broadest knowledge and expertise available from the Army, Navy, Air Force, and Marine Corps. The release of the chiefs from service-oriented demands and command responsibilities would enhance their ability to function as national military representatives with one total concern—national military policy.

With the divorcing of the chiefs from their parent services, it will be axiomatic that the Joint Chiefs look to the Joint Staff as their principal staff. Joint Staff officers will be given increased stature and authority in their relations with the service staffs. The Joint Staff will have to be increased, and extensive use made of the current service staffs.

Associated Press

The Joint Chiefs of Staff from left to right, General William C. Westmoreland, Army Chief of Staff; General John P. McConnell, Air Force Chief of Staff; General Earle G. Wheeler, Chairman; Admiral Thomas H. Moorer, Chief of Naval Operations; and General Leonard F. Chapman, Commandant of the Marine Corps

Staff papers will be developed within the Joint Staff, and a Joint Staff officer heading a joint team of action officers will have sole responsibility for finalizing the paper. The finalized paper will have received service "coordination" or "statements of nonconcurrence" before being presented to the JCS for decision. In this fashion, in-

dividual service views will be solicited, but they will be incorporated into a composite national military view as represented by the Joint Staff. However, final decision will rest always with the JCS.

Coordination Encouraged

The service staffs will continue to be encouraged to coordinate closely with the Joint Staff thereby assuring that each service will have an opportunity to express its views before the Joint Staff papers are finalized. The senior service representatives will function as advisors to the Joint Chiefs and will keep that body abreast of developments within their respective services.

Within this streamlined organization, the responsibilities of the separate services would remain as charged by the Reorganization Act of 1958. The Joint Chiefs of Staff would continue to be the national military advisors, planners, and strategists. The Joint Staff would have its roles and responsibilities clearly spelled out while the service staffs would continue to develop the inputs essential to any well-balanced national military program. The separate service heads would command their organizations and provide the Joint Chiefs with the combat-ready forces needed to support our military objectives. In essence, the only real change would be the streamlining of the functions of the JCS organization.

It would be presumptuous to discuss these proposed changes in the JCS system without examining them in the light of congressional sentiments. Throughout all of the reorganization deliberations, Congress utilized several parameters to guide it in its decisions. In general, all changes had to be:

- Designed to facilitate solutions to problems that beset the Department of Defense.
- In accordance with the basic principles of the US Government and our long-held theory of civil-military relations.
- Responsive to the traditions of the Armed Forces and the attitudes of the personnel therein.
- Reflective of the present situation in the Department of Defense, and the causes therefor.
- Evolutionary rather than revolutionary in order to make the changes more acceptable.

Implications

The proposal to separate the Joint Chiefs from their parent services is bound to have certain implications, whether real or imagined. First, there is the idea that so doing is nothing but a scheme to deprive the JCS of their responsibility as heads of their services. Another popular idea expresses concern that divorcing the chiefs from their services will keep them out of touch with the problems of their particular element. A third implication is that of concentrating too much power in the Joint Chiefs as a national body. A fourth implication, and clearly not the last, is that the Joint Staff, given the mandate proposed in this discussion, would be the forerunner to the ever-present shibboleth of the "Prussian General Staff."

What, then, is the probability of Congress accepting these proposals? Through the use of the listed parameters, one can arrive at a fairly accurate conclusion as to the probability of acceptance. The basic structure and concepts presently being utilized by the JCS would be retained. The selec-

tion of senior service officers with sole responsibility to their JCS duties would satisfy all of the parameters by:

- More clearly defining the functions and responsibilities of the Joint Chiefs.
- Aiding in more rapid decision making.
- Fostering the return of unity of command.
- Permitting the chiefs to become more effective advisors thereby gaining a rightful position in the highest councils of our Government.
- Being evolutionary rather than revolutionary in concept.

The fact that the separate services will still have a voice in military planning and that the Joint Staff will function more efficiently and effectively within the basic structure are indicative of the evolutionary character of this proposal.

If the Joint Chiefs of Staff are to be able to provide effectively for the strategic direction of the Armed Forces, including the direction of operations conducted by commanders of unified and specified commands, then greater functionalization and better clarified lines of authority and responsibility inherently satisfy the first and fourth parameters among others.

The scope, complexity, and importance of the Defense Establishment demand the most efficient and effective organization that can be devised. This organization must be functional, and it must meet the needs of our times. We have come to the end of a period of evaluation where the patterns of the future have been formed and where the organizational framework has sought its most efficient and effective shape. Although a seemingly highly effective organization has evolved, Congress' hoped-for demise of the dual-role problem has not come to pass. The framework is sound, but the functional elements are lacking.

In the interest of national security, the Department of Defense should support and encourage the enactment of legislation by Congress to enlarge the Joint Staff, to redefine the roles and missions of the Joint Staff, and to separate the Joint Chiefs from their service affiliations.

The views expressed in this article are the author's and do not necessarily reflect those of the Department of Defense or its agencies. —Editor.

An MR *Digest*

From *East Europe*

Europe's Militar[illegible]nce After Czech[illegible]

R. Rockingham Gill

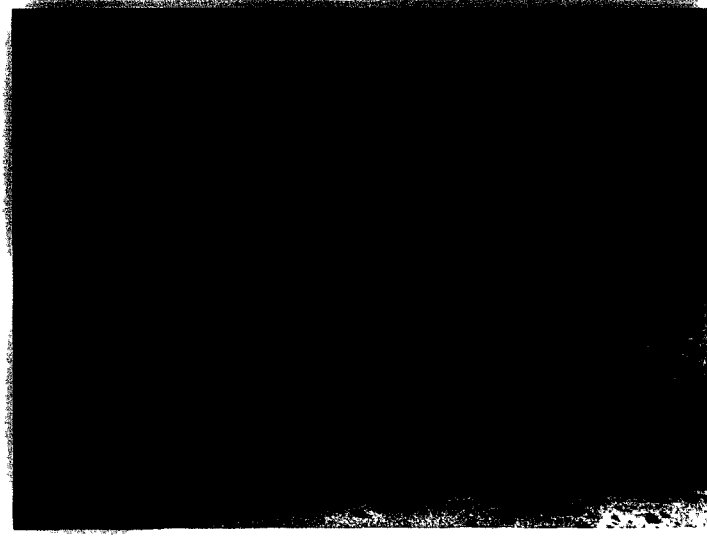
ONE question raised by the occupation of Czechoslovakia by her fraternal adversaries is whether it has seriously altered the balance of power between the North Atlantic Treaty Organization and the Warsaw Treaty Organization. While it is still too early to assess the long-term impact of the invasion, the short-term effects seem fairly apparent.

According to authoritative Western estimates, some 200,000 men were involved in the invasion of Czechoslovakia. NATO sources say that about 14 Soviet divisions took part, supported by half a dozen East German, Polish, Hungarian, and Bulgarian divisions. The normal average strength of a Soviet division is approximately 10,000 men (slightly more for a mechanized infantry division, somewhat fewer for an armored unit)—hence, the 200,000-man total.

About six of the Soviet divisions came from East Germany, according to press reports. This implies that the

remaining eight must have been drawn from Poland, the Ukraine, and, perhaps, Hungary. The invading units of the Red Army were then replaced at their original stations by other divisions brought in from Lithuania, Belorussia, and the interior of the Ukraine farther from the Slovak border. The place of these replacement divisions was, in turn, reported to have been filled by reservists who were called up in midsummer.

In the course of these troop movements, the *Bundesnachrichtendienst*, the West German intelligence service, estimates that the six Soviet divisions moved from East Germany into Czechoslovakia have been replaced by seven fresh divisions. The Soviet garrison in East Germany thus would now stand at 21 divisions instead of the 20 that have been usual over the last six years.



Soldat und Technik

Czechoslovak resistance to Soviet occupation of Prague

No informed estimates have yet appeared on the situation on the Soviet-Romanian border, but it is logical to assume that Moscow has stepped up its troop strength there, too, to some extent. Weight is lent to the assumption by the fact that the Romanian

This article was condensed from the original, published in EAST EUROPE, *October 1968. Copyrighted © 1968 by Free Europe, Inc., New York.*

Mr. Gill is a specialist in military developments in the Soviet bloc and a frequent contributor to various publications on the subject.

Government has ordered the organization of Patriotic Guard units.[1] This was probably a response to intelligence reports of a Soviet troop buildup although it may possibly have been a purely political move.

Yugoslav Reaction

One reason for the Soviet Union to reinforce her border with Romania, apart from Nicolae Ceausescu's avowed sympathy for Alexander Dubček, is the vigorous Yugoslav reaction to the intervention in Czechoslovakia. Reports from Yugoslavia suggest a partial mobilization has already taken place there, and there have been numerous eyewitness accounts of the movement of Yugoslav forces toward the Bulgarian and Romanian frontiers, apparently to guard against any possible attack.[2]

In the air, there seems to have been no significant innovation. The Soviet Union gave a remarkable demonstration of her ability to airlift a whole 9,000-man airborne division overnight in a fleet of some 200 *An-12 Cubs*. Tanks, too, were flown into Prague in large numbers. This Soviet capability was, however, known to the West before the invasion, and an unopposed landing by air is a very different proposition from a parachute or glider assault on a defended area. While there are probably several hundred Soviet aircraft in Czechoslovakia now, they have probably not swollen the strength of the Warsaw Pact's tactical air forces.

In the West, there has been little change yet in the military situation since the move on Czechoslovakia. The 6,000-man brigade withdrawn from the British Army of the Rhine earlier this year is already back in West Germany "for maneuvers," and its stay is likely to be protracted. Similarly, the 20,000 US soldiers who had already returned home from Germany earlier this year are expected back for a prolonged stay soon. It is virtually certain that there will be no cutback in NATO forces in 1969. What is under discussion now is whether there should be an increase and, if so, by how much.

Budget Increase

In view of the scale of the operation against Czechoslovakia, it is reasonable to anticipate a rise in the Soviet defense budget next year. The present total Soviet expenditure for military needs is calculated in the West to be about 32 billion dollars a year,[3] even though the published defense budget for 1968 was only 16.7 billion rubles (officially 18.5 billion dollars). The total Soviet outlay is now likely to rise near the 35 billion-dollar mark. By the same token, the US military budget, presently about 70 billion dollars a year, is also likely to rise.

One corollary of the invasion is that, for the first time since 1961, Soviet conventional forces may be expanded. Since Leonid I. Brezhnev and Aleksei N. Kosygin came to power, Soviet ground forces have been held at about two million men, according to Britain's Institute for Strategic Studies.[4] The small increase that there has been in the over-all strength of the Soviet armed forces between 1964 and 1968 was due almost entirely to the rapid growth of the strategic rocket forces.

The invasion may also have an effect on the long-standing controversy

[1] "Rumania," *East Europe*, October 1968, p 66.
[2] *East Europe*, pp 48 and 50.
[3] *The Military Balance 1967-1968*, Institute for Strategic Studies, London, p 5.
[4] *Ibid.*, p 6.

between the Soviet proponents of missiles and the advocates of conventional weapons about the distribution of the defense budget. The ground forces should reap the benefits. It has been calculated that about half of the Soviet military budget goes to nuclear weaponry and air defenses, about a third to conventional forces in the Soviet Union and central Europe, and only about one-eighth toward strategic mobility.[5] This may change appreciably, especially if the apparent pause in the deployment of antiballistic missiles continues.

Now that Soviet troops are deployed along Czechoslovakia's frontier with West Germany, the West's advance warning of an attack on southern Germany would be much shorter. In northern Germany, however, the situation along the border between the Federal Republic and East Germany is much the same as it was. Since an assault on southern Germany alone makes little sense militarily or politically, the advance warning system in the context of NATO as a whole has suffered little and should continue to function satisfactorily.

It may be necessary to deploy United States or West German units in Bavaria nearer the Czechoslovak frontier as a sort of forward defense to blunt an initial surprise offensive. However, it should be borne in mind that, just because Moscow has been hawkish enough to march into undefended Czechoslovakia, it does not perforce follow that it would be rash enough now to attack the NATO area. After all, Moscow's sole aim at present seems to be restoration of the political *status quo* in Czechoslovakia.

Prior to the invasion, the NATO

Soldat und Technik

Soviet soldier attempts to release burning auxiliary fuel tank as paint-spattered crewman holds crowd at bay

[5] *The Economist*, London, 18 May 1968.

nations had about 6.5 million men in uniform compared with 4.5 million for the Warsaw Pact countries. That about 200,000 more of the latter should now be concentrated in Czechoslovakia does not greatly change the over-all perspective.[6] Moreover, Soviet divisions and aircraft cannot be equated with their NATO counterparts. A recent article in the journal of the Institute of Strategic Studies[7] points out that a NATO division is some 60 percent larger both in equipment and manpower than a Soviet division, and NATO aircraft have a higher potential on nonnuclear missions than Soviet aircraft.

NATO Comparison

The same article, referring to the situation before the invasion, stated that NATO had 24 divisions under arms while the Warsaw Pact powers disposed of 40. Thus, in comparison with its Eastern adversaries, NATO could field the same number of men in divisions, 10 percent more men in combat and service support, 25 percent more armored personnel carriers, 50 percent more antitank weapons, the same number of guns and mortars, 50 percent greater cargo lift capacity, 25 percent more engineers, and 50 percent fewer tanks.

Only in tanks, then, were the NATO ground forces at a disadvantage, but this was offset by their superiority in antitank weaponry. In the air, NATO had about 30 percent fewer tactical aircraft than the Warsaw Treaty Organization, but each of its aircraft had more than twice the bombload and thrice the range of its Soviet equivalent.

All in all, in midsummer 1968, there was rough equality between the two sides. Since the invasion, any shift in the balance has been too small to make an attack on West Europe, or even Yugoslavia, a reasonable course of action for the Soviet General Staff.

Furthermore, the superiority in numbers that the occupation of Czechoslovakia has given the Warsaw Pact over NATO in the central European sector implies that the West's threshold for escalation to the tactical nuclear level may already have been lowered, partly because of the reduced strategic warning time. This being the case, any decision to have recourse to nuclear weapons would have to be taken earlier in any conflict than formerly, and this must be a further deterrent to the Warsaw Pact Command from undertaking any intemperate action against the West.

Strategic Gain

The invasion has lengthened the frontier that the Soviet forces must man in Europe by 250 miles. It has also halved the distance between the Soviet forces and the Brenner Pass through the Alps, but this strategic gain is offset by the fact that Soviet troops now directly confront the US 7th Army, the best equipped in NATO. Besides, Czechoslovakia's 14 divisions may no longer be an asset to the Warsaw Pact, for their reliability may be questionable in any offensive operation. In fact, a considerable proportion of the Soviet forces in Czechoslovakia has probably been allocated to the purely preventive task of forestalling any threat to Soviet interests from the Czechoslovak military.

[6] According to an agreement signed in Prague in October 1968, all Warsaw Treaty Organization occupying forces, except for 100,000 Soviet troops, were to be withdrawn from Czechoslovakia by 18 December 1968. *The New York Times*, 17 October 1968.—Editor.

[7] Alain C. Enthoven, US Assistant Secretary of Defense, in *Survival*, London, September 1968, p 308.

While political considerations were almost certainly uppermost in the Soviet Politburo's collective mind, military issues may also have played a part in the invasion of Czechoslovakia. One of the most interesting theories was put forward by Professor John Erickson of Manchester University, England.[8]

Professor Erickson contends that,

East Europe

An officer of the Polish contingent in Czechoslovakia pins "Medal for Service in Defense of the Country" on a corporal

since the "October Storm" maneuvers in 1966, the Soviet General Staff has suspected that the Czechoslovak Army would be incapable of holding its sector of the line with conventional arms against a US attack. Moscow has, therefore, raised the question of stationing Soviet troops on the Czechoslovak-West German border, Erickson argues, to stiffen resistance there and insure that the Warsaw Pact forces would not be the first to escalate to the tactical nuclear level.

Another military factor may have derived from Czechoslovakia's economic plight. When Alexander Dubček took over from Antonin Novotny, Czechoslovakia was on the brink of economic disaster. It may well have been reasoned that a good way to help the ailing economy was to cut the defense budget which had been swollen out of all proportions during the period of unquestioning obedience to Moscow.

It is, after all, patently absurd that a nation of 14 million people should maintain an army of 14 divisions when West Germany, a "revanchist" power with a population of 50 million, should be content with 12 divisions, four of them understrength.[9] Moreover Dubček's policy of gradual *rapprochement* with West Germany would be well served by the demobilization, say, of two Czechoslovak divisions on the Bavarian border.

US Retrenchment

There were, then, cogent economic and foreign policy reasons for a Czechoslovak military cutback, reasons that would become all the more compelling in the face of US plans to withdraw a total of 35,000 troops from West Germany during 1968. Before the invasion, Bonn's defense planners were seriously concerned by this US retrenchment which they feared might be repeated on an even larger scale in 1969. Some of them were already advocating redeploying some *Bundeswehr* units to the south to plug what they saw as an incipient gap on the Bavarian border.

Such a possibility must have caused consternation among the generals in Moscow. They could foresee not only a weakened Czechoslovak Army, but also one that was having to face mixed United States and West German forces in which there had been a marked numerical shift in favor of the West Germans.

In the Soviet Defense Ministry, it is

[8] *Times*, London, 1 September 1968.

[9] *The Economist*, 7 September 1968, p 21.

never forgotten that two giant strides toward World War II were the *Anschluss* with Austria and the German occupation of the Sudetenland—and, a little later, of Prague itself. The mind of every senior Soviet officer seems irretrievably closed to the fact that the nature of the German body politic is radically different now from 30 years ago. It is possible, therefore, that a case for stationing Soviet troops in southern Bohemia was persuasively presented by the Soviet General Staff —and was finally accepted by the members of the Politburo.

However weighty the military arguments were, it seems clear, nevertheless, that they were not the determining factor. They are essentially long-term considerations that would have allowed rational and efficient political planning. Yet the political planning was obviously a fiasco. Witness the failure to form a quisling government and the tergiversations of the Soviet press which had Dubček a traitor on 22 August, but restored him to comrade first secretary after the Moscow agreement. The aftermath of the invasion, indeed, suggests that the decision to invade was taken at the last minute.

Young Czechs taunt soldiers of the occupation force

A survey of the Soviet press shows that between 7 and 15 August, eight out of 11 members of the Soviet Politburo, seven out of nine alternate Politburo members, and two out of five Central Committee secretaries were all away on leave. The final decision to march seems to have been taken on

16 August[10] at a meeting that was apparently called in the middle of most of the leaders' vacations. The implication is that an urgent report must have reached the Politburo as late as 15 or 16 August and was pressing enough to tip the scales in favor of invasion. The military strategic arguments simply do not fit such a pattern.

Unforeseen Development

While a prime political motive for marching on Czechoslovakia was fear of the spread of Prague's liberalizing ideas, this, too, seems to lack the urgency to precipitate an invasion at short notice. It is, therefore, likely that the real trigger was some unforeseen eventuality.

Such a development may well have been Nicolae Ceausescu's visit to Prague on 15 and 16 August.[11] His trip was not finally announced until midnight on 7 August after most of the Soviet leaders had left for their vacations. In the wake of Marshal Josip Tito's triumphal stay in Prague from 9 to 11 August, it may have seemed to those "minding the shop" in the Kremlin and to Ambassador Stepan V. Chervonenko in Prague that a new version of the Little Entente was coming into being dangerously fast. This Czechoslovak-Romanian-Yugoslav axis would have been directed, not against the imperial pretensions of Budapest like the first Little Entente, but against the hegemony of Moscow, the rigid members of the Warsaw Pact (East Germany, Poland, and the Soviet Union), and against Soviet plans for the Council of Mutual Economic Aid.

Hungary, too, had switched from benevolent acquiescence toward the Dubček regime to a monitory attitude after the publication in June of a commemorative article on Imre Nagy and the "2,000 Words" manifesto in the Czechoslovak press. Any tendency toward a revival of the Little Entente by the states to its north, south, and east would have isolated Hungary politically, militarily, and economically, and would have raised a real danger that a reformist group in Budapest could have swept János Kádár from power. In that case, how long could Bulgaria have held out?

Invasion Consequences

It is wholly possible that there has been no absolute increase in the total number of Warsaw Pact divisions in Europe, and even that there may have been a net decrease as the upshot of disaffection in the Czechoslovak Army after 20 August. But the pact's divisions are now deployed farther forward and farther south than before, so that Western forces may need to be moved up to strengthen the Bavarian border.

Another consequence of the invasion is that West Germany's four understrength *Bundeswehr* divisions now need to be reinforced. This implies that Bonn's planned defense budget for 1969, originally set at 18.8 billion marks (about 4.7 billion dollars) compared with 18.05 billion marks (about 4.51 billion dollars) in 1968, will probably be inadequate. The West German Luftwaffe will obviously step up its plan to reequip its *Starfighter* squadrons with a conventional capability in order to meet any Soviet attack below the tactical nuclear level.

Louder voices from Bonn will probably be heard urging establishment of a European nuclear force, and they are likely to be listened to more sym-

[10] *The New York Times*, 24 August 1968.
[11] *East Europe*, September 1968, p 44.

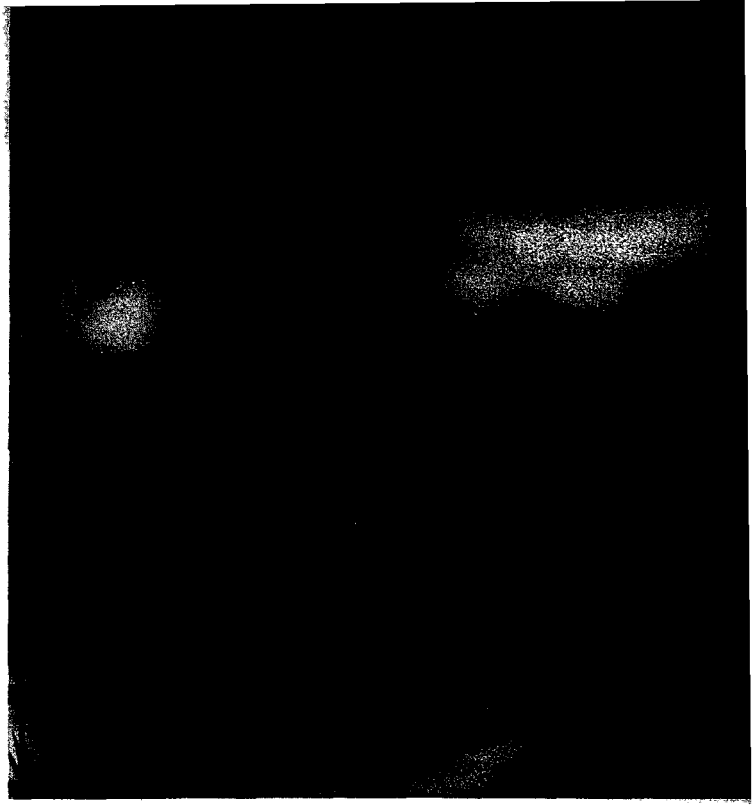
pathetically in Paris and London. Both West Germany and Italy, furthermore, may refuse to sign the Treaty on the Nonproliferation of Nuclear Weapons, and Japan may well follow suit.

On the other side, although an attack on the West is improbable, the hawks in the Soviet Politburo, having once tasted blood, may look to military solutions to political problems in Romania or even (a remoter possibility) in Yugoslavia. The West's main task under such circumstances would be to coordinate its policies so as to dissuade the Kremlin from compounding its folly by even thinking on such lines.

In the final analysis, it may well be that the military advantages of the invasion for the Soviet Union are not nearly so great as was thought at first. Her army now has a common frontier with the best-equipped army in Europe. It has undermined the loyalty of Czechoslovakia's 14 divisions and has almost certainly further alienated the Romanian armed forces.

Yugoslavia may now have to start importing arms from the West again, with a corresponding loss of Soviet influence on Belgrade's armed forces. Yugoslavia's seaports are unlikely to reopen to the Soviet Navy for months to come, cutting the fleet off from its only harbors on the northern shores of the Mediterranean Sea. The risk that the Red Army may become overextended is appreciably greater, and there is little evidence that political solutions imposed at the end of a gun are really enduring. If they were, Walter Ulbricht, Wladyslaw Gomulka, and János Kádár would not have been so shaken by the development of Czechoslovakia's democratization.

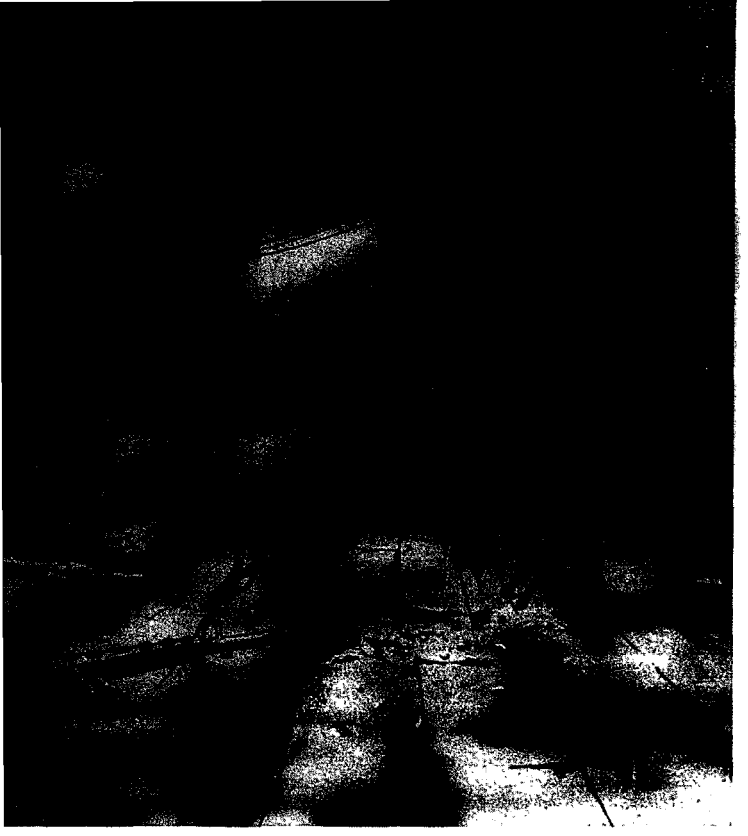
The military balance in Europe has, then, been jolted slightly in the Soviet Union's favor in terms of territorial occupancy, but the global strategic balance has altered imperceptibly. And for those with a taste for military history, it is a fact that, on the three occasions since World War II that the Red Army has been in action in Europe, its guns have been turned, not on Western troops, but on Eastern workers—in East Berlin in 1953, in Hungary in 1956, and now in Czechoslovakia.



Lieutenant Colonel Frederick F. Irving, *United States Army*

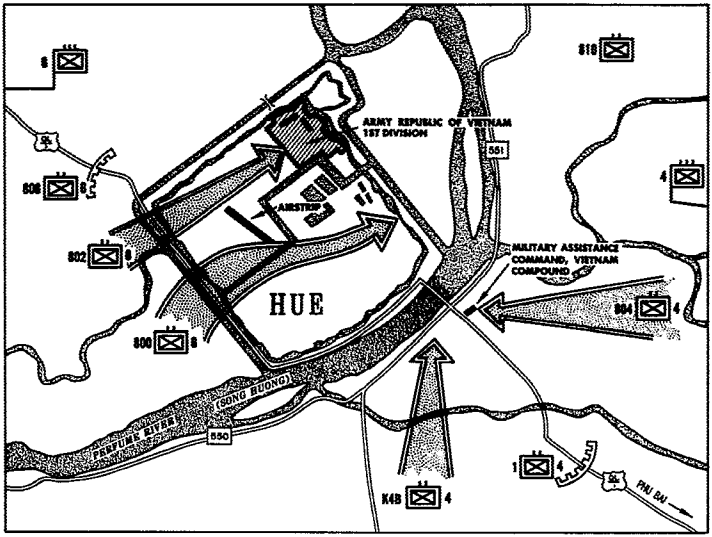
HUE, the ancient Imperial walled capital, long has been regarded as the most beautiful city in South Vietnam. Situated on the banks of the Perfume (Huong) River, it was relatively untouched by the war until the Communist Tet offensive of 1968. At that time, it became the scene of bitter fighting. The Battle of Hue highlighted a major change in tactics by the enemy and shows his method of operation. It also illustrates some of the problems of allied combined force operations in a heavily populated area.

Tet is the season of the Vietnamese Lunar New Year and the



most important holiday. Lasting three days, it is a time for celebrating with family and friends. A Tet cease-fire truce between North and South Vietnamese forces had been agreed upon and went into effect at 1800 on 29 January 1968. That night, the enemy executed longstanding plans and violated the truce in many areas of South Vietnam by striking at numerous cities and villages. As a result, the South Vietnamese Government cancelled the truce on the morning of 30 January.

Hue was not initially hit, and intelligence available to friendly



forces had not provided any strong indications of the time or intensity of the attacks on Hue that were to come. However, it was known that numerous enemy units were located in base camps near the city. At the time the truce was cancelled, the commanding general of the 1st Army Republic of Vietnam (ARVN) Division with headquarters in Hue put his forces in an increased readiness posture. The staff was placed on 100 percent alert and was restricted to the 1st division compound in the northeast corner of the city. This proved to be a decisive move since most of the officers lived south of the river, and it is highly unlikely that they could have reached the compound later.

At 0349 on 31 January, salvos of rockets and heavy mortar fire struck selected targets within the city, both north and south of the river. The enemy attacked initially with seven to 10 battalions of infantry. Two battalions drove into the walled portion of the city, or Citadel. The mission of the enemy 802d Battalion was to overrun

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Lieutenant Colonel Frederick F. Irving is with the Office of the Assistant Secretary of the Army for Installations and Logistics, Department of the Army, Washington, D. C. A graduate of the US Military Academy, West Point, New York, he received an M.S. in Engineering from Princeton University, and was graduated from the US Army Command and General Staff College. He served in Germany with the 24th Infantry Division and the 317th Engineer Battalion; and was with Headquarters, Provisional Corps Vietnam, and Training Directorate, Military Assistance Command, Vietnam.

the 1st ARVN Division Headquarters while the enemy 800th Battalion was to seize the southern portion of the city.

This battalion approached the airfield at 0400 and encountered the 1st Division reaction force—the elite Black Panther Company. After brief fighting, the 800th Battalion was diverted south, and the Black Panther Company moved to the 1st Division Headquarters in time to assist the division staff and support troops in a successful defense against the 802d Battalion. In addition to attacking the Citadel with two battalions, the enemy established a strong blocking position with the 806th Battalion outside the northwest corner on Route 1, the most likely avenue of reinforcement (see map).

Enemy Occupies Citadel

By daylight, the enemy had occupied the entire Citadel except for the 1st Division Headquarters compound. However, all ARVN installations around Hue remained intact. In fact, many were not attacked except by indirect fire. The enemy had occupied the city, but had not captured any significant military installations.

Across the river to the south, the Military Assistance Command, Vietnam (MACV), compound had been attacked by elements of the 4th North Vietnamese Army (NVA) Regiment. This walled compound housed the MACV advisors to ARVN units in and around Hue. Well armed, they successfully repulsed the NVA attack while suffering light casualties. However, within a few hours, the enemy 804th and K4B NVA Battalions had seized and occupied all of the city south of the river except for the MACV compound.

The 810th Battalion was deployed as a blocking force to the east of the city, and the 1st Battalion, 4th NVA Regiment, was employed as a blocking force astride Route 1 to stop reinforcements from the south. This was the situation on the morning of 31 January at the conclusion of the initial attack.

Portions of 10 additional enemy battalions were subsequently brought into the battle as reinforcements in and around the city. Thus, an enemy force of approximately 10,000 men participated in the battle for Hue.

Operations South of River

When word of the attack reached the US Marine base at Phu Bai, eight miles to the south, A Company, 1st Battalion, 1st Marines, was dispatched to Hue by truck to help secure the MACV compound. This company encountered stiff resistance at the enemy roadblock on Route 1 at the Phu Cam River, but reached the compound. They were followed by the 1st Battalion, 1st Marines Command Group, and G Company, 2d Battalion, 5th Marines, which traveled by road and arrived at about 1400.

A platoon of tanks and two *M42* self-propelled twin 40-millimeter guns arrived with this element. The tanks were from the 3d Tank Battalion, 3d Marine Division. They had been en route from Phu Bai to the Hue landing craft ramp for transportation to Dong Ha when the battle began. During the fighting, until their relief by a platoon from the 1st Tank Battalion on 17 February, these tanks were instrumental in the Marines' progress. Although they were struck by rockets and received damage to their optical equipment, they continued to fight. One tank was destroyed.

On the 1st, 2d, and 3d of February, three additional Marine companies, a battalion, and a regimental command group were brought into the MACV compound by trucks and helicopters. This brought the Marine buildup by 4 February to one tank platoon, five rifle companies, two battalion command groups, and one regimental command group. An attempt to cross the river and enter the Citadel was repulsed by the firmly entrenched enemy.

Operations were undertaken to expand the friendly perimeter and to secure the landing craft ramp northeast of the MACV compound for resupply purposes. After securing the landing craft ramp, the 1st Battalion, 1st Marines, drove two companies south along Route 1 as far as the Phu Cam River. The 2d Battalion, 5th Marines, with three companies, then moved west along the south bank of the Perfume River to clear as far as the Phu Cam River. By 10 February, the 2d Battalion had reached its initial objective and had turned south along the Phu Cam River to clear the far bank and link up with the 1st Battalion.

Although these battalions continued operations southwest and east of Hue, the city south of the river was declared secure on 10 February. Attention was then turned to the north bank to assist the ARVN forces in clearing the Citadel.

Tanks were instrumental in the progress made by the Marines

By daylight on 31 January, it had become apparent to the commanding general, 1st ARVN Division, that substantial reinforcements were needed. He issued orders to his 3d Regiment, the 1st Airborne Task Force, and the 3d Troop, 7th Cavalry, to move to the

Citadel. The cavalry and two of the airborne battalions departed their base camp 11 miles north of Hue and moved down Route 1. About 400 yards north of the Citadel, they encountered the roadblock established by the enemy's 806th Battalion. Unable to break through, they bypassed the position and entered the 1st Division compound from the north. In the process, they suffered numerous casualties, and the cavalry lost four armored personnel carriers.

Additional reinforcements came on the 1st and 2d of February when the 9th Airborne Battalion and the 4th Battalion of the 2d Regiment were airlifted into 1st Division Headquarters from Quangtri and Dong Ha. At the same time, the 2d and 3d Battalions of the 3d Regiment moved east from the division training center along the Perfume River and tried unsuccessfully to enter the southwest corner of the Citadel. They were later moved by water around the city and entered the 1st Division compound on 7 February.

The 1st and 4th Battalions had been on operations east of Hue when the enemy offensive began. They both became completely surrounded and had to fight back to the city. The 1st Battalion arrived 1 February. The 4th Battalion, after four days of continuous fighting, reached the city on 5 February with only 170 men.

Photos courtesy of author

The Perfume (Huong) River was used for movement of troops and supplies

With three battalions available on 1 February, the 1st ARVN Division began limited offensive operations to the west toward the airstrip. As additional battalions became available, offensive operations were undertaken to the south by the airborne task force. The drive to capture the west wall of the Citadel became the responsibility of the 3d Regiment.

From 7 to 11 February, the enemy offered stiff resistance, and little headway was made by the ARVN forces.

The enemy, in possession of the west wall, was able to bring in fresh forces and supplies each night. Another factor affecting the action was the understrength condition of the ARVN battalions which averaged approximately 200 men each.

On 11 February, enemy forces still controlled approximately 60 percent of the Citadel. That night, a company of the 1st Battalion, 5th Marines, reinforced by a platoon of tanks and several *Ontos* vehicles, arrived by landing craft at the 1st ARVN Division compound. The remainder of the battalion arrived the following day and was assigned to the southeastern portion of the city, relieving the 1st Airborne Task Force. The airborne task force was then moved to Saigon.

Final Phase

The 1st Battalion, 5th Marines, attacked south on two axes parallel to the east wall. Heavy rocket and small arms fire from the enemy entrenched along the wall held up the attack after initial progress. It was necessary to send a two-company force down the wall to drive the enemy from his positions before the advance could be resumed. Naval gunfire and airstrikes were used extensively. Progress continued to be slow and was made only by destroying the dug-in enemy positions. The southeast corner of the wall was secured on 22 February.

During the final phase of this attack, fire from the Imperial Palace grounds on the right flank became intense. Political considerations limited Marines from engaging enemy positions in the Palace grounds, and the 1st ARVN Reconnaissance Company was repositioned to provide flank security. The 1st and 5th Battalions of Vietnamese Marines arrived on 12 February with six 105-millimeter howitzers and were deployed to attack the southwestern corner of the Citadel.

As the battle raged within the city of Hue, the enemy continued to reinforce and resupply his forces, primarily from the base located in a village complex three miles due west of the city. On 2 February, the 3d Brigade, 1st Cavalry Division, was given a threefold mission:

- Deny the enemy access to Hue.
- Interdict routes of egress from Hue.
- Locate and destroy enemy units west of the city.

In a series of sharp actions employing a three-battalion force, the 1st Cavalry accomplished the mission, inflicting heavy losses on the enemy. This contributed significantly to final success within Hue.

It was learned on the 16th that the commanding officer of the enemy forces in the Citadel had been killed by artillery. His successor reportedly requested permission from his superiors to withdraw his troops from the city and was refused.

Surprise Night Attack

On the night of 23-24 February, in the southeastern portion of the Citadel, the 2d Battalion, 3d ARVN Regiment, conducted a surprise night attack westward along the wall. Overcoming well-defended barriers and claymore mines, the Vietnamese seized the area of the flagpole in front of the Imperial Palace grounds. At 0500 on the 24th, the Viet Cong flag was lowered and the South Vietnamese flag was raised. At 1515 the same day, the Black Panther Company and the 2d Battalion, 3d ARVN Regiment, entered the Palace and with little resistance secured it by 1700.

At 0500 on 25 February, the last enemy stronghold was seized after an artillery barrage. With the elimination of this enemy position in the southwest portion, the Citadel was declared secure, and the Battle of Hue was officially over.

A number of factors significantly affected the battle:

- Artillery and airstrikes were not initially used because of the city's historic significance. They were employed only when it became apparent that the enemy could not be dislodged without them.
- The coordination of US artillery, air, and naval gunfire with ARVN fire support presented an immediate problem. It required that a senior US officer be appointed as a fire support coordinator for all forces in the city.
- The unfavorable weather restricted air operations throughout the battle. Low-hanging clouds and light drizzle greatly reduced aerial reconnaissance and airstrikes, permitting the enemy greater freedom of movement and resupply. Weather allowed maximum use of air capabilities only in the final days of the battle.

Despite these limiting factors, the combined US and ARVN forces inflicted heavy losses on the enemy, killing over 5,000 in the 25-day operation.

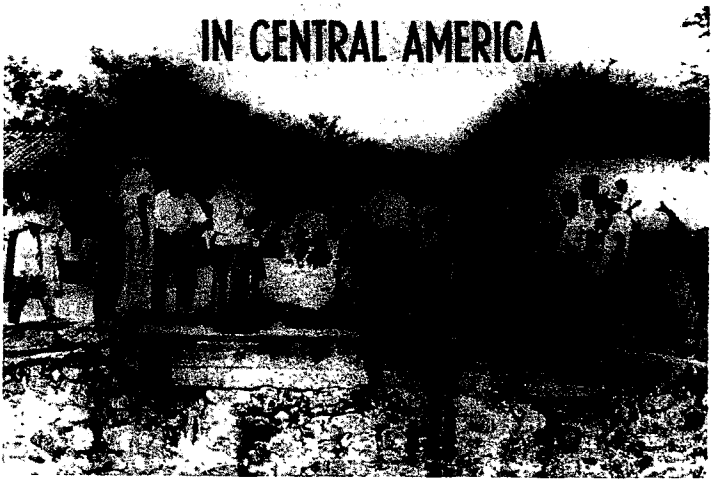
. . . Our fighting men with their equipment have adapted readily to the tough, torturous countryside and climate. We have actually written a new chapter in warfare, but I only want to emphasize one point. . . . Our troops took the classic guerrilla tactic of the ambush away from the enemy and turned it against him. Our fighting men in South Vietnam today have taken the battle to the enemy's home ground—day and night—and have made him the hunted instead of the hunter.

Although our objectives and our strategy have not changed, one thing has changed. It is our capability to defeat this sort of aggression on people's lives and their future. Our capability has improved with each passing day—at the same time, performance of the Communists shows signs of deterioration.

General William C. Westmoreland

An MR Special Feature

MILITARY CIVIC ACTION IN CENTRAL AMERICA



Major Laun C. Smith, Jr., *United States Air Force*

TWENTY-ONE tiny Guatemalan youngsters were seated at the long, low table. They were busy. They were eating their noon meal, a nourishing stew of chicken, rice, carrots, potatoes, and green beans in chicken broth.

These children, many so listless and weak from malnutrition and parasites they could barely feed themselves, had been brought to the Uzumatlán Nutritional Center for care and feeding under the Guatemalan Government's nutritional program.

The Uzumatlán Center is one of two such centers being financed

by the Guatemalan Army. There are similar centers located throughout the country, sponsored by various civic organizations and businesses. In fact, there are similar centers located throughout Central America, sponsored, in part, by the armed forces of the countries concerned. Nutritional centers are an important part of the military civic action programs of the Central American Republics, and civic action has become an important aspect of their military programs in general.

Change in Concept

Not too long ago, military civic action in Central America was conducted in a sporadic manner to forestall revolt or unrest. In recent years, however, the Republics have recognized the value of a military civic action program of a continuing nature, and military civic action has become an important factor in national development in some regions.

There are many reasons for this change in concept. The attitude of the Central American armed forces toward the people is undergoing a slow, but steady and beneficial, change. This is due, in part, to the need of the military for the support of the people in the face of the Communist threat; in part, to the need for social and economic reforms in some areas; and, in part, to constant association by the Central American military men with US military men at US Military Groups in the countries and at US military schools in the Panama Canal Zone and in the United States.

Another reason is the changing makeup of the officer and noncommissioned officer corps of the Central American military forces. More and more officers come from the ranks of the people, and noncommissioned officers are becoming better trained and more capable professionals.

In Central America, as in many developing nations, the armed forces are the best organized and educated large segment of society. Also, they have a large, available, labor force—a necessary ingredient to successful conduct of civic action projects.

Threefold Emphasis

In most of the Republics, military civic action has a basic threefold thrust of varying priority. Emphasis is placed on health programs, on educational programs, and on construction programs—and the spectrum within each of these areas of activity is a wide one. Health programs include the nutritional centers, inoculation programs, medical and dental treatment, dispensary construction, and repair and maintenance of facilities. Educational programs include adult education, school construction, desk construction, school supply, and construction of athletic fields.

The scope of the construction effort is almost boundless—from the construction of roads and bridges to dams, irrigation projects, and well drilling.

The major problems are funding for civic action projects and, until recently, the lack of central planning and direction. Each country is coping with these problems in

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Major Laun C. Smith, Jr., United States Air Force, is with the Public Affairs Office of the US Southern Command, Quarry Heights, Canal Zone. He is responsible for public affairs liaison with US Military Groups and host country military forces in Central America. Other assignments in the information, public affairs, field include duty with the Office of the Secretary of the Air Force and with community relations programs in Morocco, Libya, Turkey, and Greece. He holds an A.B. from Gettysburg College, Gettysburg, Pennsylvania, and an M.A. from the University of Pennsylvania in Philadelphia.

Guatemalan youngsters getting water from village well drilled by Armed Forces Civic Action Section. Before the well, water had to be carried from a stream four miles away

its own way—some with fair success, others with little success.

In Guatemala, the need for increased emphasis on military civic action came dramatically to the attention of the military forces as they conducted counterinsurgency operations against the Communist guerrilla forces operating in the northeastern departments of that country. The insurgents had been exploiting the deplorable social and economic conditions of the area. The military leaders soon recognized that force alone would not solve the insurgency problem. A serious effort to raise the area's standard of living was necessary as well.

Although the Guatemalan Ministry of Defense has had a civic action program since 1961, the magnitude of the problem in the northeast departments demanded a program beyond the capability of the Ministry of Defense alone.

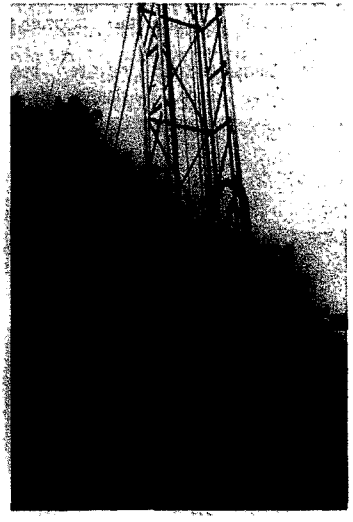
Consequently, in December 1966, the government initiated "Plan Piloto" which, in effect, combined the efforts of all the appropriate governmental Ministries and agencies functioning in the northeastern region. For economic and technical assistance, the government called upon the Agency for International Development, the United Nations Food and Agricultural Organization, and the Military Assistance Program of the United States.

The civic action program in Guatemala has two objectives: to establish military-civilian rapport and to contribute to the socioeconomic development of the nation. From the military point of view, the objective of military-civilian rapport is the most important. In the Guatemalan experience, civic action has become as important as intelligence and operations in the counterinsurgency effort. It is an ef-

ficient and economical technique for gaining the active support of the civilian population or, at a minimum, the denial of support to the insurgent elements.

The coordinator for Plan Piloto represents the Minister of Defense. He works with representatives of the Ministries of Agriculture, Health, Education, and Communications who form a special organization to plan, coordinate, and budget Plan Piloto.

Planning places emphasis on the three major fields of construction, health, and education. But other projects for needy communities are not overlooked. Work at the local level, however, is carried out by local representatives of the Ministries and agencies involved, together with the communities. Without the desire and cooperation of the people, the program could not succeed. Everybody concerned recognizes that socio-economic development is a long-term undertaking, particularly where the area marked for development is backward and poverty stricken to begin with.



Guatemalan soldiers drill a village well. The men are working without weapons or armed guards although Communist guerrillas controlled the area only a few months before the photo was made.

While there has been some successes in Guatemala, the program has only started. Guatemala's leaders envision Plan Piloto's extension to all needy areas of the country.

El Salvador has had a Director of Military Civic Action, under the Minister of Defense, for several years. But he lacks authority to direct military forces to do a job. He must send requests for troops through the office of the Minister of Defense to the Chief of Staff of the armed forces. Also, the Director of Military Civic Action has had to operate without a budget, and his working staff is not large enough to both plan the projects and execute them.

Need Recognized

Fortunately, El Salvador's leaders recognize the need for more definite national planning. Led by the Minister of Defense, who is a staunch supporter of civic action, the country's leaders are giving the program greater emphasis.

The Chief of Staff of the armed forces has ordered a civic action plan prepared by his office to give the armed forces program direction and emphasis from a central authoritative source. The area commanders will still direct the civic action programs for their departments or regions, but with more guidance.

A significant step toward a more effective program was taken in 1967 when the El Salvadorean Territorial Services was made responsible to the Chief of Staff of the armed forces. Formerly, the Territorial Services worked directly under the Minister

of Defense, and the Chief of Staff had no control over their activities. Now, the Chief of Staff has a Director of Territorial Services on his staff and can now direct civic action through this grassroots operation.

The Territorial Services consists of about 33,000 volunteers and 225 paid canton commanders. The canton commanders are generally individuals who have retired from active military service. They are a natural tie between the armed forces, which have the equipment and facilities, and the volunteers who work with the people to assure that they get what they need and do their part to earn it. The volunteers work for the canton commanders who are responsible to both the Director of Territorial Services and the local commander of the regular military establishment.

Many businessmen recognize what the military civic action service is trying to do. They often contribute their products to be distributed to the poor. Also, some civilians contribute long hours of work to the civic action effort. Their only pay is the knowledge that they are helping their country.

While the future for civic action in El Salvador appears to be bright, the past has not necessarily been dim. Area commanders have done well considering the lack of programed funds.

For example, the civic action programs for the 14th Infantry Regiment at La Unión and the 4th Infantry Regiment at Sonsonate are quite similar. Both provide medical attention to the poor in their communities. Also, both units have ambulance service, a blood donation program, and a program for instructing or advising the local population about better sanitation procedures, the need for inoculations, and other preventive medicine.

The Sonsonate-based regiment has, in addition, made substantial dona-

An El Salvadorean Army sergeant explains the adult education course he conducts in the evenings to a US military advisor

tions of equipment to the San Juan de Dios Hospital in Sonsonate.

Both are involved in the maintenance of local facilities such as schools and public buildings. In addition, the regiment at Sonsonate has been involved in the actual construction of schools in the cantons of Los Canales, Palo de Agus, Perra Blanca Anizales, and Caluco. The infantry regiment at La Unión, on the other hand, is active in road maintenance and repair. Both units use their bands to the best advantage of the communities in their area. The bands play concerts for parades and school functions, and bandsmen teach music to the school children.

Adult Education Program

The country's adult education program is the responsibility of the Minister of Education who has a representative in each department serving as an over-all supervisor for the department program. The local commander, however, gets involved in this program, too. Although the Minister of Education provides the instructional materials, it is the Territorial Services volunteers who do the teaching.

The people have been and are benefiting from the civic action projects of their military forces, and the prospects look even brighter.

The Hondurans have a national plan for the conduct of military civic action. It is general in scope, but fits into the nation-building plan of the government, and it provides guidance to commanders for the conduct of civic action in their commands. As is the case in most other Central American Republics, the Honduran plan emphasizes medical treatment for the needy, increased educational opportunities for the young and old alike, and construction of access roads.

A local priest intones the blessing at the ribbon-cutting ceremony for a new access road built by Honduran Army engineers

The big weakness of the plan is that it is not budgeted. But it has provided for certain administrative positions to help organize the over-all program, and does confine the several commanders to civic action projects that will develop the nation as a whole, yet will give the people of the local areas those improvements most needed.

Road construction is one of the big needs of the nation, and the military program to build access roads dovetails with the national plan of the Department of Highways to construct national highways as rapidly as possible. An example of how this works is the planning for construction of a paved highway between Tegucigalpa and San Pedro Sula, the two major cities of the country. The Department of Highways is responsible for constructing the main highway, but army engineers will construct many of the feeder roads giving farmers and small towns

access to markets and other economic advantages.

Armed forces dispensaries throughout the country are open to the poor who cannot afford to pay for medical care. Free medical evacuation service is available to the needy in the form of military ambulances, as well as some specially outfitted aircraft of the air

As many as 100 desks a day are assembled and distributed by the Honduran Army

force. In addition, the armed forces conduct classes to teach the civilian population better sanitary and personal hygiene procedures, and the need for inoculation against diseases prevalent in Honduras.

The armed forces are also active in school construction and maintenance, as well as in equipping and supplying schools. In some areas, the military forces provide instructors to help teach adults to read and write.

The air force sponsors a nationwide farm program designed to provide the people of Honduras with better plants and livestock, and for improved production. Raised at the air force's experimental farm on the airbase near Tegucigalpa, plants and animals are distributed to the farmers and villages with special instructions on how to care for them and how to use them to strengthen future crops, flocks, and herds.

By such programs, the Honduran armed forces are helping to build a better nation for their people. Again, as elsewhere in Central America, the people are responding to their goverment's efforts and are enthusiastically supporting the projects.

The Nicaraguan National Guard's civic action program was initiated on 26 January 1963, and since then has been a factor in the economic development of the nation. From its beginning, the program has had central direction and the active sup-

Photos courtesy Public Affairs Office, US Southern Command

Two Costa Rican Civil Guard sergeants inoculate a young Talamanca Indian girl against measles as part of a medical-civic action project

port of the President. But like all of the Republics, the money available for civic action falls short of the program's needs—although this does not seem to be as great a problem in Nicaragua as it is elsewhere.

Since the nation's economy is based primarily on agriculture, the civic action program is oriented toward the improvement of agricultural methods, access roads, water and irrigation systems, and other measures that will improve the lot of the farmer while also raising the living standards of the nation.

Civic action is also conducted in towns to improve the conditions of streets, public buildings, and the health of the people. During the year 1967, for example, the National Guard hospital took care of 483 civilian patients for a total of 1,129 hospital days. In one region alone, 800 civilian ambulatory patients were treated, and 10,080 were inoculated against polio. In some communities, the National Guard permanently maintains a physician to care for the medical needs of the population.

As elsewhere in Central America, the Nicaraguan military personnel participate in the country's education program. The engineers construct school buildings and build school desks for all regions of the country. The Nicaraguan Air Force supports the military civic action program through the use of **Cessna 180** and **C-47** aircraft. It provides passenger and cargo transportation, mainly in support of humanitarian relief—including medical assistance. A major contribution of the air force has been the program for eradication of the Mediterranean fruit fly, a problem to Central America and a threat to the United States and Mexico.

Military civic action in Nicaragua is a "going" program that promises a continuing contribution to Nicaragua's future.

Costa Rica has no military civic action program as such. The country's military force is composed of a civil guard which participates in programs in support of the populace. Two such programs warrant mention—the government's program to develop a polyvalent serum against the bites of venomous snakes, which abound in Costa Rica, and a medical civic action project for the Talamanca Indians in the area near the Panamanian border.

In both cases, the primary agents for successful completion of the projects were US military personnel. A polyvalent antisnake venom serum was developed, and the Talamanca Indians not only received medical assistance, but a ponton ferry was installed to enable them to cross the Telire River. Costa Rican civil guard personnel participated in both of these binational programs as they do in impact-type programs of their own from time to time.

While there is still much to be done, military civic action is on the increase in Central America. The military forces are facing up to change. They are becoming more aware of the needs of the people and are trying to do something to meet them.

General Jean de Lattre de Tassigny and Leadership Against Insurgency

Clarence M. Sonne, Jr.

JUST 17 years ago, shortly after his return to France from Indochina, General Jean de Lattre de Tassigny died of cancer. By this time, his strategic plan for defeating the Vietminh was in shambles. But for a brief time in 1951, he had turned back the enemy and had given France new hope.

Credit for halting the advance of the Vietminh at a critical moment in 1951 was due not to any sudden improvement in the French logistic situation or a fortuitous shift in the international political picture, but, rather, almost solely to the skill of this individual commander, a distinguished veteran of two World Wars and the Moroccan campaign. Through a combination of energy, devotion to duty, and sheer military genius, de Lattre in the one year before his unfortunate death demonstrated that individual greatness can still prevail over the forces of history and pro-

vided lessons in strategy against insurgency which merit restudy today.

This future Marshal of France was born on 2 February 1889. There is no indication that his parents intended him for a military career, but young Jean de Lattre was a vigorous youth for whom any other choice would have been inconceivable. Aside from a scattering of military officers among his ancestors, it was apparently a boyhood love for horses which led him to Saint-Cyr and the French cavalry.

Start of Career

As a young lieutenant, de Lattre was stationed within sight of the German border at the time World War I broke out. He and his troop of horsemen distinguished themselves in those first few months before the conflict devolved into trench warfare. By the end of 1914, he had become a Chevalier of the Legion of Honor and had suffered a chest wound which nearly cost him his life.

Even at this early stage, it was clear that de Lattre was a leader of men. Somewhat stocky and only moderately tall, he was not handsome, but his erect stature, an aquiline nose, and penetrating gray-blue eyes created a striking appearance. He dressed faultlessly, and his actions and demeanor were often theatrical, although they reflected the character of a man who not only possessed, but also inspired, confidence and assurance. He had a strict sense of discipline and a short temper for those guilty of negligence or transgressions. Above all, he felt a sense of patriotism which he successfully instilled in others. He raised the morale of those under him to a high pitch.

Transfer to Infantry

Realizing that the old cavalry had served its usefulness, de Lattre, in 1916, transferred to the infantry. In the trench warfare of the period, he characteristically served at the outposts of the battlefield and ended World War I with further wounds and decorations. After some duty in the peacetime army, he served in Morocco from 1921 until 1926. With the rebellion of Mohammed ben Abd-el-Krim, de Lattre gained his first experience in the guerrilla warfare which was to require his expert attention in Indochina 25 years later.

He returned to France to attend the *École de Guerre*, served several years as a regimental commander, and was appointed in 1933 to the staff of the *Conseil Superieur de la Guerre* under General Maxime W. Weygand. In September 1935, he returned to a regimental command at Metz, not far from where he had been stationed at the outbreak of World War I.

By 1939, de Lattre, at the age of 50, had achieved the rank of brigadier general. Despite brief interludes of staff work, he was clearly at his best as a field commander, strategist, and leader of men. Shortly after World War II started, he was given command of the French 14th Infantry Division. In the German invasion of 1940, he did his utmost to stave off French defeat. For his services, he

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Clarence M. Sonne, Jr., is the Principal Economic Officer with the American Embassy, Jidda, Saudi Arabia. He served with the 20th Air Force during World War II, and joined the Department of State as a Foreign Service Officer in 1947. He was assigned to the American Consulate in Hanoi in 1950-51, and was a civilian member of the 1966 class at the US Army War College prior to his present assignment.

was made a grand officer of the Legion of Honor and later promoted to major general.

In July 1941, de Lattre joined Weygand in North Africa as commander of the French forces in Tunis. At this point, he seems not to have seriously considered leaving French territory to join the Allies. Instead, recalled to France early in 1942, he sought to maintain the troops at his disposal in readiness for a possible Allied landing in southern France and the feared German occupation of the Vichy territory. When the latter came, de Lattre was found guilty of "abandoning his post" and was sentenced to 10 years' imprisonment.

Fame Spreads

De Lattre served only 10 months of this sentence by escaping on 4 September 1943. Evacuated clandestinely to England, he soon joined the French forces in North Africa. In mid-1944, he moved on to Italy, from where he led the French contingent in the Allied landing in southern France. The successes he achieved there and in the subsequent drive northward and then across southern Germany to the Austrian border were to establish de Lattre's international reputation as a military leader.

De Lattre commanded the French occupation forces for a year before returning to France where he served as inspector general of the army and chief of the general staff. With the signing of the Treaty of Brussels, he became commander in chief of the land forces of Western Europe and subsequently served in the same capacity in the formative stages of the North Atlantic Treaty Organization.

De Lattre did not hesitate when he was called to command the French forces in Indochina late in 1950. Frenchmen, in 1950, were at least as concerned about the course of events in Southeast Asia as Americans were to become 15 years later. Although debate was colored by the desire to maintain the French Union, there was real concern over how to stem the advance of communism with less-than-adequate resources and the absence of a representative Vietnamese Government. Militarily, time began to run out for the French when the Communists completed their conquest of China, offering the Vietminh a convenient base of foreign support. To meet this challenge, no other Frenchman seemed better qualified than Jean de Lattre.

By the fall of 1950, the French had lost their principal outposts along the Chinese frontier, and the enemy under General Vo Nguyen Giap was preparing for the first time to make a frontal attack on the Tonkinese capital of Hanoi and the port city of Haiphong. The French forces seemed unable to rally, and morale was poor. French civilians, who had long since transferred their liquid assets to safer ground, were now evacuating their families.

Command Differs

De Lattre's assumption of command, effective 17 December 1950, differed fundamentally from that of his predecessors in that he was named not only commander in chief of French forces in the Far East, but also high commissioner for Indochina. Characteristically, he tarried only two days in Saigon before proceeding to the front in Tonkin.

Not only the troops, but also the local populace were to be impressed. De Lattre used his magnetic personality and well-chosen words to encourage the officers and men, and the effect

was not lost on the civilian population. On Christmas Eve, the midnight mass at Hanoi's cathedral was delayed until de Lattre and his staff made a dramatic entrance. The evacuation of civilians was halted, and General de Lattre himself summoned his wife to preside over their household in Hanoi. The fact that his only son, Bernard, had already been serving in Indochina for over a year, he allowed to speak for itself.

General de Lattre was soon visiting the outposts of the battlefield, inspiring the troops with his confidence and courage. His efforts to turn the tide of the war, however, consisted of more than theatrical appearances. He purged many officers whom he considered derelict in their performance.

Nevertheless, the greater alertness which he instilled throughout the army came just in time. On 15 January 1951, the Vietminh launched a major attack against Vinh Yen, only 25 miles northwest of Hanoi, for the first time concentrating their forces and risking battle in open country. Recognizing the seriousness of the situation, de Lattre not only took the risk of withdrawing troops from other portions of Tonkin, but also requisitioned commercial aircraft to organize an airlift from Saigon to the north. The battle lasted four days during which the attackers lost an estimated 5,000 dead and uncounted wounded.

On 19 January, they withdrew to the hills. General Giap, himself, publicly acknowledged the mistakes of his campaign. Victory for the French, however, would scarcely have been possible had General de Lattre not utilized his first month so effectively in restoring morale and personally conducted such a vigorous defense.

By this time, the Chinese supporters of the Vietminh had become engaged in the Korean Conflict. The effect of this development on subsequent events in Indochina is difficult to assess, but from a broad viewpoint, the Korean struggle so taxed Chinese resources that the ultimate expansion

American Helicopter Association

The helicopter was used extensively by the French in Indochina

of the Vietminh into the south of Vietnam was delayed.

In any event, de Lattre realized that his initial victory merely restored the *status quo ante* under which the hill country remained in enemy hands, and large portions of the Red River Delta were unsafe after nightfall. He instituted a crash program for the construction of new fortifications and reorganized his troops to provide lighter and more mobile units. Communications for the latter were improved and, to the extent of available resources, air support was increased.

De Lattre ordered the reinforcement and holding of Mao-Khe, a key

post in holding off a new enemy drive toward Haiphong at the end of March 1951. He realized, however, that the deployment of available troops and military action alone could not win the Indochinese campaign. In mid-March, General de Lattre had returned to Paris to demand extensive reinforcements, emphasizing that the loss of Tonkin would mean the loss of Indochina and of Southeast Asia. This was contrary to the views of the Chiefs of Staff who wished to concentrate the French efforts in South Vietnam.

Forces Withdrawn

While the French Government agreed with de Lattre on his strategy, it faced the dilemma of reneging on simultaneous commitments for a greater French contribution to European defense or instituting a politically unpopular increase in the length of compulsory military service. Rather than face either possibility, the government decided to withdraw forces from North Africa on 20 March 1951. The fateful long-range consequences of this decision were not only that French control in Africa was diminished by the number of battalions withdrawn, but also many African troops were to have their first contact with an anticolonial revolt and learn methods which they could later apply against the French. Nevertheless, de Lattre received his reinforcements.

During de Lattre's tenure, General Giap made a third try to drive the French from the Red River Delta. This commenced on 29 May with attacks across the Day River combined with diversionary guerrilla attacks on French positions within the delta. A number of the smaller French outposts were wiped out, but the French were again able to throw in reinforcements and to harass the enemy with aircraft and riverborne firepower. On 18 June, the Vietminh retired after heavy losses on both sides.

The successful outcome of this battle, however, held scant satisfaction for General de Lattre, for, on 30 May, near the banks of the Day River, his son was killed. Although earlier he had never emphasized the fact that his own son was sharing the burden of the Indochinese action, his subsequent appeals for greater effort and sacrifice could not fail to be more solemn and carry greater weight. Only briefly did his personal tragedy deprive him of the force to carry on his mission in Indochina.

Vietnamese Army Formed

Meanwhile, General de Lattre had commenced another creditable project —the formation of an independent Vietnamese Army. Early in the year, Vietnamese troops commenced service under French officers, and training continued during the summer months. Since the Vietminh were reassessing their strength and strategy, and the rainy season made action difficult, there were to be no other major encounters until fall.

Despite his initial successes, de Lattre also realized that France could not win the war in Vietnam without international support. In May, he attended a conference with the British in Singapore. He was in close contact with the American Embassy in Saigon and the American Consulate in Hanoi. In September, he accepted an invitation from the US Joint Chiefs of Staff to visit the United States.

In Washington, General de Lattre met President Harry S Truman, Secretary of State Dean G. Acheson, and

members of the Senate, in addition to undertaking his detailed discussions with the Department of Defense. Although the exact contents of these discussions remain classified, it seems clear that he echoed his public declarations of his conviction that the war could be won, that it was not merely a struggle to preserve French colonialism, but one to prevent the spread of communism in Southeast Asia, and that it was a conflict comparable in importance to that in Korea. His appeals for greater aid, emphasizing the needs of the Vietnamese Army, were to bear fruit in due course, although de Lattre, himself, never benefited from the increased support he helped to obtain.

De Lattre and his party returned to Paris on 26 September. A few days later, he was told by his doctor that he had cancer. Nevertheless, he spent several days in England at the invitation of the British Chiefs of Staff. Two days were spent in Rome where he discussed the situation of the Vietnamese Catholics with Pope Pius XII. On 19 October, he and his wife arrived back in Saigon.

Meanwhile, military action had resumed in Tonkin. On 22 September, the Vietminh crossed the upper Red River at Yen Bay in order to capture Nghia Lo, a post which was essential to the French if they were to hold the northern mountain area and protect northern Laos. Again, through the exercise of mobility, including the landing of three paratroop battalions, the assault was stopped by 5 October.

Department of Defense

Vietnamese gunners under French command cover a jungle trail

During the brief respite which followed, de Lattre decided to take the offensive. The new campaign was dictated partially by political motives. A conspicuous victory was needed both to get the Indochinese budget through the French National Assembly and to

encourage greatly increased support from the United States who at the moment faced a stalemate in Korea.

With considerable foresight, de Lattre had decided not to attack the enemy's main centers of strength, but to strike to the west of Hanoi which offered a bypass for the Vietminh to funnel supplies to Communists in central and South Vietnam. On 11 November, he launched an attack on Cho Ben, 30 miles southwest of Hanoi. It fell within three days. On 14 November, the attack was shifted to Hoa Binh, due west of Hanoi on the Black River, where the rapid transfer of troops from Cho Ben created an element of surprise and resulted in the capture of the post with small losses.

Final Journey

At this point, General de Lattre was already in the process of transferring his command to General Raoul Salan, and, on 20 November, he left for his final journey to France. The Hoa Binh campaign, nevertheless, remains of interest in any evaluation of de Lattre's methods. While his basic strategy seemed sound, the successful capture of the town was, unfortunately, but the prelude to an intense battle. The French could supply the post only by a winding river route or by a narrow road which was less than half the length, but badly damaged from earlier action and highly vulnerable to attack.

River operations were successful for a time, but ended when the enemy, after fierce fighting, gained control of both banks. The use of the land route was then attempted, but at an unsupportable cost, partially because the French had failed to clear out the underbrush which provided cover for the guerrillas. When General Salan decided to evacuate the post, even the retreat could be accomplished only against heavy enemy resistance. At the end of the operation, on 24 February 1952, Vietminh losses had probably exceeded those of the French, but the damage to the French strategic plan and to the will to fight which de Lattre had so carefully cultivated was beyond recall.

It is difficult to believe that, if de Lattre had retained charge, he would have overlooked the need to clear the land route to Hoa Binh or failed to find some other means of rescuing the operation. De Lattre, however, had undergone surgery in December, and died on 11 January 1952. The nation honored its hero posthumously by naming him a Marshal of France.

Masterful Improvisation

What de Lattre had proved during his brief tenure as commander in Indochina was, first of all, that countering the insurgents required nothing less than the ablest of fighting men imbued with the will to win. He commenced, and, indeed, continued, his campaign with less materiel than seemed necessary to achieve victory, making up for his lack through masterful inprovisation. Probably he was fortunate in encountering errors on the part of his enemy—in this case, General Giap's premature decision to engage in frontal combat—but his ability to take advantage of such mistakes merely confirmed his stature as a military leader.

De Lattre also was outstanding not only in his ability to command the respect and best efforts of his men, but also in his skill in winning the outside support which he saw was necessary if the war was to be won. He convinced the French that a

greater effort was required to win and that it was worth sacrifices elsewhere to hold the line. He also contributed much to the French effort to win support from the United States. It is interesting to speculate to what extent de Lattre, had he lived, might have succeeded not only in pursuing the military campaign more effectively, but also in persuading later French and US Governments to be more forthright in taking political decisions essential to forestall Vietnam's later drift into chaos.

While it is certain that de Lattre would have missed no step which might have led to his basic goal, his genius lay in war and not in politics. Even his military decisions in Indochina reflected an uncertain appreciation of the political situation. The great string of fortifications he constructed around the Red River Delta could not contain the enemy expanding within this circle. There was never time to learn whether General de Lattre appreciated that the enemy, too, had gained invaluable lessons from the defeats he administered in 1951, and that subsequent French strategy would have to remain highly flexible.

De Lattre's steps to create an independent Vietnamese Army ended an inexcusable delay, but there is no indication that he foresaw the danger of French bureaucratic slowness in transferring other powers to an indigenous government. What he offered was an early demonstration that sufficient resources, effectively applied, could overcome many of the military advantages of insurgency, but that, without correspondingly effective political action, the price of victory might prove too great.

Secret Weapons

Colonel Ralph L. Giddings, Jr., *United States Army*

THE demonstration of a thermonuclear capability by Communist China has raised the specter that she might be developing a secret delivery means that would enable her to launch a nuclear strike against one of her Asian neighbors—or even the United States. A cruise missile, to be launched from either a submarine or a surface craft, or, perhaps, nothing more than a pilotless aircraft, is the type of project that could, undoubtedly, be accomplished undetected.

Much academic study has been done in the field of the inspection of arms control agreements to insure compliance. Yet the lessons to be learned from known historical examples of the secret development of modern military weapons largely has been ignored. At least three significant instances of the secret development of major new military weapon systems have come to light since World War II. These historical examples are the:

- German development of the *V* weapons at Peenemünde.

- American "Manhattan Engineer District" project.
- Japanese design and construction of three superwarships, the *Yamato*, the *Musashi*, and the *Shinano*.

The German Case

The German development of the *V-1* and *V-2* weapons and their employment by Adolf Hitler is, perhaps, only a special case in Germany's secret rearmament in violation of the Versailles Treaty. It is, however, a particularly significant one.

As early as 1921, the Italian military theorist, Giulio Douhet, had suggested that the Germans would develop new weapons in secret since they could not be expected to accept the terms of Versailles forever.

Douhet's forecast was discouragingly accurate. In 1919, Robert H. Goddard, an American professor, had published his treatise, *A Method of Reaching Extreme Altitudes*, which set forth the mathematical theory of rocket flight. The same year, René Lorin, a French artillery officer, had published *L'Air et la Vitesse* which proposed a long-range pilotless aircraft quite similar to the eventual German *V-1*.

In 1923, Herman Oberth, a German theorist, published *The Rocket Into Planetary Space* in which he proposed liquid-fueled rockets for interplanetary travel. These works were read seriously by the German military leaders, and soon after World War I, they began to study rockets as a possible replacement for the artillery that was denied them by Versailles.

Father of 'V-2'

Toward the end of 1929, the Germans decided to undertake a program of research and development to evaluate the feasibility of rocket propulsion for military purposes. In the spring of 1930, Captain Walter R. Dornberger (later major general), a German artillery officer with a fine technical background, was appointed to the Ballistics Branch of the Army Weapons Department which, in 1929, had been assigned responsibility for military rocket development. Dornberger, more than any other one man, became the father of the *V-2* rocket. In 1936, he and his associates were to produce the long-range development plan that led to the *V-2* rocket.

The first German Army rocket motor experiments took place at the *Raketenflugplatz*, the proving ground for the German Society for Space Travel, located in a northern suburb of Berlin. This location was unsatisfactory, and Dornberger moved his testing program to the German Army Weapons Department Experimental Station at Kummersdorf. There, in a clearing in a pine forest 17 miles south of Berlin, the Kummersdorf West test facility was constructed. This was to serve as the principal German rocket-testing facility from 1932 until the

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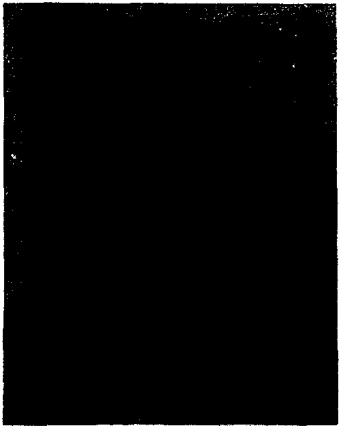
Colonel Ralph L. Giddings, Jr., is with the Weapons Systems Evaluation Group, Department of Defense, Washington, D. C. He served in the Pacific theater during World War II; was Senior Advisor at the Royal Saudi Arabian Artillery School; was assigned to the North American Air Defense Command, Ent Air Force Base, Colorado; and served with the 50th Artillery Group, US Army Air Defense Command. A graduate of the Armed Forces Staff College and the Air War College, he holds degrees in Civil Engineering from Colorado State University and Utah State University, and an M.A. in International Affairs from George Washington University.

opening of the test range at Peenemünde in 1937.

However, Kummersdorf West also quickly proved to be too limited, and the need for an unrestricted test range was recognized. Wernher von Braun, one of Dornberger's young colleagues and a native of Pomerania,



Air Force and Space Digest

A German *V-2* missile on the launching pad

chanced upon Peenemünde during a visit to the Baltic coast in 1935. He recognized it as an ideal spot for a secret base from which to conduct large-scale rocket experiments. Ground was broken in August 1936, and the first actual test flight at the range was conducted in December 1937.

Henceforth, progress was limited only by the availability of resources and technical manpower, and, ultimately, by Allied military action. The first successful full-scale test flight of the *V-2* rocket was conducted there on 3 October 1942. The large rocket attained an altitude of 50 miles, a range of 120 miles, and a maximum speed of 3,300 miles per hour while flying along the desired course. By the time of the first Allied air raid on Peenemünde in August 1943, experiments with large rockets had been conducted there for almost six years.

Base Facilities

Thus, Peenemünde became a vast and secret complex devoted to the development, manufacture, testing, and firing of long-range guided missiles. It consisted of three principal industrial complexes which contained complete manufacturing facilities, including a pilot factory, machine shops, laboratories, and drafting rooms. The proving ground contained 12 distinct rocket test stands for testing various components up to complete missiles, and *V-1* launching catapults for the flying bombs.

Other facilities there included its own powerplant, a large liquid oxygen plant, an extensive internal rail net, an airfield, a harbor with docks, the world's largest supersonic wind tunnel, range instrumentation and tracking stations, engineering and administrative offices, and housing for the personnel.

Of 264 developmental *V-2* missiles that were launched there between 13 June 1942 and 19 February 1945, there were 147 produced in Peenemünde's own factories. A normal work force of approximately 5,000 seems to have been employed. The German investment in Peenemünde from 1936 to the end of the war has been variously estimated at between 100 million and 200 million dollars in 1945 money. And yet, as late as the beginning of 1943, the British intelligence was unaware that Peenemünde might be worth close scrutiny.

What, if anything, did the British know of this large effort that had occupied the Germans for so many years? In October 1939, the British Naval Attaché in Oslo had received an anonymous letter purported to be from a high German official sympathetic to the British cause. It stated that the informant could provide a report on the latest German technical developments if the British were interested.

"Oslo Report"

On 4 November, the unknown informant's report arrived. It contained a wealth of technical information on many German development projects and was to prove to be remarkably accurate. This document, called the "Oslo Report," reported among other items that the Germans were developing a number of flying or glide bombs, at least two types of radar, long-range rockets, and that they had an important secret base an Peenemünde on the Baltic coast.

The Oslo Report was so detailed that it was obviously the work of a knowledgeable individual. It was either of great value from some highly placed official or scientist, or else it was an elaborate hoax intended as a cover for something of considerable importance. Perhaps it was for fear of the latter, perhaps it was because they received too many such reports to pursue each one, but the British did not follow up on this report vigorously. It was not until May 1942, two and one-half years later, that the first significant aerial photographic reconnaissance of the Peenemünde area was made, and this was only by chance and in a random fashion.

In December 1942, an alien agent of unknown reliability sent in the first of a series of reports indicating that tests of long-range rockets were taking place near Swinemünde, adjacent to Peenemünde. Early in 1943, another agent linked the tests of large rockets with the secret base at Peenemünde.

Aerial Reconnaissance

Beginning in May 1943, more systematic aerial reconnaissance of Peenemünde was begun. Up until June of that year, Peenemünde had been photographed only six or eight times, but during June, it was photographed four times. One of the photographs taken on 2 June 1943 showed a tall object standing on an expanse of foreshore along the Baltic. This object was identified only as a "thick vertical column about 40 feet high." It was, in fact, a *V-2* standing on its tail fins in launching position.

Finally, on the night of 17-18 August 1943, just under 600 airplanes of the British Bomber Command attacked Peenemünde. Great damage was done. Over 800 people at Peenemünde were killed and 40 British aircraft were lost, but the attack came too late to halt the project, and the *V-1* and *V-2* weapons were introduced into combat the next year.

The first operational *V-1* was launched against England on 13 June 1944, and the first operational *V-2* was launched against her on 8 September of the same year. However, it was by then too late for these weapons to have an effect on the outcome of the war.

The story of the development of the atomic bomb and of the Manhattan Engineer District is well known. It started with the famous letter that Albert Einstein wrote to President Franklin D. Roosevelt on 2 August 1939 expressing his belief "that the element uranium may be turned into

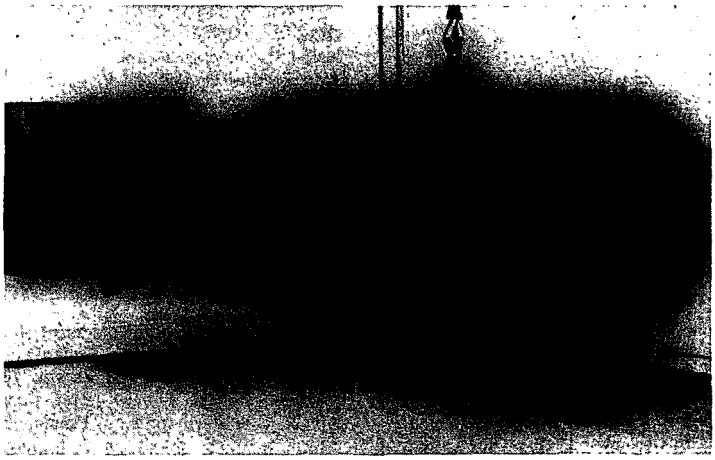
a new and important source of energy in the immediate future."

This letter was seen by the President on 11 October, and work began at once. However, little progress was made at first, and on 7 March 1940, Einstein wrote the President a second letter in which he urged prompt action. When it was finally decided to pursue the development of atomic weapons seriously, it was undertaken with a complete effort. Not only were secret laboratories constructed in New Mexico, but two major industrial complexes were designed and constructed with amazing speed and secrecy.

To insure a proper sense of urgency, the construction phase of the project was assigned to the US Army Corps of Engineers, and, in June 1942, a new Engineer District was created to supervise it. For the purposes of public works, the Corps of Engineers divides the Nation into geographical districts, each district bearing the name of the city where its headquarters is located. Thus, the establishment of a Manhattan Engineer District, since the first headquarters was in lower Manhattan, was a move that was calculated to attract little attention.

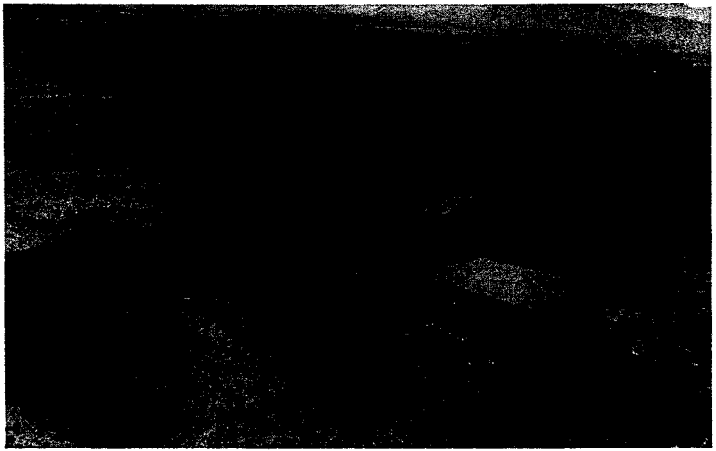
With this as a cover, the entire atomic bomb project was placed under the Manhattan Engineer District on 16 August 1942. The atomic bomb project took shape rapidly. The vastness of the undertaking can be realized from a description of the major facilities constructed. Sites for two manufacturing facilities and one research and development center were selected at Oak Ridge, Tennessee; Hanford, Washington; and Los Alamos, New Mexico, respectively. These facilities were designed, constructed, staffed, and operated in complete secrecy.

At Oak Ridge, 18 miles northwest



US Air Force

Atomic bomb of the type detonated over Hiroshima, Japan



US Army

Camp site of the bomb testing area at Alamogordo, New Mexico

of Knoxville, Tennessee, a gaseous diffusion plant was built to produce enriched uranium 235. It comprised 59,000 acres and its population reached 80,000. At one time during the war, it contained 270 permanent buildings and employed 24,000 operating personnel. At the Hanford Engineer Works—15 miles northwest of Pasco, Washington—the reactors to produce plutonium were built. This huge reservation in the desert of eastern Washington consisted of 631 square miles of 400,000 acres owned or leased. Its population reached a maximum of 60,000 in 1944 when the construction force alone totaled 45,000.

Los Alamos, 25 miles northwest of Santa Fe, New Mexico, and the site of the developmental laboratories, was even more secret than the manufacturing sites. Oak Ridge and Hanford were merely hidden cities, but they did have post offices and thus legally existed. Los Alamos, on the other hand, was a city that did not even exist. Censorship was absolute, and the only address that it had was Post Office Box 1539, Santa Fe, New Mexico. Yet it comprised 45,000 acres and, in 1945, contained 6,000 people, two-thirds of whom were civilians and the remainder military personnel.

The United States proved that, given wartime controls and public support, a democracy was able to achieve more nearly complete secrecy than either Germany or Japan.

In some ways, the Japanese construction of three superwarships—the battleships *Yamato* and *Musashi* and the aircraft carrier *Shinano*—is both the most interesting and the most instructive of these three examples. It also is, perhaps, the least well known.

The German and American cases involved the breakthrough development of previously unknown weapons.

Thus, they were more nearly secure from discovery because their very nature was unsuspected. Also, their development was not specifically prohibited by treaty obligations, and there was no logical incentive to suggest a search for them. Furthermore, in these two cases, much of the work was accomplished with the cover of wartime censorship.

Construction Forbidden

In contrast, while the Japanese ships were of unprecedented size and power, they certainly did not represent new weapons or technological breakthroughs. Since their construction was expressly forbidden by the Washington Naval Limitation Treaty of 1922, the other signatory powers had a vested interest in insuring compliance. The keel of the first of these ships, *Yamato*, was laid down in 1936, about the time of Munich. The last, *Shinano*, was on the ways 18 months before Pearl Harbor. Wartime censorship was not in effect.

Japan emerged from World War I a dissatisfied victor, feeling that her right to become a major world power had been ignored. In the Washington Naval Limitation Treaty, she was, in effect, recognized as a major naval power.

By this treaty, the United States, the British Empire, France, Italy, and Japan agreed to limit their respective naval armament. Standard displacement of individual ships was not to exceed 35,000 tons, and armament was not to exceed 16-inch guns. The total tonnage to be permitted each contracting power was specified, and the historic 5-5-3 ratio in tonnage was established among the United States, the British Empire, and Japan. However, these limitations applied only to capital ships and aircraft carriers. The treaty was to remain in force until 31 December 1936, or beyond if no signatory had given two-year notice of intent to withdraw.

The net effect of all this was to recognize Japan as the third ranking naval power in the world. Moreover, since the British Navy was spread over the Atlantic, Pacific, and Indian Oceans, and the United States Navy was spread over the first two, Japan was, in effect, supreme in the Pacific. At the London Naval Treaty of 1930, Japan made further gains when the ratio 10-10-7 was established for cruisers, destroyers, and submarines.

Naval Equality

However, under the pressure of Japanese militarists, Japan was demanding a position of naval equality—or even superiority. Slowly, the idea of constructing a class of superwarships in secret and in violation of the treaty emerged. The final decision to go ahead was made in the early 1930's, and the long process of design, preparing blueprints, readying a construction slip, and stockpiling materials began. This was a major undertaking.

There was no shipyard in Japan capable of building *Yamato* class battleships without expanding its facilities. Thus, special preparations had to be undertaken in selected shipyards. Some of these arrangements consisted of expanding dock capacities, building a special transport capable of carrying an 18-inch gun turret, and hiding such a large vessel behind sisal rope curtains for security.

In 1934, Japan announced her intentions to withdraw from the Washington Naval Limitation Treaty at the end of 1936. Thus, while Japan technically adhered to her treaty obliga-

tions, the very planning for *Yamato's* construction, which was accomplished while the treaty was still in effect, violated the spirit, if not the letter, of the treaty. Even as the formal notice of her withdrawal reached Washington, the keel of *Yamato* was being laid in the Kure Naval Yard.

Unlike Peenemünde and Los Alamos, which were created in secret and located in out-of-the-way places, the shipyards where these ships had to be built already existed and were located in populated places—Kure, Nagasaki, and Yokosuka—so special security measures were required. Fences of unprecedented size were erected to screen the construction areas from prying eyes. Workman and their families were moved into the yards where they lived in total seclusion.

At Kure, about one-fourth of the construction slip where *Yamato* was built was covered by a roof to prevent the slip from being seen from a nearby hill. The slipway on which *Musashi* was built was hidden from view by a sisal rope curtain. The total length of rope used would have reached 1,700 miles and weighed over 400 tons. Japanese fishermen suddenly found sisal rope for their nets unavailable, thereby presenting local Japanese officials with something of a domestic crisis.

The policy of absolute secrecy with

US Navy

A *Yamato* class battleship attempts to avoid US bombs

regard to the construction of these ships extended even to their launching which had to be accomplished by stealth rather than with the fanfare that usually accompanies the launching of a major vessel. On the afternoon of the day preceding the launching of *Musashi*, all the entrances leading to the slipway where she was being built were sealed off without notice, and all communications with the outside world were cut off. In the city of Nagasaki, a heavy guard was posted early in the morning to keep people from observing the historic occasion. Even as they were all eventually sunk without publicity, so they were launched without notice.

These ships were conceived and constructed on a great scale. *Yamato*, and her sister ship, *Musashi*, had a standard displacement of 64,000 tons, nearly twice the Washington Treaty limit. Her main batteries consisted of nine 18.1-inch guns, the largest guns ever mounted on a battleship. By comparison, the USS *New Jersey* is 45,000 tons and mounts nine 16-inch guns. Secondary armament included twenty-four 5.5-inch antiaircraft guns and approximately 150 antiaircraft machineguns. Her top speed was over 27 knots.

Aircraft Carrier

The *Shinano* was started in May 1940 as a third battleship of the *Yamato* class, but, in June 1942, as a result of the lessons of Pearl Harbor and Midway that carriers, not battleships, would be the most important warships of World War II, she was converted into an aircraft carrier. These ships were marvels of engineering ingenuity, naval architecture, and shipbuilding skill. But they were obsolete before they were launched.

Musashi was the first of the superbattleships to go. During the battle off Leyte, the Japanese Fleet that included both *Yamato* and *Musashi* was attacked repeatedly by carrier-based planes of the US Navy. On 24 October 1944, after absorbing punishment from bombs and torpedos from daybreak to evening, *Musashi* finally went dead in the water at 1850. She sank in the Sibuyan Sea 45 minutes later. The next day, in the continuing battle, the huge 18.1-inch guns were fired in anger for the first and only time. Only 81 of *Yamato's* 1,080 main battery shells were expended in a minor action against surface units of the US Navy off Samar.

Ship "Unsinkable"

Shinano, the battleship-turned-carrier, sailed from Yokosuka on the first leg of her maiden voyage at 1800 on 28 November 1944. At 0312 the following morning, she was struck by four torpedos fired by the submarine USS *Archerfish*. *Shinano's* captain was so confident that his ship was "unsinkable" that he continued on course, with no attempt to reach shore, and her inexperienced crew did not take proper damage control measures. The combination of poor command judgment and an untrained crew precluded the steps that could have saved her. She sank at 1055 on 29 November, only 17 hours from the time she first left port. She never fired a shell and never launched a plane.

Yamato, the first of the class, was the last to be sunk. Following the landing of the US 10th Army on Okinawa on 1 April 1945, she was sent on a suicide mission to attempt to destroy the ships supporting the Okinawan invasion. She carried only enough fuel for a one-way voyage, and

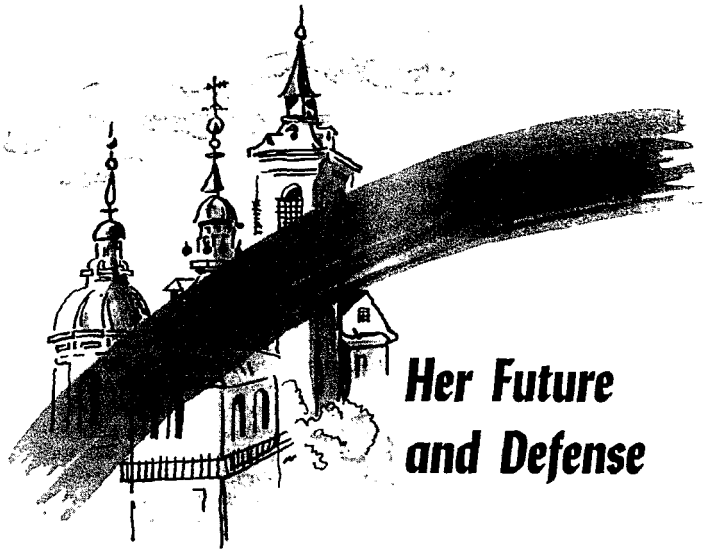
was not expected to return. With no aircover whatsoever, she was naked to air attack, and was sent to the bottom by planes of the US Navy at 1500 on 7 April between Kyushu and Okinawa.

These stories may offer a lesson for the future since they appear to have the following common characteristics:

- All were vast projects involving thousands of people, millions of dollars, and years of time. They were not something, like the development of a new rifle, that could be done in the relative isolation of a small workshop or laboratory. And yet secrecy was maintained. Mere size was no bar to the secret development of a new weapon.
- Each was successful in achieving surprise. Each was able to build up a sufficient leadtime that, by the time the other side became aware that something might be taking place, it was too late either to devise an effective defense or to retaliate in kind.
- Each was accomplished with the support of a sympathetic population. This may well be the key to success in the clandestine development of new weapons.

The very audacity of these projects was one of their most effective means of concealment. It may be easy in hindsight to ask why British intelligence, warned by the Oslo Report, did not move against Peenemünde sooner and more decisively. It is easy to ask why the United States was surprised by the Japanese warships. However, all this was not as clear then as now. Part of the problem was that no one knew just what to look for.

The lesson, then, seems clear that the secret development of weapons is possible. Given the right conditions of public support, or at least of public acquiescence, governmental control, and unexpected technology, new and secret weapons could again be produced. Detection techniques have been vastly improved since 1945, but technological surprise is still possible. Modern inspection methods can make it more difficult. They cannot make it impossible.



Her Future and Defense

Colonel James H. Tormey, *United States Army*

ON 1 October each year, Spain has, for three decades, counted the anniversaries of the national leadership of Don Francisco Franco. During this extended period, the United States has come to recognize the value of Spanish bases and military forces as a counter to the Soviet threat.

With the passage of time, it is only natural that the United States should be concerned with the form and character of the regime to follow General Franco's. The protracted nature of the cold war will probably extend the era of East-West conflict beyond the rule of even the most long-lived of individuals.

There has been a long period of stability in Spain during which the primary power bases and political groupings have been delineated. The Spanish Government derives its support from the armed forces, the church, the wealthy, and the National Movement "Falange." Chief among these are the armed forces of Spain.

Spanish military leaders have inserted themselves in their nation's po-

litical affairs for over 150 years. In the 20th century, the army has played a key role in ending three unsuccessful regimes—the reign of Alfonso XIII, the dictatorship of General José Antonio Primo de Rivera, and the Republic. The importance of the armed forces is, therefore, accentuated by the willingness of their leaders to take a position in the political arena.

Armed Forces Support

The army has the greatest importance to the stability of Spain because of its size—about 200,000 compared with 46,000 for the navy and 38,000 for the air force. It is stationed throughout the length and breadth of Spain where it would be available to put down any uprising.

US military aid has helped modernize both training and weaponry of the army. Small unit tactics have been emphasized. This training not only points the army toward guerrilla-type operations against an invading enemy, but also makes the army a potent force against insurgent enemies. The army would be supported in counterinsurgency operations by a national paramilitary police force—the *Guardia Civil*—which is under the command of a senior army officer.

The heirarchy of the Roman Catholic Church has strongly supported the Spanish Government since the end of the civil war. The church is in a better position to promote conformity and stability in Spain than it is in other countries. It enjoys a virtual monopoly in the religious life of the nation, and has a predominant position in the education of the people. The church also plays a vigorous role in workers' organizations and newspapers.

The church is obligated to General Franco for halting the anticlerical excesses of the civil war, for restoring its property, and for giving the church a voice in affairs of state. Appointment of individual bishops requires government approval. Many younger priests, however, believe that the church and state relationship is too close for the good of the church and speak out against it. They also believe that not enough is being done to correct Spain's socioeconomic ills and that the church is dragging its feet on reforms urged by Vatican II.

Financial Stability

As in most Latin countries, those who control corporations, banks, and large estates are a powerful support of the government. They have a vested interest in stability and provide much of the know-how required to manage the financial affairs of the country—affairs which have received more and more attention during the past few years.

A fourth support of the Spanish Government is the Falange. Obviously, it is a relatively new power base when compared with the armed forces, the church, and the wealthy. Franco downgraded the Falange some years ago by incorporating it into the National Movement. While its position has been eroded, more recent legislation on the

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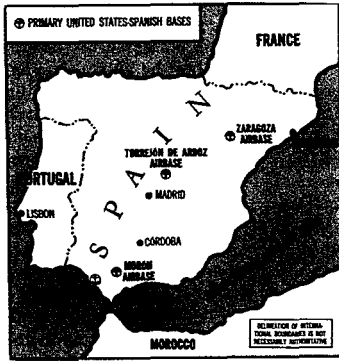
Colonel James H. Tormey is with the Office of the Chief of Engineers, Department of the Army, Washington, D. C. He received a Master's degree in Civil Engineering from Princeton University, and is a graduate of the National War College. His prior assignments include service with the 2d Infantry Division in the Korean War; staff duty in the Office of the Assistant Chief of Staff for Force Development, Washington; and as Engineer Advisor to the Vietnamese 2d Corps.

National Movement appears to have arrested this trend. Its disarmament by the army after the civil war deprived it of a paramilitary character but, if revitalized, it could conceivably function as a paramilitary organization in a national emergency.

A powerful determinant in the future regime of Spain is the success



of her economy. Recent economic improvements have demonstrated Spain's ability to raise the living conditions of her people without violent social upheaval. Average annual per capita income has passed the $500 level. In the past few years, Spain has begun to participate in the industrial revolution on a major scale. Indicative of this industrial change are the production figures for automobiles which grew from zero in 1953 to over 250,000 in 1967.

The growth of Spanish industry should not obscure the fact that Spain's economic position is relatively insecure. As with any rapidly developing nation, inflation is a hazard. In addition, Spain has a serious imbalance of trade. The trade gap amounts to about two billion dollars per year, a gap which would be intolerable except for the tourist industry which brings 16 million visitors to Spain each year.

Power Combinations

Politically, there are several possible power combinations for the future. The first is that Spain might have another *caudillo* who would control the Spanish Government as General Franco has.

However, such a possibility is unlikely. General Franco is too extraordinary an individual, and the events which prepared him for national leadership were too cataclysmic to expect a repetition. Born in 1892, the son of a naval officer, he aspired to a naval career. When no vacancies were available at the Spanish Naval Academy, he applied for the military academy at Toledo. After a successful cadet career, he volunteered for duty in Africa because in Africa, the ambitious young officer was more likely to see combat and gain promotion.

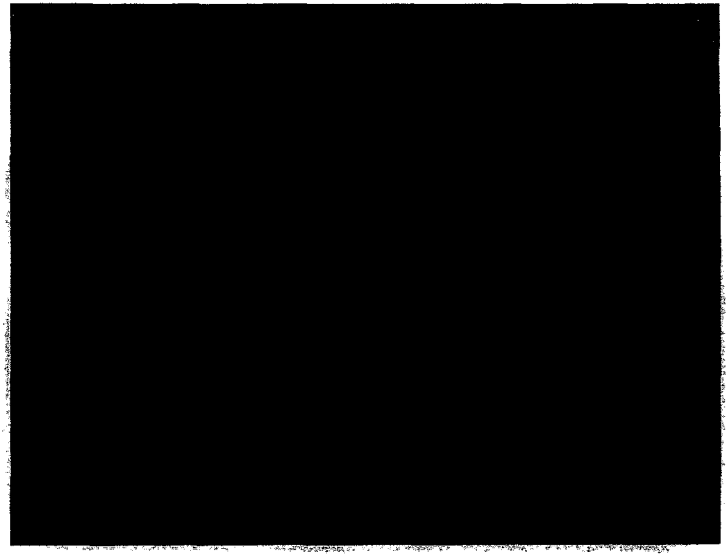
By 1923, Colonel Franco had distinguished himself in combat and was selected to command the Spanish foreign legion. In 1925, he was responsible for planning one of the first combined air, land, and sea operations in military history. This operation pitted the Spanish and French against the Rif tribes of Morocco. The operation was a success. In 1926, at the age of 34, he became a general officer, the youngest of any European army. He was designated Chief of Staff of the Spanish Army in 1935.

During the civil war, General Franco demonstrated qualities which insured his success as leader of Spain. He controlled the army without strangling its effectiveness by over-

centralization. In his dealings with foreign powers, he obtained aid for his country without creating crippling commitments for Spain. He held the Falange in check and did not permit political parties to upset the equilibrium of his support. These abilities were to serve him well in leading his country after the long and bitter civil war.

General Franco's management of Spain's foreign affairs has been astute. At first strongly sympathetic to the Axis, Spain began to lose enthusiasm for the Axis cause in 1942 when the Allies landed in North Africa and, Adolf Hitler's Soviet campaign foretold no promise of a quick victory. General Franco backpedaled steadily to restore his country first to a position of neutrality and then to a position of support of Allied fortunes.

Following World War II, Spain was ostracized by the victorious Allies. However, the realization of the Soviet threat resulted in increased awareness of the importance of Spain to the defense of Europe. Spain possessed a strategic position with respect to the Soviet Union; it lay behind the formidable land barrier of the Pyrenees and possessed a hardy population capable of producing an army of four million if a complete mobilization were required. General Franco has traded well on Spain's strategic importance. Approximately 1.4 billion dollars in Agency for International Development



The space-age, billboard-size, tropospheric antennae contrast with the biblical-era village of Humosa

funds and 600 million dollars in military assistance have been provided to Spain.

There are also constitutional obstacles to a regime similar to General Franco's. Spain has been declared a monarchy having both a chief of state and a chief of government. A monarch or a regent will probably be selected to perform the functions of chief of state and a premier to perform the functions of chief of government. Thus, two individuals will carry out the roles now combined in the person of General Franco.

Communist Takeover

The possibility of severe unrest or Communist takeover in Spain is unlikely. Economic improvements have created a national situation where too many people, including labor, have too much to lose by extended unrest. Remembrance of the civil war and observation of Communist conduct in other countries have reduced the appeal of communism to the intellectual leaders of Spain. The Communist Party itself has been harassed and repressed by the Spanish Government with many Communists imprisoned or driven into exile. Communist membership in Spain is estimated to be less than 5,000.

Another factor which would prevent Communist takeover is the presence of the armed forces of Spain. Working with the police and *Guardia Civil*, the military forces could put down any revolt. Nevertheless, the Communists do have the potential to cause trouble and can exploit economic unrest to their advantage.

Spain has a parliamentary body, the *Cortes*, which will continue to function under the constitution. Its manner of functioning, however, will not be similar to that of other Western nations because party politics are forbidden. Not only is a constitutional framework lacking, but the political groups which exist in Spain have been stunted by the requirement to operate underground.

Political Groupings

Spain has a range of political groupings which could eventually develop into parties if legalized. Besides the Communists, the left wing would include the Socialists. Elements of the Christian Democrats would provide the center, possibly reinforced by the Catholic Action groups of the church. On the right, the Monarchists would exist as a conservative element. The normal fragmentation of Spanish politics would, undoubtedly, result in increasing the number of political parties.

Spain's previous experiences with parliamentary democracy have been divisive and unproductive. The memory of the discord of the Republic is likely to restrain Spanish leaders from embarking on new experiments in party politics, particularly if the nation is able to progress economically and socially under a constitutional monarchy.

In addition to being constitutionally prepared for reinstitution of the monarchy, Spain also has two suitable royal persons who could rule—Don Juan and his son Don Juan Carlos. Don Juan, the son of Alfonso XIII, received his education in England at the Royal Naval Academy. Don Juan Carlos has attended the Spanish military academies and resides in Madrid, while his father maintains residence in Portugal.

The military forces will exert a powerful voice in naming the monarch and

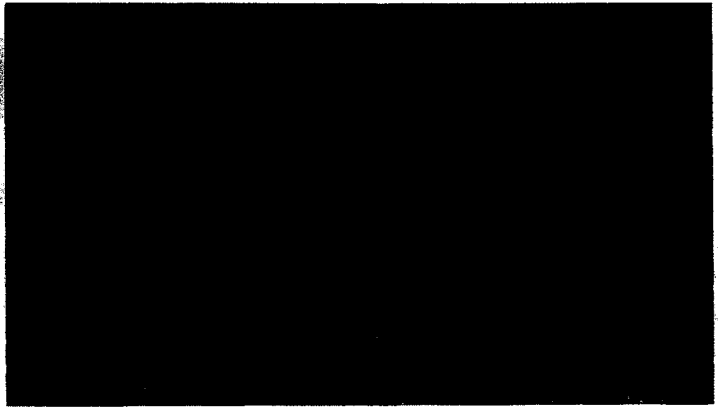
the premier. Both will require the support of the services. These considerations are fundamental to Spanish political life.

Outright military control appears likely only if military leaders consider such a move necessary to prevent chaos. If, for example, a power struggle were to prevent naming a premier, the military leaders might step in.

The power bases of Spain, and the army in particular, are expected to support a transition in accordance with the constitution which provides for a monarch and a premier. The army, church, and the wealthy will play leading roles in selecting the individuals to occupy these two key positions in the government. The resultant government is expected to continue to hold all the reins of power.

In keeping with her past record of ably executing foreign policy, Spain's current defense policy is to take action only where her interests are truly threatened. Although Spain's interest in protecting herself against the Soviet threat to Europe has drawn her into the bilateral bases agreement with the United States, Spain has seen her interests in Latin America in a different light.

General Franco has not imposed trade restrictions on Cuba; on the contrary, he has maintained diplomatic relations and continued trade. At present, Spain is building ships to be sold to Cuba. The rationalization of this policy is that Spain does not consider Cuba a threat to her security and has many economic interests in Cuba which she wishes to maintain without disruption.



US Air Force Photos

Torrejón Airbase near Madrid is one of three US Air Force bases in Spain

Pitted against such a gigantic threat as the Soviet Union, one might ask what is the value of Spain's limited military forces. The answer, of course, is that Spain's forces have real value when considered as a part of a collective security system.

Spain's inability to join the North Atlantic Treaty Organization, the pri-

mary Western system of collective security, has resulted from Western rejection of Spain as a partner. This rejection has not been on the part of the United States, nor of France and Germany, but primarily from the Netherlands, Belgium, Denmark, and Norway. Objection in these countries to a defense arrangement with Spain will probably continue as long as the Socialist Party is not permitted to exist legally in Spain.

Past Spanish intolerance of Protestant religious groups is also a cause of friction with the north European countries. Two possibilities exist for reducing these objections. One is the possible liberalization of Spanish domestic policies in the future such as the religious liberty law passed in 1967, and another is reassessment of the Soviet threat which could accompany a heating up of the cold war.

At present, Spain has two defensive alliances. The older alliance is with her neighbor, Portugal. The Treaty of Friendship and Nonaggression between Spain and Portugal has existed since 1939. The bases agreement with the United States was signed in 1953. In addition to airbases at Torrejón, Zaragoza, and Morón, the United States is permitted to use the naval base at Rota, near the Strait of Gibraltar.

As a result of the bases agreement, Spain has received extensive economic and military aid. The United States has found the bases to be of sufficient value to warrant a five-year extension of the agreement after its original 10-year period expired in 1963. One additional five-year extension is envisaged under the original agreement and is now under discussion between the two countries.

These defensive alliances have indicated the acceptance of the principle of collective security by Spain. Although not a member of NATO as now constituted, she may play a role in NATO or in some other European defense arrangements at a later date.

Spain has ties with France which would make alliance logical. They are major trading partners and have compatible governments. France is a major user of Spain's excess labor supply which, in recent years, has resulted in large-scale immigration of Spanish workers. Both nations have interests in Africa, and both have challenged the United Kingdom as a European power. Spain's challenge to the United Kingdom is likely to continue until settlement of Spain's claim to sovereignty over Gilbraltar.

Another indicator of Spanish awareness of her ties to Europe is her efforts to gain admittance to the European Economic Community. Negotiations are continuing, with Spain receiving support of the major partners, France and Germany, in her bid for admittance. She has been a member of the Organization for Economic Cooperation and Development since 1960.

Spain has recognized the Soviet threat to the West and has indicated her willingness to join with other nations in defense of her interests. Her future government is most likely to remain strongly centralized with a strong premier and a titular monarch. Her major interests lie with Europe. Although she has encountered difficulty in joining European organizations, she will continue to attempt to associate with friendly Western nations to gain the economic and defensive benefits from these associations.

MILITARY NOTES

UNITED STATES

Firing-Out-of-Battery Recoil Cycle

A unique, soft recoil system being developed by the US Army Weapons Command is one of the most promising research projects for developing highly mobile, lighter weight artillery weapons with increased firepower. Called firing out of battery (FOOB), the new recoil cycle offers potential reduction in weight and over-all weapon length, an increase in the maximum rate of fire, improved stability, and greatly reduced emplacement and displacement times. In operating FOOB, an accelerating force is applied to the recoiling parts in the direction of firing. After a predetermined forward velocity is attained, firing is initiated, and the recoiling parts reverse direction and return to the starting position.

To determine the technical feasibility of the FOOB recoil cycle, a 105-millimeter test weapon was used. However, engineers are currently exploring the possibility of extending the FOOB concept to encompass larger caliber weapons.

The primary advantage of the FOOB is the significantly lower forces which are transmitted to the ground via the supporting structure. With these lower forces, improved stability and accuracy can be achieved.

Since a positive ground anchor is not normally required, the weapon can be emplaced and displaced in far less time. This means faster delivery of fire on a target area and quicker withdrawal of the weapon in emergency situations.

Increased maximum rates of fire are possible due to reduced cycle time.

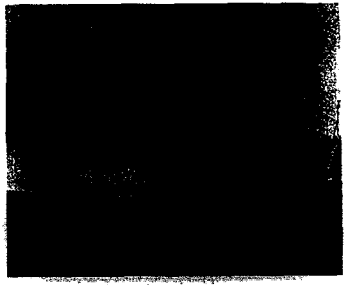
US Army

105-millimeter test fixture used for testing new soft recoil system

Maneuverability and transportability are also improved because of the reduced weapon length and weight.—US Army release.

'Plainview' Tests Continue

The world's largest hydrofoil vessel has been undergoing tests in the waters of Puget Sound. The 220-foot vessel, the *Plainview*, will be manned by a crew of 20 officers and men. The Navy is studying the feasibility of



Armed Forces Management

Hydrofoil *Plainview* in waters of Puget Sound

using larger hydrofoils in a variety of roles and missions. Made of aluminum, the *Plainview* displaces 300 tons. When on foils, titanium propellers, at the rear of the completely submerged foils, drive the ship at speeds in excess of 40 knots.—*Armed Forces Management*, © 1968.

Contract Award

The Army recently awarded a 19.4 million-dollar contract for the production of *M60A1E2* tanks. The *M60A1E2* tank has a new turret assembly mounted on the *M60A1* tank chassis. The new turret has a much smaller silhouette than the *M60A1* turret, and it provides superior armor which is more difficult to penetrate. The main armament of the *M60A1E2* is a 152-millimeter gun capable of firing conventional ammunition or launching the *Shillelagh* missile.— US Army release.

Research and Study Institute

A new institute charged with research for the Army in matters of civil affairs, psychological operations, stability operations, and unconventional warfare has been provisionally formed with headquarters at Fort Bragg, North Carolina.

The Institute of Strategic and Stability Operations (ISSO) combines the former Special Warfare Agency at Fort Bragg with the Civil Affairs Agency at Fort Gordon, Georgia.

The new unit becomes the US Army Combat Development Command's (USACDC's) seventh special research and study institute. As the USACDC element of the Fort Bragg center team, it will also coordinate doctrine, materiel, and evaluation of all air movement developments.

The new provisional institute will address requirements in all intensities of conflict with special emphasis in low-intensity situations, including military assistance and advisory efforts of the Army.—US Army release.

Armor That Floats

A floatable armored vest that can stop caliber .30, armor-piercing projectiles has been developed for the Navy. The vest is of boron carbide composite encapsulated in polyethylene foam to make it float. The buoyancy provided makes it a bulletproof life preserver. A principal use is expected to be for river patrol boat personnel exposed to hostile fire from the shore, with a likely potential application for amphibious troop landings.

The boron carbide armor composite material is the lightest weight (seven pounds per square foot) material known that is capable of stopping caliber .30, armor-piercing projectiles.—News item.

From Prototype to Production Process

The US Army Combat Developments Command (USACDC) has started using a simplified process for faster development of new types of individual clothing and equipment needed by soldiers in Vietnam and elsewhere.

The method, called "Letter Requirement—Quick Reaction" (LR—QR), speeds the development and procurement of all individual items except small arms.

It calls for just one in-process review for agencies involved when the prototype or mockup looks ready for fielding. Then, the item is sent to the field and judged in action. This means, in effect, a direct transition from prototype to production rather than intermediate testing at length of the mockup. A 21-day deadline for comments from interested parties to Department of the Army stresses the urgency for reacting to the needs of the men at the scene of action.

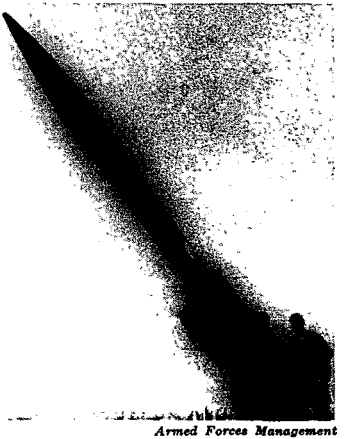
If the soldier in Vietnam should call for a five-quart canteen for long jungle missions or a waistbelt to harness unusual combat equipment, the main emphasis is on getting an adequate, safe product to him. Then, if necessary, the product is improved from that point rather than held back until a perfect product emerges from a longer period of stateside staffing and testing.

Many items slated for the USACDC's system of Lightweight Individual Combat Clothing and Equipment (LINCLOE) will be handled by the new process. This will streamline the evolution of LINCLOE, targeted for 1975, and, perhaps, lead to earlier-than-expected distribution of some components of the lightweight combat package.—US Army release.

Army Tests Paper Rocket

LOCAT (Low-Cost Air Target) is a target designed and developed for training air defense crews against low-flying aircraft. The 15-foot-long, 155-pound vehicle has a fuselage made of rolled paper tubing of the type used to store and ship household carpets.

The target is assembled in the field at the launcher site with modular components delivered to the range by truck. Total assembly time from de-



Armed Forces Management

Rocket-launched *LOCAT* provides a realistic target for missile and gun crews

livery of components until launch is 45 minutes. Launch results have shown that multiple launches are possible. Demonstration firings were held for the Army by the manufacturer under live firing operational training conditions.

Powered by three 2.75-inch rockets, the 9.6-inch-diameter rocket gives antiaircraft crews a 500-mile-per-hour target.—*Armed Forces Management*, © 1968.

'MACV's' Delivered to Marine Corps

Two experimental half-ton infantry support vehicles, designed to increase the off-road vehicle mobility of combat units, have been delivered to the US Marine Corps for testing.

Called *MACV*, an acronym for *Multipurpose Airmobile Combat Support Vehicle*, the small eight-wheeled unit is capable of hauling a 1,000-pound payload over cross-country terrain,

Ling-Temco-Vought, Inc.
MACV

swamp areas, and inland water barriers. The *MACV* is only 96 inches long, 50 inches wide, and has more than 22 square feet of cargo deck. With two passengers and cargo, it will travel over improved roads at approximately 20 miles an hour and can cross waterways and rivers with full payload at about two miles an hour.—News item.

'Spacetrack' Radar

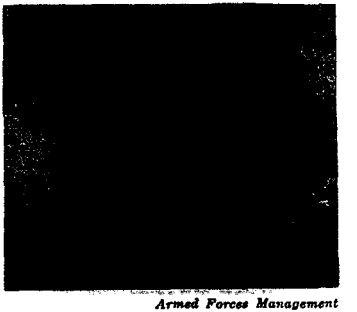
A giant, city-block-long, 13-story-high radar at Eglin Air Force Base, Florida, is now being used by the Air Force to provide data to the Space Defense Center of the North American Air Defense Command in Colorado Springs, Colorado.

Although the giant *Spacetrack* radar, known formally as the *AN/-FPS-85*, is not fully operational, it is already furnishing a wealth of information on satellites to defense planners.

The *Spacetrack* radar differs from the familiar rotating antenna in that the radar beams are directed to different places in the sky electronically. Electrical energy is directed under computer control to groups of individual antennas set into the sloping face of the radar. Information from the radar returns goes to a digital computer which processes, stores, displays, and transmits the data to the Space Defense Center.—US Air Force release.

Load-Handling Vehicle for 'C-5A'

The Air Force has contracted for five grasshopper-like, materials-handling vehicles that can support up to 55,000 pounds of cargo. The vehicle is designed primarily as support equip-



Armed Forces Management
New US Air Force materials-handling vehicle for the *C-5A*

ment for the *C-5A Galaxy*. Basically a truck bed, the vehicle can be raised as much as 13 feet, moved sideways, or tilted in all directions.—*Armed Forces Management*, © 1968.

Army Designs Fuel Hoseline

The US Army Mobility Equipment Research and Development Center has developed a light, compact, cross-country fuel hoseline system.

Designed to move fuel from bulk sources to dispensing points, the system is capable of transporting fuel at a rate of 225 gallons per minute through the four-inch hoseline.

The hoseline system will provide urgently needed fuel in the quantities required during the early stages of military operations before a more permanent metal pipeline can be constructed.

Major components of the standardized hoseline system are a skid-mounted, 225-gallon-per-minute centrifugal pump and engine assembly weighing 500 pounds, two and one-half miles of lightweight, four-inch collapsible hose, couplings, and valves. A hose repair kit is included.

One-thousand foot lengths of hose are packed in five flat boxes and stacked on an Army 2½-ton truck. The trailing coupling from the top box is connected to the lead coupling of the next box down, and so on until all the hose lengths are interconnected.

Using this procedure, 5,000 feet of hoseline can be payed out without stopping the truck.—Army News Features.

Vision Device

Army aerial observers and commanders in Vietnam will soon have available a unique motion-compensating vision device. The approximately 10-inch, four-pound, electrically powered element has a zoom capability much like a television camera. Thus, the optical device can give the aerial observer a steady view of a village, then zoom in on the door or window of a single hut.—US Army release.

Combat Carrier

A new jet-powered armored troop carrier is undergoing intensive testing by Navy and Marine Corps units. Developed on the lines of modified landing craft now assigned to Navy

Armed Forces Press Service

New combat carrier

riverine units in Vietnam, the new carrier transports 44 combat-equipped troops behind three inches of armorplating.—DOD release.

One-Piece Tank Turret

The US Army Tank-Automotive Command is evaluating the first one-piece tank turret produced by a new explosive-forming concept. Two turrets formed from single sheets of ¾-inch steel armorplate have been received.

The plates, to be formed into a turret, were placed over a die. Explosives were positioned along the plate. The plate and die were submerged in a large tank of water and the explosives detonated. The plate was acted upon by approximately 1.3 million pounds of pressure per square inch forcing it into the shape of a tank turret in 4.5 milliseconds.

With current methods, the large tank turrets are made up of seven to eight sections which are then welded together. Both the relative strength of the new turrets and the production method will be evaluated.—News release.

New Light for the Military

In recent years, there has been a significant trend in the lessening of Government—that is, the Atomic Energy Commission—regulations covering the use of nuclear power sources for self-luminous purposes.

Radioluminous materials—which are a mixture of a radioactive material, a phosphor, and a binder—have been known for many years. Until recently, however, they have achieved only limited success in military applications because of safety considerations and the fact that they did not provide useful levels of light.

Historically, the materials used have ranged from radium and strontium 90 to tritium. Each has had its specific limitations. Recently, a US manufacturer has been working with the military in evaluating the use of a new isotope called promethium 147 as the activator in radioluminous materials.

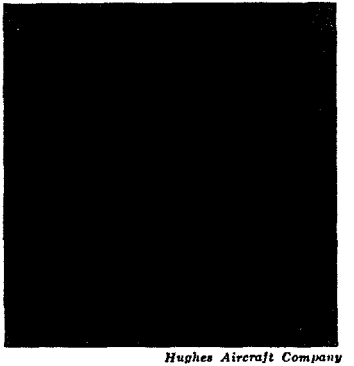
The main advantage of promethium 147 is that it meets the criteria of being both practical and safe to use.

Promethium is a solid as opposed to a gaseous material or one which gives off gaseous products. Its safety is further enhanced in that it is incorporated into tiny beads. Called miscrospheres, the beads are so tiny that millions can be held in a teaspoon. They "cage" the radioisotope so that it is chemically, physically, and biologically inert. Thus, even if the item containing radioluminous materials is destroyed, the material is still inert. Additionally, as an activator, promethium has a large range of brightness available and a useful life in the military item.

The main use of radioluminous materials in the Air Force, other than aircraft safety devices, is in the field of portable lights and compasses in survival kits. The Army could use radioluminous rifle and bazooka sights allowing a soldier to aim his weapon properly under lighting conditions when normally he could not distinguish the front sight even though he could pick out a target. Other uses are radioluminous map readers and, in the Navy, as self-luminous wrist depth gauges and compasses.—*Armed Forces Management*, © 1968.

Laser Rangefinders

The Army has awarded a 2.7 million-dollar contract to equip 243 of its *M-60A1E2* tanks with new laser rangefinders. The tank rangefinder consists of a ruby laser, telescope-like optics,



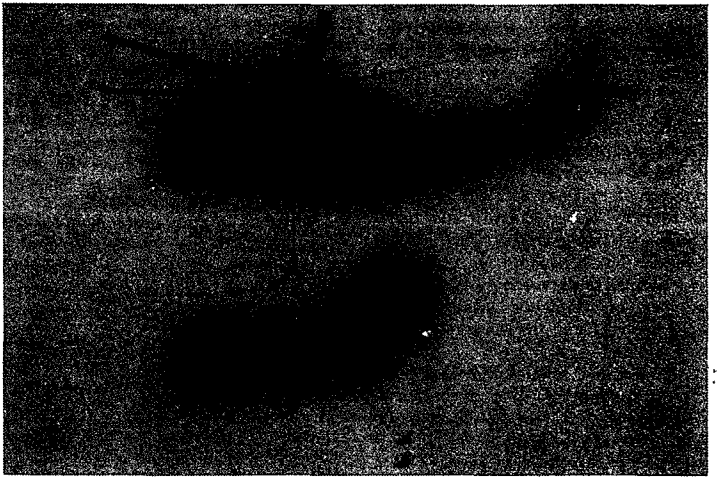
Hughes Aircraft Company

Control panel of new tank laser beam rangefinder

and associated control panels and electronics. In operation on a tank, the laser is bore sighted with the tank commander's sight and the gun. When a target is selected, a laser beam flashes at it, and the range appears in meters on a readout and also is fed automatically into the tank's fire control system.—News release.

WEST GERMANY

'CH-53A' for German Army



Interavia

CH-53A Sea Stallion **demonstrates its 10-ton lift capability**

The Federal Republic of Germany will provide 135 *CH-53A* helicopters for the West German Army. These are to be built within the framework of a two-phase program in coproduction with the United States at a cost of 350 million dollars.

In the first phase, the US manufacturer is to produce two prototype helicopters by mid-April 1969 for use in the test and type certification program. The balance of 133 helicopters will be built under a joint program with an equal division of costs between the United States and West German manufacturers.

Major differences between the US version of the *CH-53A* helicopter—already in service with the US Marine Corps as the *Sea Stallion*—and the German version will be in the radio and navigation equipment.

The first helicopters from the joint West German-United States manufacturing program should be ready for delivery to combat units early in 1970. Altogether six squadrons are to be equipped with 17 combat-ready *CH-53A* helicopters each.

With the procurement of the *CH-53A* medium transport helicopter and the construction program for the *UH-1D* light transport helicopter already underway, preparations are complete for the establishment of West German "air cavalry" units. These formations will serve as heavily armed assault units in support of ground operations and for rapid deployment of combat forces.—*Interavia*, © 1968.

Naval Air Arm

Although Germany has no aircraft carriers, she has a sizable Naval Air Arm. According to figures recently released, the total strength is 213 aircraft of which the main operational types are 12 *Atlantics* and 72 *F-104 Starfighters*.—News item.

Land Forces Reorganized

The *Bundeswehr* will reduce the number of military services from five to four by merging army and territorial defense troops into "land forces." The consolidation, beginning 1 January, is expected to reduce the number of command headquarters, save money, and increase command and control.

Defense will abolish the headquarters of three army corps, six military districts, and that of the Territorial Defense Command. Their staffs and functions will be merged into two group commands (NATO Northern Army Group and NATO Central Army Group), five general commands, and one general-special command (NATO LANDJUT). Four general and special commands will direct field and territorial defense forces in peace and war, and two general commands (Stuttgart and Düsseldorf) will direct territorial defense forces only.—*Armed Forces Management*, © 1968.

Arms Sales

Legislation is being considered by West Germany governing the sale of German armaments outside the country. Supporters feel that better safeguards are needed to insure that weapons supplied to foreign countries remain permanently in the recipient country. A case in point is that of the *Sabre VI* aircraft sold to Iran which eventually turned up in Pakistan.

Latin-American countries have shown increasing interest in the European armaments market as they anticipate no strings attached to the purchases. Brazil and Peru have purchased combat aircraft (the *Mirage*) from France, and Argentina is considering procurement of the West German standard battle tank, the *Leopard*. —*Wehr und Wirtschaft*.

IRAN

Launch First 'Mark 5' Destroyer

The first of four destroyers for the Iranian Navy has been launched at a British shipyard. The ship, christened IIS *Saam*, has 1,200 tons displacement,

NATO's Fifteen Nations

Artist's concept of new Iranian destroyer

is 310 feet long, and has a top speed of about 40 knots.

Armament consists of one 4.5-inch gun, an antisubmarine mortar, and sonar. The latest type of fire control equipment and surface-to-surface missiles will be carried, together with a triple *Seacat* launcher for antiaircraft use.—*NATO's Fifteen Nations*, © 1968.

'UH-1D' Helicopters Ordered

Reports from the Middle East that the Iranian Government was purchasing *UH-1D* helicopters for use by the Iranian Army have been confirmed by the manufacturer. The order covers 40 single-engined *UH-1D* helicopters although the price and delivery dates were not specified.—*Interavia*, © 1968.

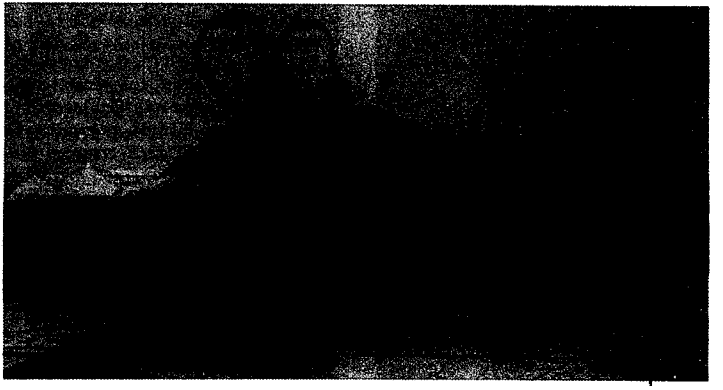
GREAT BRITAIN

Anglo-French 'Jaguar'

The first production models of the *Jaguar* aircraft are scheduled for the British and French Air Forces in 1970. The multipurpose combat plane is a joint development by France and Great Britain under a North Atlantic Treaty Organization cooperative agreement.

The *Jaguar* is capable of carrying out missions at continuous speeds of over Mach 1 at low altitudes and of over Mach 1.7 at high altitudes. The length of runway needed by the *Jaguar* is estimated to be 33 percent less than that of its nearest rival. Its landing speed is about 100 knots. Because of low-pressure tires, the *Jaguar* can use grass runways about 3,000 feet long or unprepared airfields—a considerable advantage in the strike version.

The *Jaguar* design features a 15-minute turnround time, including rearm-



NATO Letter

Two-seater version of the Anglo-French *Jaguar*

ing, and the capability of carrying different weapon systems without interfering with the "aircraft systems" common to all versions.

The plane is designed in three versions to perform in different roles.

A two-seater model provides an advanced training aircraft with an extended supersonic flight capability enabling it to cover the whole range of training from flying schools to Mach 2 combat aircraft.

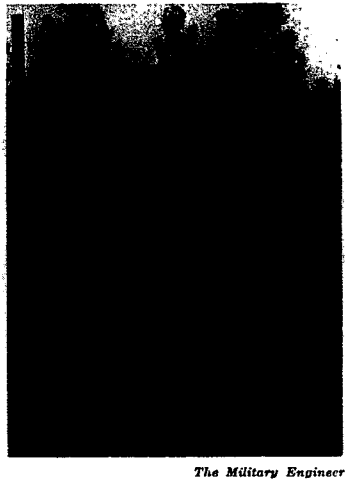
As a tactical support aircraft, *Jaguar* is a single seater with a payload capability of about 10,000 pounds. Its range, maneuverability, and capacity give it all the qualities essential for the various types of tactical missions. It can also engage hostile assault aircraft and be fitted with cameras for reconnaissance and observation missions.

As a naval plane, *Jaguar* will operate from aircraft carriers. Its undercarriage has been designed to withstand the strain of the high vertical speeds entailed in carrier operations. In this variant, its structure will be reinforced with a landing hook.

By an agreement signed in 1968, Britain and France have each decided to produce 200 of the aircraft.—*NATO Letter.*

Minelayer

British engineer units have a new bar minelayer to speed minefield installation. The device is towed by an armored personnel carrier. In a trench dug by its ripper, a conveyor deposits mines at set intervals, and two discs and a chain at the rear replace and smooth the earth. The minelayer itself



The Military Engineer

New British bar minelayer pulled by an armored personnel carrier

is a simple device which is mounted on a trailer.

It can lay mines about 40 times faster with the same size crew than the usual method by hand.

A key point of the British system is the rectangular shape of the mine compared to the conventional circular one. The rectangular bar shape exposes more frontage to the enemy per mine and reduces the width of the trench required for emplacement.—*The Military Engineer*, © 1968.

CENTO

War Games on Turkey-Iran Border

Doost 1, a continuation of the Central Treaty Organization's annual war games exercises, was conducted along the border between Iran and Turkey. Participated in by headquarters and communications personnel of the Iranian and Turkish ground forces stationed in the border area, the exercise demonstrated the ability of the two neighboring countries to coordinate and conduct military actions for a common cause.

Planned by CENTO's Combined Military Planning Staff, the exercise was observed by senior military leaders of the Turkish and Iranian Armies, by members of CENTO's Permanent Military Deputies Group, and by other observers from CENTO countries and from North Atlantic Treaty Organization Headquarters. *Doost*—in the language of Iran, Pakistan, and Turkey—translates as "friend."—News release.

USSR

'MiG-23 Foxbat'

The Soviet Union's trade union newspaper *Trud* reports that the *MiG-23 Foxbat* supersonic jet fighter has gone into service. According to the reports, the aircraft has undergone over 1,000 hours of testing.—*Interavia*, © 1968.

JAPAN

New Submarine

A new submarine, the *Michishio*, has been launched by the Japanese. It is the 10th submarine built by Japan since World War II. The submarine displaces 1,650 tons and is 288 feet long and 26 feet wide. It has a speed of 18 knots and is armed with eight torpedo tubes.—News item.

MILITARY BOOKS

THE BETRAYAL. By William R. Corson. 317 Pages. W. W. Norton & Co., Inc., New York, 1968. $5.95.

BY LTC JOSEPH H. DEVINS, JR., *USA*

Lieutenant Colonel William R. Corson retired from the US Marine Corps to publish this book. The "betrayal" to which the title alludes is the betrayal of the Vietnamese people and of US interests in Vietnam which the author attributes to two causes: our own talent for self-deception, and the corruption of a South Vietnamese government upon which we idealistically lavish huge grants of money, hardware, and commodities without any way of controlling how they are to be used.

The author, a scholarly officer who has long specialized in Far Eastern affairs, describes and documents the origins of our present Vietnam dilemma. He then examines the way the war is being fought today by the principal protagonists, contrasting their different aspirations, motives, and methods of operation. Focusing next upon the peasant in the typical country hamlet, Corson shows how he is affected by this clash of interests and ideologies.

As the original commander of the US Marine Corps Combined Action Platoons, which have registered such remarkable success in the 1st Corps tactical zone of Vietnam, Corson is convinced that the war can and must be won at the hamlet level, even at the cost of circumventing and weakening the existing government of the Republic of Vietnam. He outlines an imaginative six-step program to end the war and leave behind a viable nation. If some of the steps seem too tough-minded for our national style, Corson's plan is still worthy of careful study. This is a book which should be widely read and discussed at all policy-making levels.

FRANCE IN THE AGE OF THE SCIENTIFIC STATE. By Robert Gilpin. 474 Pages. Princeton University Press, Princeton, N. J., 1968. $12.50.

BY COL HERMAN W. W. LANGE, *USA*

In his book, Professor Gilpin makes several judgments about French character and its impact on French social, economic, and scientific change. His findings do not offer hope for a solution to the problems which were also seen by J. J. Schreiber in a recent book, *The American Challenge*. Both point out that there is not merely a technological gap, but a far more fundamental reason for not moving at the American pace.

Schreiber stresses the "cultural" inhibiting factors which dampen different applications, necessary flexibility, teamwork of management and labor, and rigorous reasoning. Gilpin notes a political gap: French insistence on autarchy and independence, unwillingness to be analytical or empirical about themselves; and fear that their genius and values will be suffocated. He describes barriers imposed by the her-

itage of the Napoleonic system which remain to be resolved by forces of change.

This study provides an important piece in any estimate of where France stands in the world of national powers. It should be a reference for military strategists as it will certainly be for American businessmen considering world markets and foreign investment.

THE DIRTY WARS. Guerrilla Actions and Other Forms of Unconventional Warfare. Edited by Donald Robinson. 356 Pages. Delacorte Press, New York, 1968. $6.95.

BY LTC BENJAMIN G. SPIVEY, *USA*

What are they? How do they develop? Where have they been used by Communists and against Communists? How and why does the United States get involved?

By compiling essays, dispatches, and speeches which depict guerrilla warfare from Greece to the Middle East, to Latin America, to the Far East, Mr. Robinson has provided some answers to these questions. He has also shown how dirty and ruthless guerrilla warfare is.

Of particular interest are the introduction by S. L. A. Marshall, Mao Tse-tung's "Primer on Guerrilla War," and General Alberto Bayo Giroud's "150 Questions for a Guerrilla." Another high point is Roger Hilsman's "Internal War—The New Communist Tactic."

For those individuals looking for short, specific examples of guerrilla wars, this is excellent source material. For those who believe war is fought by a specific set of rules, this volume is a shocker. For those who want to read about communism in action and how it may be used to achieve specific goals, this book is an eye opener.

THE COMPLETE BOLIVIAN DIARIES OF CHE GUEVARA. And Other Captured Documents. Edited and With an Introduction by Daniel James. 330 Pages. Stein & Day, New York, 1968. $6.95.

BY MAJ CHARLES M. HANSEN, *USA*

This translation of Ernesto (Che) Guevara's diary contains entries not included in the version released by Cuba, as well as captured photographs and the diaries of three of Guevara's fellow guerrillas. The editor, in his introduction, provides background information necessary to understand parts of the diary which Guevara started on 7 November 1966, and in which he made his last entry on 7 October 1967, two days before his death.

Guevara hoped in beginning his operation in Bolivia to organize a Communist insurgency that would eventually spread to all of South America. Writing laconically, he records each day's events, and then, on a monthly basis, summarizes his progress and the major problem areas.

Despite Guevara's indomitable spirit, the progressive deterioration of his guerrilla band plagued by privation, bickering, and lack of local support is apparent to the reader. At one point, Guevara notes that American advisors were being sent to Bolivia, and hopefully writes that "We may be witnessing the first episode of a new Vietnam." In a later entry, after referring to the American "Green Berets," he acknowledges that the Bolivian Army had improved.

The diary gives a rare insight into the drive behind a Communist insurgency. The weaknesses inherent in such a movement are known, flaws that, if understood, can be used to defeat such insurgencies, and which, in Guevara's case, led to his death.

AGAIN KOREA. By Wilfred G. Burchett. 188 Pages. International Publishers, Inc., New York, 1968. $5.95.

BY LTC CARL F. BASWELL, *USA*

This book, by an Australian journalist who has spent many years in the Communist East, is a highly distorted review of the events leading up to the Korean War, the subsequent peace negotiations at Panmunjom, and, finally, the "miraculous" reconstruction of North Korea. The great number of inaccuracies and the biased reporting make this book of little literary or objective value.

THE GREAT CULTURAL REVOLUTION IN CHINA: Compiled and Edited by the Asia Research Centre. 507 Pages. Charles E. Tuttle Co., Inc., Rutland, Vt. and Tokyo, Japan, 1968. $7.50.

BY LTC FRANCIS A. IANNI, *USA*

The Asian Research Center in Hong Kong has gathered the material in this volume to trace the origin and early development of the great convulsion taking place in Communist China today. Consisting of documents and articles from Chinese sources, the book presents a comprehensive collection of basic reference material. The coverage of events before and after the launching of the Great Proletarian Cultural Revolution is supplemented by biographic data of 127 persons charged with "anti-party, anti-socialist, and deviationist" activities; a chronology of events; a bibliography; and a glossary of current terms. The appropriate Chinese characters are given for names and terms of special significance.

The material covers the period up to late 1966 and the appearance of the Red Guards. Little or no attempt is made to explain or analyze the data because the intent of the book is to make reference material available to scholars and to let them draw their own conclusions.

Although the average reader may find the book tedious to read, the material on the army's role in the Cultural Revolution and the politicization of the Chinese Army is of interest.

SYSTEMS ANALYSIS AND POLICY PLANNING. Applications in Defense. Edited by E. S. Quade and W. I. Boucher. 453 Pages. American Elsevier Publishing Co., Inc., New York, 1968. $11.50.

BY LTC CHARLES S. MOODY, JR., *USA*

This book is basically a collection of revised lectures given by the Rand Corporation to senior military officers and civilians associated with the Armed Forces. The lectures have been enlarged or extensively revised and new material added for this volume. The editors in the preface quote Henry A. Kissinger as stating:

One of the key problems of contemporary national security policy is the ever-widening gap that has opened up between sophistication of technical studies and the capacity of an already overworked leadership group to absorb their intricacy.

This work can help to close this gap. It discusses the present and future usefulness of systems analysis as an approach to policy planning. The basic concepts of systems analysis are considered without presuming an advanced knowledge of such specific tools as linear programing or probability theory. It includes selecting operationally useful objectives, measures of their attainment, the treatment of uncertainty; the character and role of resource and cost-sensitivity analysis; and the nature and value of models in systems analysis.

THE SECRET SEARCH FOR PEACE IN VIETNAM. By David Krasiow and Stuart H. Loory. 247 Pages. Random House, Inc., New York, 1968. $5.95 clothbound. $1.95 paperbound.

BY COL GEORGE D. EGGERS, JR., *USA*

The current "peace talks" in Paris are the tangible result of public and private diplomatic maneuverings designed to bring the representatives of the United States and North Vietnam to the conference table. Some of the unsuccessful earlier behind-the-scenes attempts to accomplish this purpose are chronicled in this book by two Washington representatives of *The New York Times.*

The authors assert:

The record suggests that the Johnson Administration missed opportunities over the years to secure, if not peace, at least negotiations; if not negotiations, at least talks; and if not talks, at least a propaganda advantage over the enemy that would have improved the nation's standing in the world community and the President's credibility at home.

While this book will fascinate the devotee of "instant history," it will alienate the scholar who esteems the careful analysis of scrupulously identified source material. It will stir the emotions of both the opponents and proponents of our Government's Vietnam policies. The opposition will delight in what appears to be an embarrassing record of continual miscalculations and of uncoordinated actions.

The supporters of the administration will cry "foul" because the authors' charges are based primarily on interviews with officials and other sources whose anonymity precludes cross-examination.

THE CONFEDERATE IRONCLADS. By Maurice Melton. 319 Pages. Thomas Yoseloff, New York and London, Eng., 1968. $7.50.

BY LTC GLEN D. THOMPSON, *USA*

An excellent coverage of the development and tactical employment of Confederate Ironclads, this book offers a fresh, interesting account of the Civil War. A detailed account is made of the South's final struggle to clear the marine supply lines.

The maps, illustrations of ship design, and battle plans make this book an excellent addition to a military library.

LIAISON 1914. A Narrative of the Great Retreat. By Major General Sir Edward Spears. With a Foreword by Winston S. Churchill. 588 Pages. Stein & Day, New York, 1968. $15.00.

BY MAJ JAMES E. DRUMMOND, *USA*

This work covers the period of the War of Movement of World War I during the retreat from Mons up to the Battle of the Aisne. This three-month period, before the armies stabilized into a trench war of attrition, saw the repeated failure of staff coordination in the interest of secrecy, and the lack of Allied pursuit following their initial victory at the Marne, both of which are given penetrating analysis and comment.

During the opening days of World War I, the author, then a lieutenant, was posted as the British liaison officer to the northernmost French Army which received the full blow of the German advance through Belgium toward the sea. General Spears' account of these dark days, first published in 1930, has been expanded in this second edition by the inclusion of an additional chapter detailing the First Battle of the Marne.

CHINA IN CRISIS: China's Heritage and the Communist Political System. Volume I. Edited by Ping-ti Ho and Tang Tsou. With a Foreword by Charles U. Daly. 803 Pages. The University of Chicago Press, Chicago, Ill., 1968. $20.00 set of two books.

CHINA IN CRISIS: China's Policies in Asia and America's Alternatives. Volume II. Edited by Tang Tsou. With a Foreword by Charles U. Daly. 484 Pages. The University of Chicago Press, Chicago, Ill., 1968. $10.00.

BY MAJ HARRY G. SUMMERS, JR., *USA*

These three books are an outgrowth of the China Project, Center for Policy Study, University of Chicago, held from March 1966 to February 1967. Seventy distinguished experts, including the former editor of the authoritative *China Quarterly*; authors such as Brigadier General Samuel B. Griffith II, US Marine Corps, Retired; and representatives from universities in the United States, Canada, Germany, France, Malaysia, and Australia, the Department of Defense, and the Rand and Hudson Institute "think-tanks," participated in the project. The resulting 28 articles are a most valuable addition to the limited reference material available on contemporary China.

The first volume, in two books, considers China's heritage and the Communist political system, analyzing the historical, sociological, economic, political, ideological, and military aspects of Communist China's national power. The second volume assesses the impact of this national power on Communist China's foreign policy in Asia, and then discusses US policy alternatives.

The China specialist, as well as the interested layman, will find these three books the best source material currently available on the People's Republic of China. This comprehensive study, with the amplifications, dissenting views, and divergent opinions of the commentators, is a balanced, objective, highly readable account of the roots from which "Maoism" has sprung.

THE WORD WAR: The Story of American Propaganda. By Thomas C. Sorensen. 337 Pages. Harper & Row, Inc., New York, 1968. $6.95.

BY LTC HARRY J. MAIHAFER, *USA*

Although his brother Theodore is, perhaps, better known, Thomas Sorensen has had his own distinguished public career, notably as a Deputy Director of the US Information Agency (USIA). Now, in a timely and authoritative book, he tells the history of US efforts to influence foreign opinion.

While the book starts by describing US information policies during World War I, it concentrates on the post-World War II period and the efforts of the USIA. Along the way, the author presents propaganda ("selective but credible dissemination of truthful ideas and information for the purpose of persuading other people to think and act in ways that will further American purposes") as a worthy effort and quite undeserving of its traditional "dirty word" reputation.

This is an exciting story, told from the inside, of US information policies and of the Presidents, statesmen, and legislators who shaped them. The book's "heroes" seem to be the late Edward R. Murrow who, as USIA Director, concluded that the United States should seek to "persuade" rather than merely "inform," and President John F. Kennedy who understood the importance of the US image abroad and worked tirelessly to enhance that image.

OTHER BOOKS RECEIVED

STATESMAN'S YEAR-BOOK: Statistical and Historical Annual of the States of the World for the Year 1968-1969. Edited by S. H. Steinberg, Ph. D. Assisted by John Paxton, Ph. D. 1,727 Pages. St. Martin's Press, New York, 1968. $12.50.

THE DEPARTMENT OF DEFENSE. By C. W. Borklund. 342 Pages. Frederick A. Praeger, Inc., New York, 1968. $6.95.

THE LESSONS OF HISTORY. By Will and Ariel Durant. 117 Pages. Simon and Schuster, Inc., New York, 1968. $5.00.

THE LIGHTNING WAR. By W. Byford-Jones. 221 Pages. The Bobbs-Merrill Co., Inc., New York, 1967. $5.00.

DESIGN AND DEVELOPMENT OF FIGHTING VEHICLES. By R. M. Ogorkiewicz. 208 Pages. Doubleday & Co., Inc., Garden City, New York, 1968. $7.95.

THE DECLINE AND FALL OF NAZI GERMANY AND IMPERIAL JAPAN. A Pictorial History of the Final Days of World War II. By Hans Dollinger. Technical Adviser Dr. Hans-Adolf Jacobsen. Translated From the German by Arnold Pomerans. 432 Pages. Crown Publishers, Inc., New York, 1968. $12.50.

VENCEREMOS! The Speeches and Writings of Ernesto Che Guevara. Edited, Annotated, and With an Introduction by John Gerassi. 442 Pages. The Macmillian Co., New York, 1968. $7.95.

THE VICTORY: The Six-Day War of 1967. Edited by Ohad Zmora. 168 Pages. Quadrangle Books, Chicago, Ill., 1967. $10.00.

THE UNITED NATIONS FORCE IN CYPRUS. By James A. Stegenga. 227 Pages. Ohio State University Press, Columbus, Ohio, 1968. $6.25.

THE LONG WATCH. Life in the Navy. An Unforgettable Memoir of World War II. By Charles Allen Smart. 237 Pages. The World Publishing Co., Cleveland, Ohio, 1968. $5.95.

THE UNITED STATES NAVY. By Captain Daniel J. Carrison, United States Navy, Retired. 262 Pages. Frederick A. Praeger, Inc., New York, Washington, and London, Eng., 1968. $6.95.

AMERICAN HEROES OF THE ASIAN WARS. By the Editors of Army Times. 128 Pages. Dodd, Mead & Co., New York, 1968. $4.00.

COMMUNIST CHINESE AIR POWER. By Richard M. Bueschel. 238 Pages. Frederick A. Praeger, Inc., New York, 1968. $6.95.

UNLESS PEACE COMES. A Scientific Forecast of New Weapons. Edited by Nigel Calder. 243 Pages. The Viking Press, Inc., New York, 1968. $5.74 clothbound, $1.95 paperbound.

THE AMERICAN CRISIS IN VIETNAM. By Senator Vance Hartke. 163 Pages. The Bobbs-Merrill Co., Inc., Indianapolis, Kansas City, and New York, 1968. $5.95.

ROOM 39: A Study in Naval Intelligence. By Donald McLachlan. 438 Pages. Atheneum Publishers, New York, 1968. $7.50.

FAVOR THE BOLD: Custer the Indian Fighter. By D. A. Kinsley. 241 Pages. Holt, Rinehart & Winston, Inc., New York, Chicago, Ill., and San Francisco, Cal., 1968. $6.95.