

**AIR UNIVERSITY**  
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THE  
UNITED STATES AIR FORCE  
**AIR UNIVERSITY QUARTERLY REVIEW**

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NUMBER 3

<b>PRIZE EDITORIAL</b> .....	2
<i>Some Truth about Air Support</i>	
<b>STRATEGIC BOMBARDMENT AND NATIONAL OBJECTIVES</b> .....	5
COL. WILLIS G. CARTER, USAF	
<b>KOREAN TARGETS FOR MEDIUM BOMBARDMENT</b> .....	18
COL. RAYMOND S. SLEEPER, USAF	
<b>TACTICAL AIR OPERATIONS IN RETROSPECT AND PROSPECT</b> .....	38
BRIG. GEN. HOMER L. SANDERS, USAF	
<b>AIR WAR IN KOREA: II</b> .....	47
DR. ROBERT F. FUTRELL	
DR. ALBERT F. SIMPSON	
<b>THE OTHER BATTLE</b> .....	79
COL. HARRIS B. HULL, USAF	
<b>THE UNIFORM CODE OF MILITARY JUSTICE</b> .....	91
COL. FRANCIS W. SCHWEIKHARDT, USAF	
<b>PICTURE BRIEFS</b>	
Yonpo Evacuation .....	15
Industry .....	32
Fire Bomb .....	73
Marshalling Yards .....	101
<b>AIR FORCE REVIEW</b> .....	108
Aeronautical Charts and Korea; The Arnold Engineering Development Center; Women in the United States Air Force: 1951; Mobile Support for Defense; Dock Maintenance.	
<b>AIRMAN'S READING</b> .....	116
<i>Soviet Politics—The Dilemma of Power</i> , Prof. Ossip K. Flechtheim; <i>Tito and Goliath</i> , Prof. C. E. Black; <i>The Soviet Union, The Land and Its People</i> , Lt. Col. A. E. McKenzie, USAF; <i>Major Problems of United States Foreign Policy, 1950-1951</i> , Dr. Eugene M. Emme; <i>Economics of National Security</i> , Lt. Col. John B. Rose, Jr., USAF.	
<b>THE PERIODICAL PRESS</b> .....	128
<b>THE CONTRIBUTORS</b> .....	135
<b>KOREA: A MAP</b> .....	136



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# PRIZE EDITORIAL

## *SOME TRUTH ABOUT AIR SUPPORT*

THE growing belief in Army circles that one Air group per division is the criterion for the establishment of tactical air support is a problem of mounting seriousness. A decision favorable to this criterion may have a profound impact upon the future of America's air power.

To acquaint the man in the street with the basic principles of air support of ground forces, a few words will suffice. Generally, any type of air operation is an assist for the home team, but because of the specialized techniques involved, tactical air support is gradually being viewed through a pinpoint of light focused upon one phase of air power as though it were divisible from the whole.

The more tangible features of air support are called "close support" and "interdiction." Both involve the almost exclusive devotion of air to battle on the ground. Any discussion of these techniques invariably assumes freedom of the air, for it should be immediately clear that an aggressive enemy air force of significant strength will decide the issues of close combat support in the air and not on the ground.

Freedom of the air, however, cannot be assumed; it must be won. Only a soldier who has been pitilessly exposed to a rampaging air force, unopposed in the air, seeking everything on the ground that moves, relentlessly destroying with bullets, rockets, and fire bombs, can appreciate the two words "air superiority."

Close support is the Holy Grail of all infantry men, and it consists of airplanes hovering constantly over the ground forces, waiting for instructions to take out stubborn obstacles to the infantry's advance. The techniques involve a communications system which will enable the man on the ground to call up an airplane and point out a target. More recently, this type of control has passed to a small airplane which can see more and thus give greater accuracy and direction to the fighter-bomber. Where highly trained teams are concerned, this control can pass back and forth from ground to air as need be. In the end it is a means of control and the purpose is always the same—for the fighter to knock out a tank, artillery, or a machine gun nest.

This type of support is more than popular with the ground forces for they can see the way being cleared for them.

The second type of air support is interdiction. Interdiction simply means isolating the battlefield so the enemy can neither get out in retreat nor get reserves and supplies in to help him fight. This is done by blasting bridges, rail heads, and supply dumps. An enemy that has been successfully interdicted is a doomed enemy, for he can neither retreat nor advance—all he can do is dig in and watch his supplies run out.

This type of support, although far more significant to the outcome of battle, is far less popular than "close support." It is less popular because it cannot be seen at work by the front line soldier. Moreover it leaves the front line soldier to slug it out with his foe on the ground without the comfort of a friendly airplane constantly overhead.

The natural query which arises at this point is why not do both? The answer, of course, and the crux of the whole problem, is that both will be done, **but** only if there is enough friendly air for all jobs and provided that the enemy does not interfere in the air. Lacking any one of these conditions, a decision must be made as to where and how friendly aircraft will be employed, which brings up the question of command, control, and even aircraft specifications. Ask any ground force soldier what he wants in the way of air, and he will say, "Give me an airplane that will stay over my head as long as I want it, and a system that will enable that airplane to knock out any target I give him without endangering my own troops." It's an old chestnut but there still is no way to have cake and eat it too.

Airplanes built for the particular job just described are sitting ducks for an airplane built to fight in the air, and no pilot in his right mind is going to tarry over a tank with an enemy air combat fighter in the vicinity. Armies in the field stretch for hundreds of miles. To build an air force on the basis of one group per division is to sponsor the philosophy that each division commander is entitled to the assistance of at least one air group. The fact of the matter is that the smaller the unit a soldier commands, the more restricted his outlook on the battle. He is concerned with the opposition a few hundred yards away, and the master battle plan is no concern of his.

The air assistance to which any commander in the field is entitled is dependent upon the ability of air to render that assistance in the light of the situation, and the creation of one air group per division is not the key to establishing once and for all time a situation favorable to close combat air support.

To get back to the question of why not do both interdiction and close support at one and the same time, the answer is twofold. The first is pure economics, the second is the air war which must take place in any major war.

One air group per division calls for seventy-five airplanes; thirty

divisions, twenty-two hundred and fifty aircraft; sixty divisions, forty-five hundred aircraft. Add a fifty per cent reserve and there is a staggering total of six thousand seven hundred and fifty airplanes devoted to the ground fight alone.

Yet the ninety-five group program calls for its airplanes to be divided among all requirements such as air defense, strategic air, troop carrier, military air transport service, and reserve. How then, is it possible for the Air Force to consider such a criterion as one air group per division?

While these figures are significant and speak for themselves, they are not the paramount consideration in war. The thousands of aircraft referred to for support of the ground forces, if they are specially built and crews specially trained for the purpose, cannot live in the same air as an air combat plane. Hence the first requirement is to clear the sky, at least locally, but preferably universally. The thing that must be believed by all concerned is that ground-support airplanes cannot win air superiority, not even if they are free to try it.

By the same token, however, the reverse is not true. Once air superiority is won, the self-same fighter that did the job can turn its attention to interdiction and close support. It can perform interdiction as efficiently as even the most perfectly designed interdiction aircraft. It can perform close support, but because of tremendous speeds and other considerations peculiar to air combat, it may not be quite as efficient in this role as an airplane designed specially for ground-combat. But it will be efficient enough as long as it is used to support and not win the ground war.

Nothing in creation is going to stop technological progress in the aeronautical field. Jets will give way to rocket ships; speeds and fire power will increase; altitude ceilings will continue to soar even higher. In short, the air war will get ever further from the ground war, but as long as the air war must be won first, the ground war must wait.

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# Strategic Bombardment and National Objectives

COLONEL WILLIS G. CARTER

**T**HE national objectives of the United States of America and the concept of strategic bombardment may seem to be strange bedfellows. The one seeks for tranquillity and man's general welfare. The other is the fastest means yet developed for the violent obliteration of man and his works. Indeed their union in a national program needs some understanding.

The Preamble to the Constitution records our fundamental objectives in most concise terms: ". . . to form a more perfect Union, establish Justice, insure domestic Tranquillity, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity. . . ." These objectives were born out of our basic creed, or in today's language our ideology, that certain truths are self evident: ". . . that all men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness—to secure these Rights, Governments are instituted among men, deriving their just Powers from the Consent of the Governed. . . ."

It is not necessary to quote the Constitution or its amendments to remind ourselves that it spells out certain "Blessings of Liberty" in terms of specific fundamental rights of individuals, such as freedom of religion and speech and the right to peaceable assembly, redress, reasonable personal privacy, and trial by jury—and particularly that it prohibits any rights of government not granted to it by the governed. This Constitution therefore grew out of fundamental belief in the dignity of the individual and his rights in his destiny. Its provisions were coupled with acknowledged necessity for order among groups of individuals. A national organization resulted, but it was an organization with explicit national objectives clearly designed to protect the individual's rights and nourish his advancement. Human rights were the key-note of our original doctrine and objectives.

We have, under stress, invariably rallied to these same national objectives—impelled by the same basic beliefs. Time has

wrought only one great change in them. Gradually the "shrinking" of the world has forced us to recognize that objectives such as ours cannot be set up as goals and pursued solely within a national boundary. The tranquillity of a nation, under any set of principles, depends upon a reasonably common understanding and acceptance of those principles by its citizens. Likewise in a world of numerous nations, tranquillity, at least in the form of mutual tolerance, depends upon a reasonably common world understanding and acceptance of some set of fundamental principles or basic beliefs. The United States has therefore to account with the fact that in the modern world its own internal national objectives cannot be achieved unless they are also achieved in some measure among nations. This fact is recognized in our participation in the United Nations.

Now in partnership with our will to attain our national objectives, one sees a new instrument of national will—strategic bombardment. Strategic bombardment is but a technique of war, and war itself has become but one ingredient of total conflict, in which every form of effective force may be applied, political, economic, psychological, military, that is necessary for national survival. Nevertheless a volume of sometimes querulous, more often vehement, opposition to this new technique of war challenges its efficacy for attaining national objectives.

The arguments pro and con as to the capabilities of air power indeed abound,\* augmented further by arguments which grant it extensive capabilities but go on to oppose the employment of certain of these capabilities. Yet a heavy sampling of books, magazine articles, editorials, and speeches by the dissenters indicates that their objections are variations on but a few principal themes:

1. *That strategic bombardment does not possess capabilities claimed for it.*
2. *That strategic bombardment violates international law.*
3. *That strategic bombardment will destroy our national morals.*

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\*In his recent book *Disaster Through Air Power* Marshall Andrews remarks: "So much has been written and said about the air power theory that it should hardly be necessary to go over it again; it is doubtful if any subject outside the field of religion has had so extensive and enthusiastic documentation. Air power experts, inside and outside the Air Force, flourish like weeds."

4. *That strategic bombardment will produce economic disaster that negates any military victory it might enable or gain.* These four propositions summarize the most serious challenge of dissenters.

Consideration of the minor contentions that accompany the first of these objections is unnecessary. The prime fact is that the means of vertical attack exists. No nation can ignore it. Aerial forces can destroy the sources of a nation's power, and the results are obvious. In this light the exact lethal radius of an A-Bomb or the capability of a fighter to intercept an Air Force bomber become secondary matters.

In his *Modern Arms and Free Men* Dr. Vannevar Bush states that scientific achievement may soon render strategic air forces obsolete, as currently composed. His assumption of this possibility seems to be based on the defense potential of radar and guided missiles against aircraft. Here one must also remember some facts that favor the bomber. The larger a nation is, the more targets it has to protect. Bombardment aircraft can also carry guided or target-seeking missiles against both air and ground targets. The attacking commander may employ many types of aircraft of varied range, maneuverability, and firepower. He may vary his target priorities, his timing, his routes, and his tactics. The bomber can carry atomic weapons so damaging in both immediate impact and permanency of result that one successful drop is worth many a sortie by past standards. The economic and strategic problem of the defender is enormous in the build-up of enough radar equipment, enough fighter aircraft, and enough missile launchers and missiles to protect a large nation. It is so enormous that, as yet, there is no acceptable solution.

Until there is such a solution, we had better remember that strategic bombardment can be stopped only at its source. We must remember that the only weapon currently capable of attacking its source is an air force. This means that an enemy's capability for strategic bombardment must be destroyed by strategic bombardment. If opposing air power is an obstacle to that destruction, it will itself also have to be overcome by strategic attack at its source, or in air combat, or by both means. If strategic bombardment becomes more successful by other means than by aircraft, the argument about such employment of aircraft disappears—but the argument about strategic bombardment does not. Meanwhile air power strategically applied (which certainly includes strategic bombardment) has a for-

midable capability. Against it the only adequate defense is air power strategically applied.

The Korean phase of the conflict between Communism and its opponents has heavily underscored the strategic doctrine of the USAF. Air superiority (practically handed to the United Nations forces) permitted application of air power which enabled UN surface forces first to stem and then to overcome superior forces. Since another large nation has launched armies into Korea with its sources inviolate, there could be no strategic application of the UN air weapon to its factories and bases of supply. The limitations of tactical application, even with air superiority retained, were sharply increased as the fronts remained near the inviolate border, up to which men and supplies could flow without fear of interdiction.\* In a war for air supremacy between two enemies of huge capabilities, it is unrealistic to pit air forces against air forces solely on a tactical basis. The air battle would be geared to the movement of surface forces. It would finally be decided only by the complete exhaustion of the air forces and air power of one opponent. Bad as this condition would be economically, the military aspects are worse. The surviving air power would decide the ultimate issue. To attain that decision, its employment would probably include strategic bombardment anyway. These are not tactics likely to be found acceptable to either opponent. So long as the airplane retains any combat capability, air superiority appears essential to successful military combat. Once air superiority is achieved, it would be folly not to exploit all its decisive applications.

**T**HE objections that strategic bombardment violates international law and that it will destroy our national morals are difficult to isolate. Each involves the other. With respect to war international law has taken the form of attempts to define and to prohibit, by commonly accepted rules, unnecessarily inhumane or unnecessarily destructive acts. In its full purpose it must be granted that it has failed. A primary reason for its failure is that it has thus far had to depend for enforcement solely upon each nation's individual regard for the law. But this regard of various nations has changed from time to time under the impact of other influences, so that the law, lacking a means of enforcement, has often been violated. In fact the ever-in-

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\*See also Col. Sleeper's analysis of the effect of loss of scope for interdiction on the ground fighting, p. 30. Ed.

creasing scope of conflict has blurred even the distinction between war and peace and between belligerent and neutral. Struggles for a balance of power now have the entire world in one side of the balance or the other. The effect has been to assemble greater and greater power in conflict, until we have come to the commitment of practically all the world's consequential forces to today's colossal struggles.

In this situation strategic bombardment is but a recent advancement in man's ever-expanding capability to exert force. To say that it violates international law is technically correct if the law is taken in the light of the times in which the law was created—times when war was treated as combat primarily between easily identifiable military forces. Considerable distinction was then possible between military and non-military objectives—between combatants and civilian noncombatants. But with the advent of total war these distinctions have faded. Without an established court of final resort with power to bring violators before it and to enforce its judgments, the application of international law to war has failed in the face of nationalism. And nationalism still turns to balance of power for survival in a world where conflicting interests must either compromise or compete for survival. Under such conditions the capabilities of every sort of human enterprise and of every sort of both collective and individual human capability, are drawn upon in the degree required for success in conflict. Nations can no longer identify noncombatants. In fact nations recognize the actual employment of practically all persons and industries to support war in today's world.

Do these considerations lead to the conclusion that international law no longer exists with respect to war, that it is too weak and antiquated to be applicable, and that, therefore, there is now license to bomb any targets and in any degree? They do not. The latest international effort to cope with the problem of war is the creation of the United Nations. The charter of the United Nations embodies the principle of the support of international law and treaties. The United States not only officially subscribes to the organization of the United Nations and to its charter but was instrumental in its initiation and development. Thus the principles underlying international law do survive, even if the laws framed in the past have failed in their purpose.

The question then passes into one of whether strategic bombardment violates the principles of human relations which underlie international law. Stating it more specifically, does strategic bombardment constitute unnecessary destruction of

property or unnecessary injury and killing of persons? If it does, it violates the spirit of international law to which this country subscribes. If it does, it is inconsistent with our national objectives. But consideration in this light immediately poses further questions: What degree is "necessary" destruction or killing? Does strategic bombardment exceed this degree?

If the factors affecting the answers to these questions could be determined statistically, we might hope for a simple answer. But realistic answers must be sought in the conditions of present-day conflict. These conditions have been indicated as proceeding from a struggle for favorable balance of power, with all nations of consequence being drawn into the opposing sides of the balance. It has been pointed out that the capability for strategic bombardment now exists and must be taken into account—just exactly as air power exists and must be taken into account. It has further been pointed out that strategists, in order to account for it, must employ it. If conflict reaches war, the problem of the necessary degree of employment is the problem to be solved. If strategy is to be conceived in honest appraisal of the capabilities of weapons and forces to achieve the war aims at the least cost in men and resources, the best of human judgment will have to be exercised in its invention and execution. The range of destructive power of the individual weapons available for strategic bombardment permits a wide choice. All that can be justifiably hoped for in their employment is that the selection of targets, the extent of damage determined upon as necessary, and the choice and application of weapons, will be wise—that more death and destruction will not be visited upon the enemy than is sufficient for its purpose. If this limitation can be maintained, the United States should not need to feel that strategic bombardment violates the humane principles to which international law would compel adherence.

A more troublesome aspect of the problem to many is the decision a humane nation must face in acute danger of defeat, whether it is brought to this pass at or before the onslaught of military war or at some date thereafter. If the national leaders become convinced that only by desperate measures can their nation hope to win, will desperate measures that involve strategic bombardment violate international law? If it is decided essential to victory to employ the most destructive bombs available to the limit of the capability for delivery, would that employment violate the principles of international law? The question has now become, can unlimited strategic bombardment

ever be justified as necessary? Here consideration also leaves the mere matter of international law, for it involves the whole of national conscience.

Our national morals, unlike our national objectives, are not neatly defined and labeled by any authority nationally recognized. Yet it can be said without trespass upon the definitions of the words that such morals or such conscience as we possess as a nation are embodied in our Constitution. Our concepts of right and wrong, as well as our intention to adhere to and to preserve what we conceive right, are there reflected in fundamental, humanitarian beliefs, in efforts to define and establish justice, and in the acknowledgement of a supreme God. Few can doubt that the moral intentions of our country are of the best as regards mankind, even though history may record some failures.

If moral rightness demands such stringent standards as those of the Ten Commandments, war itself is never right. In the United States we profess to belief in such a rightness, and we profess to abhor war, shunning it to a degree that we usually suffer the first blow to be struck by an enemy before we accept war as unavoidable. When war has come, however, we have engaged in it with all the power we could muster. We have assumed a moral justification for war to preserve ourselves and our way of life. Mahatma Ghandi and his millions of followers exemplified a belief in non-violence—a belief of the most humane and moral order, measured by our own standards of humaneness and morality. But the fact remains we have made a different choice. Our decision is recorded that war, if necessary to the defense of our way of life, is justified. We can say no less, in honesty, that under these conditions we consider it morally justified.

The revival of the moral issue today arises from the major differences between war as it has previously been known and war as it has now developed. These differences are (1) our "shrunk" world, which tends to bring practically all nations into any war that breaks out; (2) the nature of conflict, where military war is but the final achievement of totality of conflict—with strategy employing every employable force and with the disappearance of "non-combatants"; (3) the advent of a successful means of strategic bombardment; and (4) the awesome increase in the destructiveness of weapons, including biological, chemical, and atomic weapons in particular. We have seen the fearful power of atomic bombs, and we are told of greater power to come. We recognize the utter difficulty of selectivity in

even their most careful use. The consequence of these things is that the conscience is hurt. Under the impact of these changes and facing the Communist threat, with the continued lack of a higher authority to whom we can appeal, and confronted by the steady efforts of nations, through coalition and worse means, to achieve a favorable balance of power, the moral issue arises again in the conscience of the nation.

We see a Communist manpower potential greater than our own and that of our allies. We see a Communist economic potential capable of testing the allied potential to its maximum. We see a huge proportion of Communist resources devoted to steadily increased armaments. Above all we see in the threatened Communist domination the complete destruction of our freedom—our way of life—which we believe is moral, and under our concepts we consider the ideology which threatens us to be immoral—lacking in such essential moral qualities as godliness, tolerance, and humanity. Finally in the “cold war” we recognize conflict already engaged to a serious degree.

In such a situation we daily strive to avoid military war without abandoning our objectives, but fearing failure of these efforts, we also strive for greater armaments. We conceive that a strategy employing no less than our maximum force capability will be necessary for survival. We build atom bombs and the best means we can agree upon for assuring their delivery. Meanwhile the Russians do likewise. We estimate no adequate defense but one which envisions a maximum offense, and we fear that unless our strategic bombardment is immediate and effective, we may lose the struggle at the outset. Finally we pause to examine our conscience—to ask ourselves if we are yielding up our professed morals by defending them in a struggle which requires the instantaneous and diligent application of weapons of wholesale killing and destructive power.

Suppose we say that it is immoral of us to accept war on these terms and that we will not employ strategic bombardment. If our estimate of the situation is correct, then such a decision is tantamount to yielding up our national objectives and the principles and morals which these objectives purport to preserve and spread. The question thereafter would become, do we best serve morality by yielding moral forces to immoral force.

No! We do not face any question of the morality or immorality of strategic bombardment, any more than our predecessors faced similar questions in past wars which in their times were also appalling.\* Strategic bombardment—or, more accurately,

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\*To wit: even the bayonet, which for a hundred years after its advent was considered a terrible and barbarous instrument of war. Ed.

air power as a whole with its weapons of today—represents but another increment to the ever-accelerating time rate of destruction. The world began this acceleration a long time ago when it replaced its stone axes and spears with metal edges and bows. It is right and just that we continue efforts to establish a superior authority which can force people to live in reasonable tolerance of each other, but this goal cannot be achieved by yielding to a power aimed specifically in the other direction.

The question of morality or rightness rests, then, in whether our estimate of the situation is correct; whether a blitz application of total force is essential to security; whether our code of morals is more entitled to survival than that of our enemy; whether a clash of armed might can or cannot be avoided; whether we can correctly gauge, either in victory or defeat, when our total destructive power in application ceases to serve a necessary purpose. We have had enough training in these matters in the bitter school of experience to suggest that if we honestly determine the answers to these questions to the best of our ability, our determination should be reasonably accurate. The degree of killing and destruction necessary to carry it out will be determined by the enemy himself. This nation's morals need not suffer.

**T**HE last of the four objections listed at the beginning of this discussion arises from a vision of a titanic struggle that devastates civilization past recovery.

Strategic bombardment, to repeat, is but a new weapon in man's arsenal which, like other weapons added earlier, increases the rate of destruction and killing. The conflict of today is already draining our resources. The conflicts of the past were slower drains, but given time, even as in World War I, a war of position, they so debilitated the world as to require a long struggle for readjustment. World War II, a war of movement, involved larger portions of the world's people and material resources. At an increased time rate of destruction, it debilitated the world again to serious degree. Would a long war of huge surface forces and no employment of strategic bombardment reach a conclusion favorable to this country with less damage to the world's economy than a shorter war employing strategic bombardment? It is far more likely not only that we have no choice about the employment of strategic bombardment but that a war between forces presently in conflict, without air

power strategically applied, *would* indeed exhaust the world's economy—and completely.

Viewed in another manner, it would seem reasonable that if strategic bombardment is as destructive as is feared by some of its opponents, no nation can continue long under it. The more potent it is, the greater the rate of injury and the shorter the time a nation can indulge in war. Thus the greater the success one nation achieves, the less the other can achieve; and once the tide turns, the emerging victor can, if he but will, control the degree of destruction thereafter.

If strategic bombardment with atomic weapons can force a nation to its knees, that fact would tend of itself to preclude the possibility of an unopposed race to see which of two opponents can first wipe out the other. If both opponents possess the capability for strategic bombardment, each one has no choice except to place his enemy's capability on first strategic target priority, as well as on first defensive priority. Not to do so would simply be to assist in his own defeat. Whichever opponent wins in this immediate phase has, thereafter, the power to control the extent of destruction and killing by strategic bombardment. Having control, it becomes his moral obligation as well as his obligation to post-war economy to exercise it only to the necessary degree. It may therefore be concluded that a future war is not likely to be more destructive with strategic bombardment than without it. As a matter of fact, indications are that the total destruction may be less, if strategic bombing is properly employed.

When we perfect a warless but still successful means by which goodness and justice can survive and prosper, let us employ it to the exclusion of war—and beat our swords into plowshares. Until then, let us not waver in indecision over—much less challenge—the employment of those means now vital to the mere survival of our objectives.

*Air War College*

*Aircraft of the United States Far East Air Forces line up for take-off at Yonpo Airfield in North Korea, abandoned after the most concentrated air evacuation of the Korean War from 12 December to 17 December 1950. When maximum effort was attained, the planes were moving out every three minutes, day and night.*

## Yonpo Evacuation

When Combat Cargo Command pilot Captain Campbell lifted the wheels of his C-54 from Communist-surrounded Yonpo Airfield on the morning of 17 December he brought to a successful close the greatest single concentration of sustained airlift in the Korean war. As he banked his heavily loaded plane in a steep turn to avoid nearby enemy lines, his tired passengers, men of Yonpo's Combat Cargo Support Unit, crowded the windows for one last look at long columns of trucks and troops moving back to abandon a flaming, useless airfield to hard-driving Chinese Communist hordes.

The security-shrouded mass air evacuation had begun five days earlier when transports of Far East Air Forces Combat Cargo Command started flying hundreds of ROK (Republic of Korea) marines from the threatened forward Korean airlift base. As the Communist pressure increased, more and more transports were flown in to help evacuate all Air Force, Marine, Army, and ROK units and their equipment from the airfield area. Flying on an around-the-clock basis despite winter storms and scant radio aids, every available Combat Cargo Command transport was sent into the sky train streaming into Yonpo airfield. This all-out effort, the most concentrated transportation operation in the Korean war, evacuated all United Nations personnel and equipment before the Reds charging in from three sides could take the airfield.

During the final three-day maximum effort C-54 Skymasters, C-119 Flying Boxcars, R5D Marine Transports, C-46 Commandos, and the battered, old C-47 Skytrains teamed together to fly more than 2400 tons of personnel and equipment from the snow-covered airfield deep in Communist territory. Included in this mass air evacuation was a Fifth Air Force Fighter Wing, a Marine air wing, both including personnel and equipment, vehicles of all sizes, and hundreds of tons of live ammunition. More than 4200 troops were flown from the airfield during the five-day evacuation. Four hundred and eight of these were battle casualties flown directly to military hospitals in Southern Korea and Japan. When maximum effort was reached on 16 December, the twin- and four-engine cargo transports were landing and taking off at three-minute intervals, rivaling the famed Berlin Airlift's swarming air traffic.

Elements of the U. S. Third Division set up a battle perimeter around the airfield area to stall attacking Chinese troops. Artillery shells and Navy projectiles whined over the strip day and night to explode just outside the airfield perimeter





*Scattered bombs lie in the snow awaiting salvage by air from frozen Yonpo Airfield.*

*Over 4200 troops were flown out during the five-day airlift while the U.S. Third Division held a battle perimeter around the Yonpo area to stall the attacking Chinese. Here heavily clothed Republic of Korea troops are lined up to wait for air evacuation.*





*During the final three days of maximum effort more than 2400 tons of personnel and equipment were flown from the snow-covered field ahead of the driving Communists.*

area amid enemy forces. Control tower operators on the airfield guided combat cargo pilots away from danger areas where the artillery was being fired in support of our hard-pressed infantry troops. Grim, heavily clothed men of the Combat Cargo Support Unit at Yonpo worked day and night in spite of the biting cold and imminent threat of enemy infiltration. All equipment possible was dismantled and loaded into the endless stream of aircraft for evacuation to safe rear areas. Pilots and crews of the transports, standing by to fly out the equipment and passengers, toiled side by side with ground crews in the loading operations. The minute a plane was loaded, its crew would hurry aboard and take to the air.

Late on the last night, Col. Glen R. Birchard, commanding Combat Cargo operations at Yonpo, received word that all aircraft must be off the airstrip no later than 0800 the following morning. One C-119 had to be abandoned. One engine was out and there was no time to fly in another and effect an engine change. The crew worked throughout the night, stripping it of everything useable and salvaging parts to repair the broken elevator of another C-119, in which they too were to return to Japan. This exchange of parts had to be made in the dark, under the blast of thirty-mile, sub-zero winds driving against the oil-smeared tail booms fifteen feet above the frozen ground. Then all instruments, radar and radio equipment, parachutes, and numerous other items of removable equipment from the doomed plane were loaded on the C-119 now flyable.

. During the night the eerie light of burning ruins lighted up the field and from the outskirts of the area could be heard the hollow, intermittent booming of artillery fire. Colonel Birchard delayed the take-off of the last airplane until one hour past the eight o'clock deadline set by the ground forces, in order to ensure that every last man and piece of equipment was flown out. He and his crew took off at 0900 to complete 446 sorties, airlifting more than 2700 tons of passengers and equipment out of the doomed airfield in five days.

Thus at 0900 hours, 17 December, Yonpo Airfield, key airlift base on North Korea's east coast, was abandoned to the enemy. Scene of the medical air evacuation of more than 4600 war and weather casualties from the Choshin Reservoir area and air supply staging field for the lifesaving airdrops to embattled Marines and U.S. 7th Division forces fighting their way out of the Communist trap, Yonpo Airfield now lay in smouldering ruins, stripped clean by reverse airlift of all personnel and vital equipment.—Major Raymond L. Towne, USAF, Hq., Military Air Transport Service.

# Korean Targets for Medium Bombardment

COLONEL RAYMOND S. SLEEPER

**O**N 12 September 1950, General Stratemeyer voiced the opinion "that practically all of the major military targets strategically important to the enemy forces and to their war potential have now been neutralized." His announcement was made only sixty days after General O'Donnell's B-29's from the United States had run their first mission in Korea. Had the B-29's really neutralized all the strategic targets in North Korea in sixty days? Were there ever any strategic targets in North Korea, or was the deployment a hurried, unnecessary move? Was this a waste of valuable long-range air capability? Was this a flexing, a warning rippling of the United States Air Force's strong right arm, the Strategic Air Force? Or an example of the flexibility and mobility of air power?

The purpose here is to examine some of these questions by very briefly reviewing the target systems attacked by long-range bombers in World War II, the target systems available for attack in Korea, those brought under attack, and the result of these attacks and to draw a few tentative conclusions from the use of B-29's in Korea.

Analysis of the most effective target systems for air attack was one of the very difficult tasks of World War II. When the war started 7 December 1941 in the Pacific, the United States had practically no economic and industrial intelligence on Japan. What intelligence was available was poorly interpreted. On 15 June 1944 B-29's began operating against Japan from China. By that time intelligence had developed analyses of the vulnerability of Japan to air attack that designated targets such as the Yawata steel plants, the aircraft engine and airframe plants in Tokyo, and the fire-vulnerable cities of Japan. As the war progressed, aerial mining of Japanese ports was also undertaken to interdict support of Okinawa and the movement of the Japanese fleet. The B-29 attacks against airfields in Japan during late 1945 were important to the support of the Okinawa landing; and the B-29 attacks on the Kyushu airfields

17 April to 11 May 1945 stemmed the serious kamikaze attacks that threatened to force the withdrawal of naval forces supporting the Okinawa landing. The B-29's also brought under attack oil, armament plants, and military forces in being. With the attacks on Hiroshima and Nagasaki the Japanese nation was finally brought to its knees in unconditional surrender.

It is necessary to remember that the rise of air power in the Pacific from Australia to the Philippines gained air superiority, helped to neutralize the enemy surface forces, and then supported occupation of advanced bases in the Pacific which permitted increased air operations against Japan. In the Pacific war the early American strategy was to gain strategic decisions by defeat of surface forces; but the final capitulation, the final strategic decision, was reached not through decisive surface battles but through the strangulation of the Japanese homeland by naval and air forces and the exploitation of air superiority by the B-29's and carrier forces—through the exploitation of air superiority by predominant air power.

The Korean situation produced no real requirement to establish air superiority, since air superiority was granted the United Nations by default, except for the important enemy rear areas behind the Yalu River that were ruled "out of bounds" by political considerations. The air forces, after a hurried buildup, were able to enter into maximum ground support and neutralization missions, south of the Yalu River. It might be expected, then, that the B-29's were to be used against "strategic" targets in Korea. However it becomes clear under study that the term "strategic" implies unrealistic compartmentalization of air operations and that the B-29 bomber forces were themselves a component of the total air power committed to Korea. To understand their operations, it will help to review the methods of selecting bombardment targets developed during World War II and to review the targets selected for attack in Korea.

The methodology of target selection now practiced by the Air Force was developed during and after World War II. This methodology requires very detailed intelligence. It further requires that this detailed intelligence be analyzed and presented in target studies which will enable the war planners to designate targets for destruction to accomplish the mission of air power. Several factors embracing a wide variety of intelligence information and study must be considered:

- (1) The *depth* of the targets to be attacked in the industrial complex: How long does it take for the products of the proposed

target to flow to use in battle? The length of the manufacturing and transportation pipe line from iron mines to the weapons in the soldier's hand is so long that successful destruction of the mines would not hamper front-line activities for many months. The weapons factories offer a better target system.

(2) *The importance* of the targets to the industrial war economy and front-line operations: While steel is of unquestionable importance to the manufacture of war materiel, wood is less important.

(3) *Dispersion*: Concentrated targets and target systems offer much more promise than plants scattered across the country.

(4) *Reserves*: To destroy production is of little value if adequate reserves are immediately available for military operations.

(5) *Cushion*: How much of the total plant capacity is idle? What is the replacement rate of destroyed plants? How fast can the enemy expand his capacity? What percentage of this total system must be reduced to cut through civilian and the less-important military uses to reach the important military uses? Substitutability is also included in the factor of cushion. If the petroleum refineries are destroyed, can the enemy manufacture satisfactory fuels from synthetic plants?

(6) *Capability*: Can the targets be destroyed or neutralized with the forces available for attack? This embraces evaluation of the physical vulnerability of the target and selection of the right type of bombs for it. Probably most important in target selection is to match the potential target systems with the capability of the forces available for attack and to select the target system that will best accomplish the mission of the Air Force.

(7) *Recuperability*: Bombing airfields may damage runways, but bulldozers can quickly repair them. "Dusting off" attacks may be required to keep the targets neutralized.

The target information must include precise geographical location and description so that the targets can be identified and attacked. Identification becomes a critical factor in difficult weather and terrain such as has been encountered in Korea.

**T**HE problem was posed to determine what strategic targets in North Korea directly supported the war effort of the North Korean armed forces and to evaluate the effects of air attacks on them. One of the obvious limitations on this prob-

lem was the geographical-political one to consider only targets south of the Yalu River.

Korean industry had been aggressively fostered by the Japanese during their occupation of Korea as a complement to their own industrial system. The Korean economic industrial potential thus developed comprised the water power resources, the bauxite, iron ore, copper, tungsten resources, and electro-chemical and electro-metallurgical industries. The Soviet occupation of North Korea integrated the industrial potential of North Korea with the Soviet economic system. This integration provided for the increased output of heavy industries, including the electro-chemical plants, the arsenal at Pyongyang, and the explosives plant at Hungnam. It also provided for direct administrative and financial assistance to North Korean industry, together with the familiar cannibalization of certain plants and plant equipment to meet critical needs in the U.S.S.R. This meant, then, that the North Korean industrial complex was never designed to be a self-supporting economic whole. It further implies that significant war supplies for the North Korean military forces must come from the Soviet Union and Soviet satellites.

The target systems to neutralize the North Korean military forces were therefore generally of two types: those industrial targets that would deny North Korean forces immediate and long-range supply of military end products from North Korean industry and transportation targets in North Korea, the destruction of which would interdict the flow of supplies from Soviet Russia and Soviet satellites into Korea. Careful consideration of the North Korean industrial potential determined that maximum effects on the capability of North Korean forces to fight might be expected from the destruction of transportation targets, port approaches, chemicals, liquid fuels, and munitions.

Transportation targets analyzed for attack included some thirty-two rail and highway bridges on three lines across Korea as shown: the first line from Pyongae, Samch'ok, Wonju, and Chochiwon, to Seoul; the second line from Munsan through Ch'unch'on east to the Chumunjin highway bridge twelve miles south of the 38th parallel; the third line from Sinanju through Pyongyang and Songchon to Hamhung. In addition nine rail yards in Seoul, Wonsan, and Pyongyang were included. Two port areas were also included for mining attacks in Inchon and Wonsan. It was estimated that these targets could be

effectively attacked with the forces available and that movement of supplies along the main routes to the south would be halted. As of 17 July 1950 it was estimated that minimum daily supplies of 4050 tons were necessary for Communist front-line action. It was recognized and recommended that rolling stock on rail and highway should be brought under attack to complement the attack on rail and highway bridges. Mining of the two ports of Wonsan and Inchon was designed to supplement the interdiction of land transport routes.

However well communication lines might be cut by attacking transportation as above, many supplies could be expected to get through even on the backs of coolies. It was therefore necessary to consider strategic targets, the destruction of which would effectively interdict the supply of those war goods to the fighting front. Obviously the war industries supporting the Chinese Communist forces were not in Korea, nor were many of the plants supporting the North Koreans. Interdiction through attack on manufacturing plants could therefore never be complete without attacking industrial targets north of the Yalu River. However some industrial plants were identified in Korea as supporting the Communist war effort.

For ammunition the North Koreans had been drawing on the large stockpiles accumulated in the U.S.S.R. To stop its flow to the front, interdiction of transportation into North Korea would be most effective. At the same time local chemical industries which could contribute to ammunition supply would have to be destroyed. One combine, the Hungnam complex comprising three large plants, produced chemicals basic to the manufacture of ammunition. If these chemical industries were destroyed and transportation was interdicted, the North Koreans would soon run short of ammunition supplies.

It was estimated that North Korea produced some 250,000 metric tons of liquid fuels annually from the petroleum refinery at Wansan and the two synthetic fuel plants at Yongan and Aoji. The Wonsan Plant was by far the more important, supplying some 93 per cent of the total North Korean output. North Korean petroleum storage capacity was estimated at some 300,000 metric tons, and targets were identified to reduce this capacity. As with the chemicals and munition systems, neutralization of internal North Korean petroleum facilities would be meaningless unless transportation of imports from the U.S.S.R. and its satellites was successfully interdicted.

There were no heavy war material manufacturing facilities

in North Korea. All automotive, tank, heavy guns, and heavy materiel of any kind would have to be imported once current stockpiles were consumed. Only very minor repairs to armored vehicles were possible in Korea. If, therefore, the supply of vital elements of ground force armament were interdicted, the North Korean forces would have only stocks immediately on hand. The supply of small arms was somewhat different. The armament plants of North Korea produced small arms, small arms ammunition, and a limited amount of artillery shells, the bulk of munitions production being at the Pyongyang Army Arsenal Heijo and the Pyongyang Branch Arsenal at Kanni. In addition Heijo was the arsenal center of North Korea, where an estimated fifty per cent of grenades, submachine guns, rifles, and small arms ammunition was stored. Other ammunition storage facilities were designated as targets as well. It was emphasized again that neutralization of these munitions targets would deny the North Korean forces of most of their small arms supply only if the communications lines from the U.S.S.R. and Soviet satellites were effectively interdicted.

**M**OST of the strategic targets attacked were designated by the Joint Chiefs of Staff, but some were chosen by FEAF, and the actual attacks on selected targets were supplemented by targets of opportunity. At present it is possible only to describe the attacks in general and discuss only tentative results.

It has been essential to consider the interdiction targets in relation to the industrial targets, since the latter would assume real importance only if the interdiction campaign succeeded. In this campaign itself the B-29's played a major part. Soon after their arrival in the theater, they were heavily committed to the FEAF program for interdiction.\* Railroad marshalling yards and key bridges in rail and highway systems were their especial targets. The first major strike was made 13 July on the Wonsan marshalling yards and dock area, as part of the plan to interdict the flow of materiel and personnel to the combat area. The Pyongyang railway bridge and marshalling yards, the Wonsan marshalling yard, and the Seoul railway bridges and marshalling yards were major choke points in

\*See "Interdiction," in this issue, p. 63. Also see "Air War in Korea," pp. 19-37, and "Interdiction," pp. 56-61. *Air University Quarterly Review*, Fall 1950.—Ed.

rail movements between North Korea and the front. These and similar targets, together with the key bridges on motor transportation routes, were assigned to FEAF Bomber Command.

The three key rail transportation areas, Wonsan, Seoul, and Pyongyang were attacked on the first three major B-29 raids and were reattacked at intervals necessary to deny their use to the enemy. Stopping the traffic of men and materiel at these three focal rail points dealt the first major blow in breaking the North Korean offensive. By these attacks alone the logistic problems of the enemy were made almost insurmountable. The medium bombardment forces were the only weapon available to the U.N. Command which was capable of halting this vital traffic, and by late July 1950 they had halted it. Altogether during the first three months of operations 162 marshalling yards were attacked by the B-29's, including the major ones at Seoul, Pyongyang, Wonsan, Hamhung, and Seishin. Also bombed out of service were 252 rail and highway bridges. Railroad lines and main highways were put under steady surveillance, with over 700 rail cuts and 211 direct hits on roads slowing up traffic.

As the campaign moved into North Korea the B-29's penetrated deep into Korean mountain areas in a striking demonstration of the flexibility of the air weapon under centralized control. Three components—medium bombers, fighter-bombers, and fighters—were merged into a series of interdiction operations to break up the flow of supplies coming into Korea from the north:

"The interdiction program followed the pattern of a housewife sweeping a walk. One day B-29's would hit a series of cities and towns across Korea from Pyongyang to Wonsan, while B-26's ranged below them from Sariwon to Kosong and fighters swept the area from Kaesong to Yangyang. Next day the B-29's moved farther north to Sinanju, Pukchang-ni, and Yonghung, while B-26's worked day and night over yesterday's B-29's targets, and fighters visited the Sariwon-Kosong line. The following day, B-29's took on Sinuiju, Chongju, Taegwan-dong, Sakchu, and other centers in northwest Korea, and so on all the way up to Chongjin in far northeastern Korea."

In reviewing the attacks on war industry the chemical plants may be grouped with the arms and arsenal targets, since they are very closely associated. Nine plants were attacked in this group, including the Chosen Nitrogen Explosives Factory, the Chosen Nitrogen Fertilizer Factory, and the Bogun Chemical

Factory, the three composing the Konan chemical-industrial complex at Hungnam, the largest in Asia.\* The attacks on the Konan complex 30 July through 19 September delivered 1761.5 tons of explosives on these targets. Inspection of the pre-attack and post-attack photos revealed the extent of the destruction of the Chosen Nitrogen Fertilizer Factory of the complex, which processed nitric acid for explosives and metallurgical products. Although this plant, the largest chemical plant in the Far East, was attacked through complete overcast, complete destruction was found to have been achieved, when Hungnam was taken, with practically no damage falling outside the target area. An evaluation study by FEAF Bomb Damage Assessment Field Teams confirmed the destruction of the potential of the entire Konan complex.

The Pyongyang Army Arsenal was 70 per cent destroyed on 7 August by 100 tons of bombs. The other targets in the chemical-arms-arsenal category, including the important Japan Explosives Company at Haeju and the Kan-Ni Arsenal, were also destroyed or neutralized. The result is that the Communists must now completely rely upon supply of ammunition and small arms from the Soviet Union or Soviet satellites.

The most important petroleum plant in North Korea, the Chosen petroleum refinery at Wonsan, was attacked with six tons of bombs on 22 July and struck again with 321 tons on 7, 9, and 10 August. It had not been possible to direct concentrated effort against this target earlier, because the B-29 forces available were committed to ground support and interdiction missions against communications, although fighter-bombers did deal an undetermined number of bombs against it between 22 July and 7 August. Vehicular operations of the enemy were drastically slashed by the destruction of the Wonsan refinery, which was capable of producing large quantities of motor fuels, aviation gasoline, and lubricating oils, its annual capacity being rated in excess of 1,500,000 barrels of crude oil, with storage capacity estimated at 20,000 barrels.\*\* Three petroleum storage areas were also hit with significant results. By 1 August 1950 prisoner-of-war interrogation reports had already emphasized the extreme shortages of petroleum goods available to the Communist forces, an effect probably due to the successful interdiction of transportation. The destruction of the Wonsan refinery and the storage areas rendered the North Korean forces depen-

\*See "Bomb Damage," *Air University Quarterly Review*, Fall 1950, pp. 81-86.—Ed.

\*\*See "Bomb Damage," pp. 86-87.—Ed.

dent upon fuel externally supplied, with consequent lengthening of communications.

Certain basic metal industries were also brought under attack. Seven major plants received some 1600 tons of bombs. The Japan High Frequency Heavy Industry at Songjin, for example, was demolished (90 per cent destroyed or damaged) 28 August by 326 tons of bombs. The pre-war productive capacity of this plant was 20,000 metric tons of high-speed cobalt and manganese, stainless, and other high-grade steels. One of the most important steel plants in Korea, it was in full operation. The Chosen Riken Metals Company at Chinnampo, which was Korea's second largest aluminum and magnesium plant and which was in full production, was struck 31 August with 284 tons of bombs and 70 per cent destroyed or damaged. Its pre-war capacity was estimated at 6000 metric tons of aluminum and 1000 metric tons of magnesium. Also among the major plants attacked were the Mitsubishi Iron Works at Seishin (hit with 132.5 tons of bombs on 19 August and 30 per cent estimated destruction), the Japan Iron Works at Seishin (203.5 tons on 7 September and 20 per cent estimated destruction), the Japan Mining Company Smelter at Chinnampo (248 tons on 31 August and 35 per cent estimated destruction), the Japan Iron and Steel Company at Kyomipo (252 tons on 27 August and 1 and 20 September and 40 per cent estimated destruction), and the Japan Magnesite Chemical Company at Songjin (183 tons on 8 September and 30 per cent estimated destruction). Other, less important targets of this type were destroyed.

The full results of the attacks on the basic metal industry are, however, not yet known. Although the occupation of North Korea revealed that at least two of the seven plants attacked were not being used, it must be remembered that available information indicated almost no Soviet dismantling of these Korean industries. Korean industries could be expected to be used to the maximum for war preparation. This war production could be augmented by capacity to turn out products which could be traded in Manchuria, the U.S.S.R., and China for finished war products not produced in Korea. Of particular value for this purpose were the metals industries, the chemical and fertilizer industries, and the petroleum refining capacity. To break the capability of North Korea for sustained military operations, her industries had to be destroyed. Even if her economy could not sustain long-term fighting, the period of her re-

sistance could be shortened by bombing these targets. If the possibility of outside help had materialized sooner than it did, these industrial targets might have become heavily defended and much more costly to eliminate than at the time they were attacked. Recognizing that the preponderance of front-line supplies for the Communists in Korea came from the Soviet Union and her satellites and recognizing that the North Korean war industries were also contributing to this Communist supply, the interdiction campaign could only be complete with a successful neutralization of North Korean war industries in being. It may well be that the divorce of the North Korean forces from sustaining economies by destruction of transportation and war industries saved the battle situation in the critical days of the shrinking Pusan perimeter.

**A**NOTHER aspect of the air attacks in Korea merits extended study by itself. The psychological aspect of air power is so little understood that the psychological results of its employment tend to be unplanned and poorly calculated. A case in point is the reaction of the people of Berlin to the Airlift. Today Berlin is the one strong bastion of anticommunism in Germany, almost entirely because of the positive reaction to the Airlift, an unplanned and uncalculated psychological by-product of air power.

In Korea psychological reactions of value accrued from the great care taken to bomb only military targets, from the care to avoid bombing civilian areas, and from the efforts made to warn civilians to evacuate dangerous military areas.

In the first place only specific military or economic war-potential targets closely related to military operations were designated as aiming points. Furthermore extensive target study classes were conducted before missions with the crews to perfect direct and indirect target identification.

In the second place the accuracy of bombardment in Korea has been unusually good. This can be attributed to the excellent training of crews, to the development of better equipment, and to the lack of heavy opposition over the targets. The marshalling yards in Seoul, for example, were attacked with some 375 tons of bombs, which completely destroyed the facilities, rolling stock, and trackage. Damage outside the area was restricted to structures bordering the marshalling yard, a great

tribute to the operational efficiency of the B-29's in Korea.

In addition the civilian populace was warned by leaflets dropped by B-29's to evacuate potential target areas. While this type of leaflet represents only about one per cent of the 23 million leaflets dropped through 21 August 1950,\* the warning, together with careful concentration of B-29's on military targets, is firm answer to Mr. Malik's charges of 1 August in the United Nations that the U. S. was bombing defenseless civilian populations. There is no question but what the U. S. Air Force made a largely successful effort to refrain from bombing Korean civilians. There is no question but that the U. S. Air Force attempted to identify itself psychologically with the cause of the people of Korea.

A significant result of air bombardment in Korea for psychological warfare developed from the Air Force effort to promote evacuation of potential target areas by dropping leaflets. Such control was gained over populations in enemy occupied areas that evacuation actually became a hindrance to our own troop movements. While it is questionable that for purely military considerations evacuation was the reaction most desired, the point is that action was produced through warning leaflets. This action gave a very limited control over the populace in the enemy rear that could very probably have been expanded through more concrete instruction to the populace, through organization of resistance movements, through evacuation of all key personnel, through return of trained resistance leaders, through supply of resistance forces by air drop, and in general by maximizing the positive psychological reactions to air power in Korea.

This discussion of targets attacked by medium bombardment would be incomplete without mentioning ground support targets. The second mission run by FEAF Bomber Command dispatched ten aircraft which were vectored to targets by ground controllers. All in all during the critical months of August and September alone 3030 tons of bombs were dropped against front-line targets and military installations. From the start of their operations it was apparent that in relief of the hard-pressed ground forces the B-29's would be committed to missions for which they had not been designed. Evaluation of these tactics is not yet available for publication, but they are men-

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\*The purpose here is to emphasize the psychological aspects of the employment of air leaflets, passes through the American lines for surrender, and similar standard propaganda leaflets.

tioned to point out that the B-29's were used across the board. They were used to attack strategic war-supporting targets, to attack communications targets, to interdict the battle front, and even to attack ground-support targets to assist the troops in the front line.

**I**T is clear from the foregoing that Communist Korea presented no such integrated war economy as Japan and Germany in World War II. This meant that the Communist armies could fight in Korea only as long as adequate supplies were received from Soviet Russia and Soviet satellites. In other words, the industrial war economy behind the North Korean army resided in the U.S.S.R. and in Soviet satellites, except for certain petroleum facilities, arsenals, explosive factories, and a few basic industrial plants in Korea. Air power successfully destroyed these outlying strategic industrial assets to the North Korean war potential and brought under heavy attack the communications arteries in North Korea between the Communist armies in Korea and their industrial heart in the U.S.S.R. and Soviet satellites.

The Korean war started 26 June. It was eighty days before the Americans were able to assume the offensive at Inchon. Meanwhile the North Koreans had driven American and South Korean forces 160 miles to the Pusan perimeter. Forty-three of these eighty days were required to build up the B-29 forces in FEAF, although only half the B-29's were operating as early as 13 July, eighteen days after war started. (Moreover, during the first three days of this period FEAF air force units were denied strategic or interdiction targets north of the 38th parallel.) Thus in thirty-seven days of maximum operations before the forces were put ashore on 15 September to take Seoul, the Air Force had helped crumble the rear areas of the North Koreans, which permitted the Inchon landing that turned the North Korean flank and disintegrated the front for the Naktong breakout. During the period 26 June-15 September the B-29's delivered over 5000 tons on such interdiction targets as railroad lines, railroad bridges, highways, highway bridges, and road junctions, this 5000 tons being supplemental to their numerous and heavy attacks on marshalling yards plus approximately 2200 tons on battle line and military installation targets.

The strategic decision was made to commit surface forces in Korea before air power could neutralize and interdict the battlefield. The strategic decision was also made to restrict the use of air power to areas south of the Yalu River. The first decision is reminiscent of World War II strategies aimed at fighting and winning surface engagements rather than trying to neutralize the enemy forces through air power and then occupying the neutralized enemy area. The second decision simply denied air power targets which could be attacked to interdict and neutralize the North Korean forces until U. N. troops had retreated toward the Pusan perimeter and lengthened enemy lines of communication.

Then, as U. N. Forces re-passed the 38th parallel on their drive north, the Air Force, being restricted to targets south of the Yalu River, could not possibly neutralize strategic targets or interdict communications arteries supporting the new forces forming north of the Yalu River. Therefore when the Chinese Communist forces struck south of the Yalu River on 25 November the Air Force was denied strategic targets and largely denied interdiction targets until the Communists had pushed far enough south to expose again the lines of communication south of the Yalu River. It appears possible, nevertheless, that Air Force attacks actually slowed and in some cases stopped Communist forces between the Yalu and just south of the 38th parallel where U. N. forces again made firm contact with them about 31 December. With interdiction targets available only between the Yalu and Han Rivers and with the Communist rear areas intact behind the Yalu River, it took sixty-nine days of maximum air effort between 25 November and 2 February to help interdict the Chinese forces to such an extent that U. N. ground units could stop and slowly begin to drive the Communists back. Only thirty-seven days of maximum Air Force effort had been required against the North Koreans with their more exposed lines of communication and rear areas. But in this second situation all targets in the rear areas of the Chinese are denied the Air Force, and offensive action by U.N. forces is much more difficult.

Under such conditions of air warfare, where strategic targets are denied the Air Force and where interdiction targets have also largely been denied, some observers and analysts have found the Air Force inadequate and have proposed assignments of ground-support air to ground force units. These are mis-

leading and dangerous conclusions to draw from the operations in Korea.

General O'Donnell put it this way in a statement to the *Army Navy Air Force Journal*:

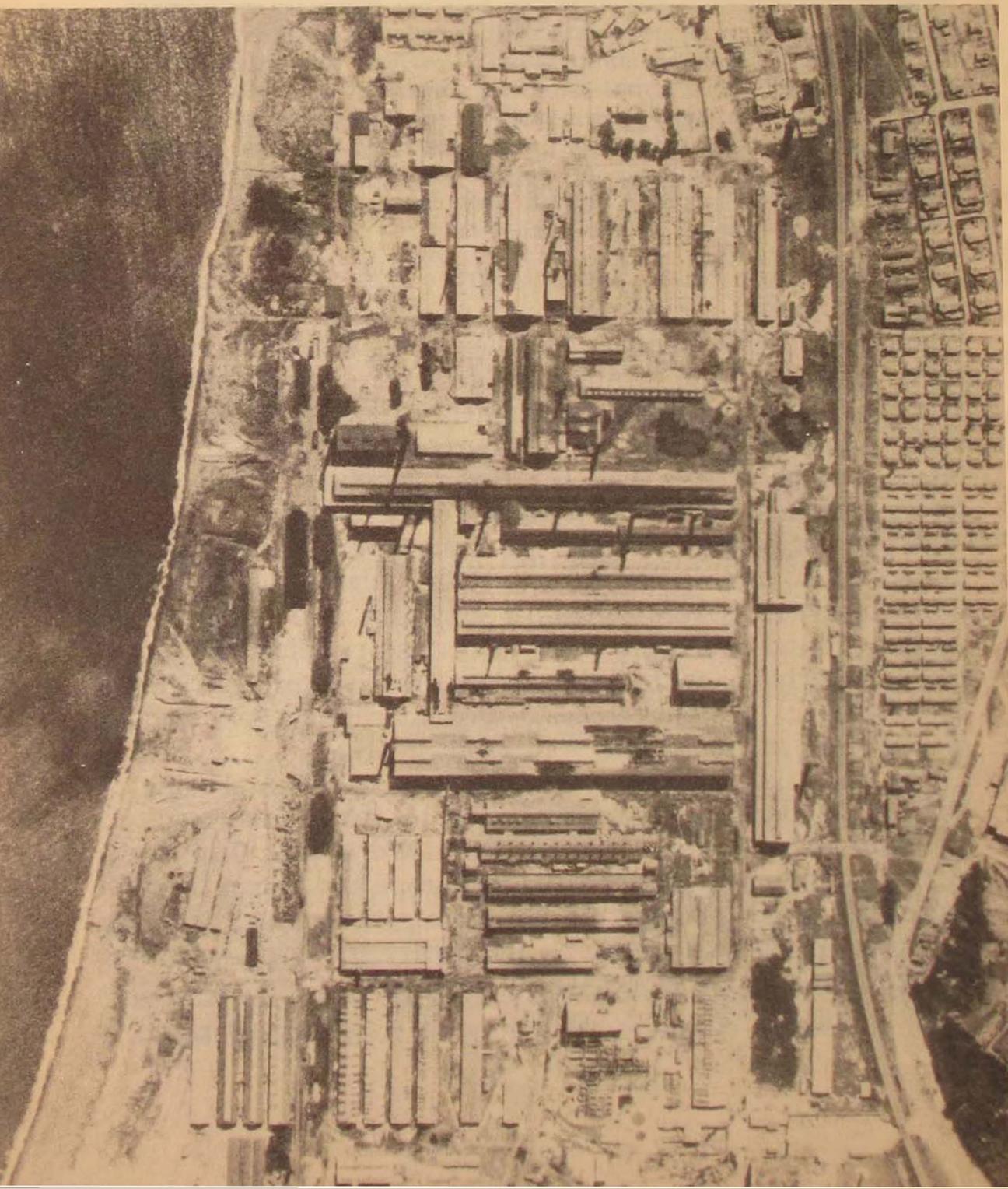
"We have learned nothing new in tactics or techniques during this campaign. No unique contributions to the art of aerial warfare have been made, although we have perfected and expanded to some extent upon recognized and accepted methods. Our operations in Korea have simply applied the lessons of World War II, which are already thoroughly documented and firmly established. We advocate no change in aerial war plans or procurement based upon lessons of this experience. It is absolutely essential that we keep our minds on our primary objective, so clearly defined by the major power alignments of the day. It would be a national calamity if, as a result of this bitter, though small-scale, action we permit emotional advocates to revive outmoded concepts. The attendant clamor might result in expending our substance and resources for weapons and units which could never effectively come to grips with our only possible enemy. We should push with all endeavor our plans for a fighting team capable of playing the New York Yankees—not the Toledo Mud Hens!"

The facts are clear. Ground force units were committed piecemeal before air power could neutralize the battlefield. When B-29's were rapidly and efficiently deployed 8000 miles in eight days, the main strategic targets were "out of bounds." The Air Force interdicted the battlefield and neutralized rear areas in thirty-eight days of maximum air operations and U. N. forces were victorious over the North Koreans. The Chinese forces attacked when both strategic and interdiction targets were "out of bounds" behind the Yalu River. As U. N. forces moved south, interdiction targets again became available, and Communist forces were halted. In sixty-nine days of maximum air and ground operations U. N. forces had regained the initiative and started back toward the Yalu. As U. N. forces drive the Chinese back, the Air Force is denied interdiction targets, and a temporary stalemate may well result in Korea.

The operations in Korea indicate that the time phasing of the employment of air power prior to the commitment of ground forces—clearly demonstrated in World War II in North Africa through poor phasing and in Europe and Japan through somewhat better phasing did not dictate the over-all strategy in Korea. It may well be that a temporary stalemate will force recognition of these World War II lessons.

## Industry

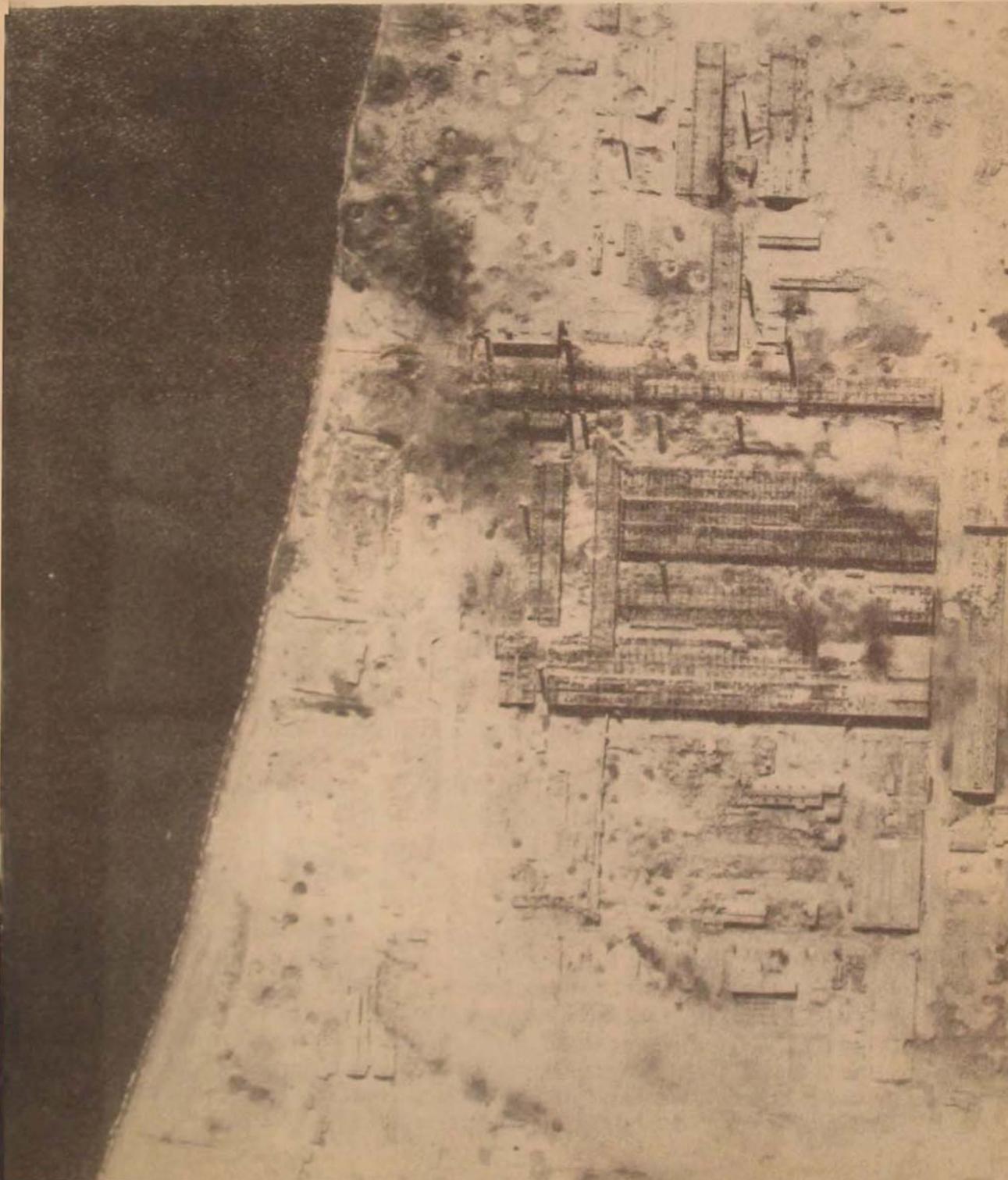
To neutralize Communist forces fighting in Korea it was necessary to attack and destroy two broad target systems. One was the industrial production that could supply immediate or long-range war materiel. The other, since the North Korean industrial complex alone could not support the war, was the transportation capability that brought in the flow of supplies from beyond the Yalu border river to the fighting front. During the months of August and September the heavy hand of aerial bombardment was laid upon North Korean industry, upon the factories and the plants and the mills and the refineries that could help wage war. Early in October the job had been done. Inspection of a few of the hundreds of photographs of its results confirms the effectiveness of the FEAF bombers.



## The Japan High Frequency Heavy Industry Company

North Korean steel was struck decisively on 28 August 1950 when B-29's dropped over six-hundred 1000-pound high-explosive bombs on the steel plant of the Japan High Frequency Heavy Industry Company at Songjin, on the east coast 180 miles north of the thirty-eighth parallel. The steel plant was one of the most modern in Korea, two thousand feet wide and almost two miles long. Devoted principally to production of high-quality steel, cobalt, and manganese, its facilities included ten blast and electrolytic furnaces, a modern rolling mill, a huge forge shop, and a large electrical transformer yard. Destruction was so thorough that six thousand workers were never able to restore production.

*Bombing effects on the Japan High Frequency Heavy Industry Company: A post-strike photo after the Navy bombardment on 21 August 1950 and a minor U.S. Air Force strike on 22 August reveals not more than ten per cent destruction of the key steel plant. The post-strike photo after the Air Force attack of 28 August by forty-seven B-29's shows, with several fires still burning, approximately ninety per cent destruction.*

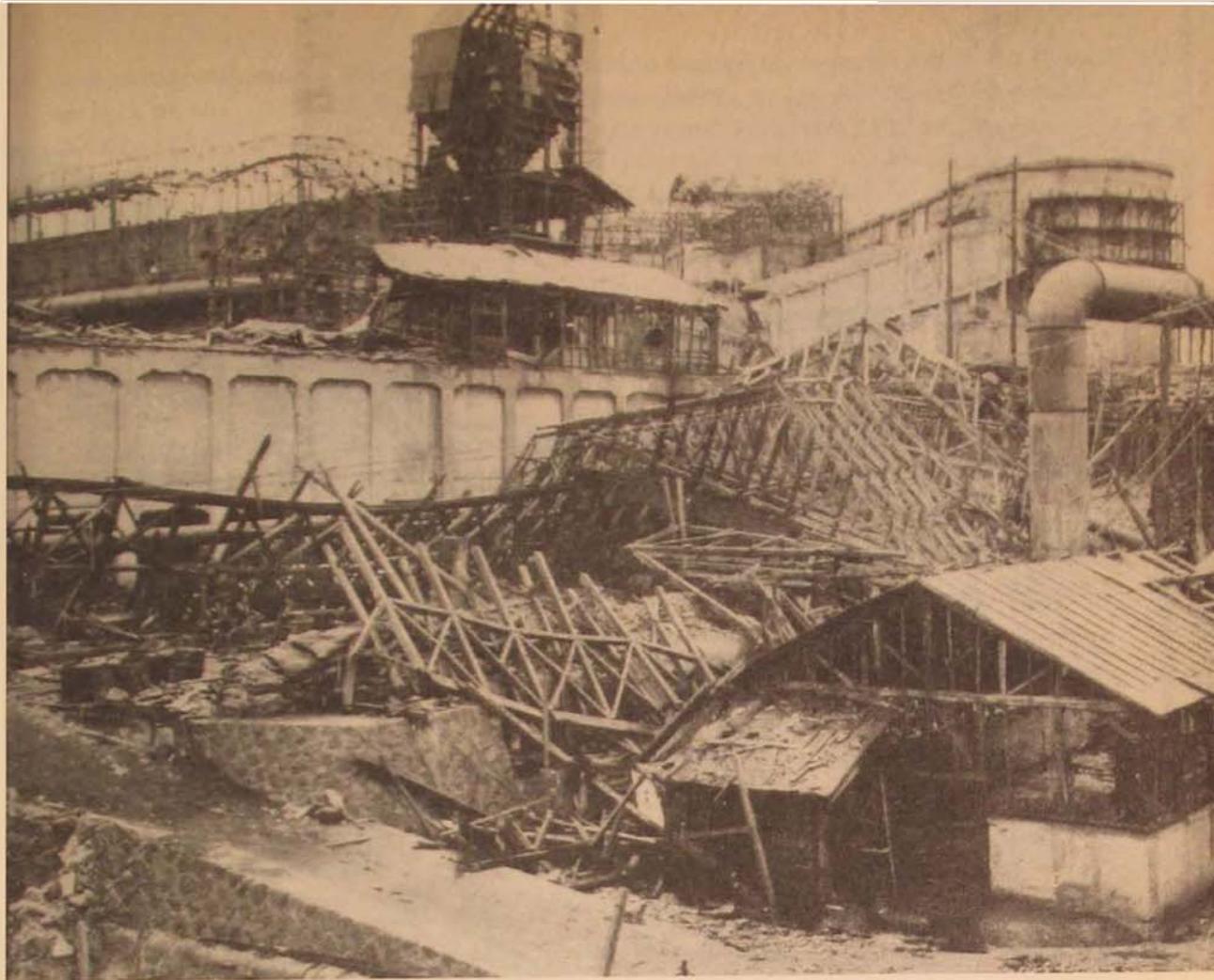




*When FEAF Bomb Damage Assessment Field Teams pushed into North Korea, damage estimates from post-strike photos were more than confirmed. Ruins of the rolling mill in Japan High Frequency Heavy Industry Company are typical of what they found.*

*The Chinnampo ore smelter. On 31 August 1950 more than 600 tons of high explosives were unloaded by FEAF B-29's on industrial installations at Chinnampo, twenty miles southwest of Pyongyang. With clear visibility at noon a steady stream of bombers pounded for an hour and a half at the marshalling yard, the freight car storage yard, a chemical plant, a magnesium aluminum plant, and a smelting plant. No flak or enemy fighters were encountered during the bomb run, which went off exactly as planned. The photograph shows some of the ruins of the smelting plant, the most important ore smelter in North Korea, which had been composed of about thirty industrial buildings, covering a triangular area a half mile long. The one attack stopped the plant's operation, destroying its high productive capacity in copper, lead, and zinc.*

*The Konan ore refinery. This machinery shop, part of the ore refinery in the vast chemical-industrial complex at Konan, went out of business 24 August 1950 in a mop-up operation by FEAF medium bombers. The core industries of the complex had already been blasted with 1582 tons of high-explosive bombs in four attacks in late July and August. Main components of the complex—the Chosen Nitrogen Explosives Factory, the Bogun Chemical Factory, and the Chosen Nitrogen Fertilizer Factory—met with 85 per cent destruction. The ore refinery produced large quantities of silver, nickel, lead, and copper. Ninety-one bomb craters were counted directly on the plant.*

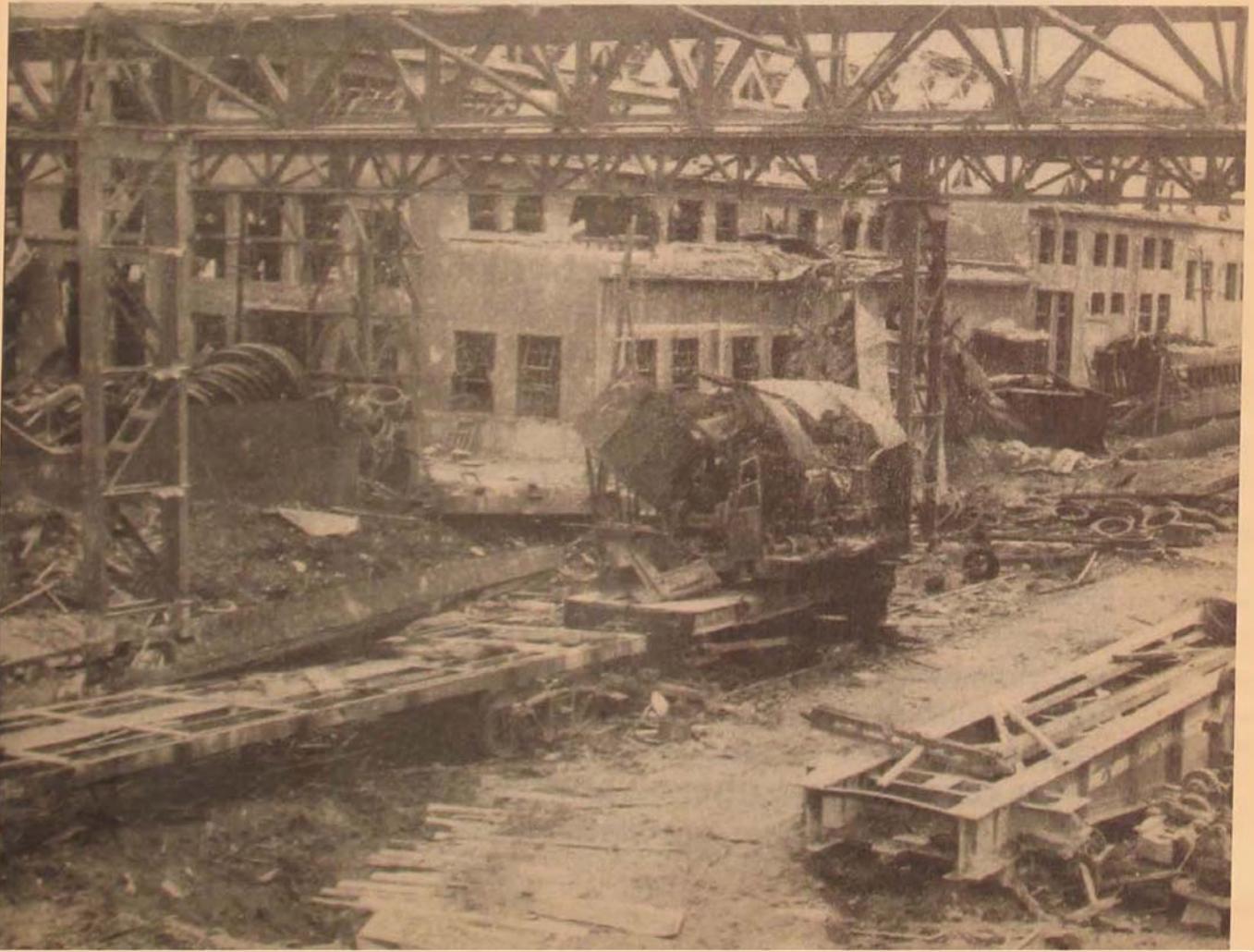




**The Suncheon Chemical Works.** Heaps of rubble and gaping walls mark what once was a section of the chemical factory at Suncheon, thirty miles north of Pyongyang. The fifty-acre plant, with factory buildings constructed of unusually heavy concrete and steel sections, was subjected to thirty-four tons of bombs on 10 September 1950 by B-29's of the U. S. Far East Air Forces Bomber Command. The Suncheon Chemical Works had produced ammonia, sulphurous acid, and chemical fertilizer, all useful in the manufacture of munitions. Pre-strike photographs had indicated that it was being converted to the production of war materials after the elimination of the primary North Korean chemical plant at Konan in a three-pronged attack by FEAF bombers.

Large sections of the **Pyongyang Arsenal**, one of the major immediate sources of N. K. military supplies, were completely devastated in the B-29 attack of 7 August 1950 on the Arsenal and the nearby Pyongyang marshalling yards with 450 tons of bombs. Moderate and fairly accurate flak in the Pyongyang area dealt minor damage to five aircraft without crew casualties. The B-29's paid a second and final visit to the Arsenal with 228 tons of bombs on 12 September and left nothing more than twisted steel columns, shattered buildings, and blown-up ammunition storage areas to cover its site.

**The Wonsan Railroad Locomotive Works.** Closely tied in with the destruction of basic industry and transportation were the attacks on such vital facilities as the huge Wonsan locomotive and car shops, which were being used chiefly to repair the rolling stock for the crippled transportation system of North Korea. In keeping with the current practice in Korea of mounting attacks against key industrial concentrations rather than formal target systems, the B-29's ferried over four hundred tons of explosives to three targets at Wonsan on 10 August: a railroad center and switching yard, an oil refinery, and the locomotive works. The locomotive works, with its heavy forge equipment, machine shops, and warehouses, covered an area of 2200 by 1300 feet.



# Tactical Air Operations in Retrospect and Prospect

BRIGADIER GENERAL HOMER L. SANDERS

GENERAL HOYT S. VANDENBERG, Chief of Staff, United States Air Force, has said that it is not the Air Force's job to win a war alone. Land, sea, and air may all make a vital contribution to a campaign. Sea power may blockade the enemy, strangling his economic supply line, combating his submarine threat, and at the same time provide valuable logistic support to our own forces. Our land forces may engage the enemy in combat, containing and finally destroying his land armies. Strategic aviation may attack the enemy's homeland, destroying his economic sources of power and will to fight. Yet to all this, one major element must be added—sufficient air power to wrest control of the skies from the air forces the enemy can commit to the support of his ground forces. For example, Russia can bring 15,000 aircraft to the support of her armies. Our land forces cannot maintain a successful, continued campaign without coordinated air actions to keep clear the skies above them, to fix the enemy by interdiction, and to cooperate closely with the ground forces in the immediate battle area. Decisive tactical air operations will be the margin of difference between success and failure in a ground battle for Western Europe.

Any statement indicating too much emphasis on strategic air operations at the expense of tactical air operations or vice versa is foolhardy. It is generally admitted that without the deterrent effect exercised by the strategic capability, we might have become involved in World War III by this time. This is not meant to lessen the role of strategic air operations after the initiation of hostilities, for in addition to its passive role as the "keeper of the peace," strategic's active role as the seeker and destroyer of the opponent's source of power, wherever located, will have the most far reaching effects on the outcome of the war. Strategic air operations can bring many results, but they alone cannot prevent the overrunning of Western Europe by the hordes from the East.

That is a task for the military team to perform and with proper coaching and training and control of the air it can be

done. To do it will require concerted efforts of the United States and Allied land, sea, and air forces, all working in harmony and to a common end—survival as free men. Once battle has been joined, the contest will take on the aspects of a gigantic land campaign. The Western nations will probably be unable to match the enemy in manpower. Armor and artillery, at least the equal in performance to that of the enemy but vastly inferior in numbers, that will be thrown into the fray will not be enough to win. Our men will be good, and good fighters, but they still will be Americans and Europeans, with a lot to live for and little desire to join their ancestors. Death in battle, as the greatest thing to aspire to, is not for them. Other things being more or less equal, in what category can we gain the advantage? To this question the proposed answer is in tactical air operations.

In this we can excel. What we lack in numbers—and we seem to have a bad habit of always going in outnumbered—we can compensate for by the skill of our crews and the performance of our aircraft. We cannot afford to accept aircraft just “as good” as the latest one the enemy is rumored to have. In this one category, at least, we must and can stay ahead; for in the Atlantic Pact countries are the keenest aerodynamic minds and the greatest pool of masterful pilots to be found on this earth.

There is an unexplainable something about these American pilots; otherwise, why would you have to threaten to take the ammunition away from two reconnaissance pilots to prevent their being bounced by a squadron of ME-109's, usually some fifty miles off the course of the projected mission? This happened repeatedly in one of the reconnaissance groups of the Ninth Air Force in Europe, and the ME-109 squadron always got licked. Or how can you account for a radio conversation such as this, actually overheard in a Control Center? Thunderbolt to Mustang, “Where is this big fight going on?” Silence. Again—Thunderbolt to Mustang, “We are in the area and can help you.” More silence, then a slow drawl over the VHF, “Don't you wish you knew?”

With that sort of spirit at the controls of first-line aircraft odds mean little, but keep in mind that such fighting spirit cannot long survive if we deal these pilots a “second-rate hand” in their flying equipment. Strangely enough, many fine officers of the military profession, highly trained in their fields of activity, but totally untrained in the technique of aerial combat, would have us do just that. No greater disservice could be done to the young men for whom they are responsible and to the

country they serve than to fail to give these young men the privilege of moving, sleeping, fighting, and eating without the ever present menace of enemy air attack.

In the past, U.S. air power has given our ground fighting men this protection, and we propose to do it in the future. In preparation we must refrain from devoting portions of our air resources to special purpose aircraft, which for want of a better name may be called American Stukas. A collection of such aircraft is about as useful in performing the first and most essential task of the Tactical Air Force—gaining and maintaining air superiority over the area of conflict—as a collection of warts on a hog. We cannot afford Stuka-type aircraft useful only in the very limited task of close air support but totally worthless without absolute air supremacy. For their limited worth we cannot afford to diminish our numbers of high performance, fighter-bomber type aircraft essential in the task of clearing the air of enemy aircraft and at the same time capable of rendering good close air support and performing first-class interdiction missions. It is extremely doubtful that the resources of the country permit the luxury of building large numbers of aircraft to be held back on rear area airdromes awaiting the time when they could be safely used. Such a policy might result in their never being used at all.

We need look no further back than World War II for the truth of this statement. Although greatly outnumbered, the Royal Air Force, because of the farsightedness of its leaders in developing the outstanding fighter aircraft of the day, the eight-gun Hurricane and Spitfire, was able to defeat the massive German Air Force in the Battle of Britain. In contrast the German Air Force had specialized in ground support type aircraft, which were world beaters until they met first-class opposition. In the campaign through Poland and through Belgium and France, there was little air opposition to challenge the activities of the Stuka and other cumbersome German aircraft. Later when tried in North Africa, after the formation of an effective tactical air force equipped with fighter aircraft, the losses sustained by the German Air Force in the operation of the Stukas became so heavy that they were forced to withdraw them from combat.

**D**URING World War II tactical air operations were spoken of as being in three phases. This was later recognized as a misnomer, since phases indicate chronological sequences.

Such sequences are not the rule in tactical warfare, therefore, the word *phase* was changed to *task*, and the three most important tasks, now laid down as doctrine, are:

1. Gaining and maintaining air superiority
2. Interdicting the battlefield area
3. Close air support of surface forces

*Any or all of these tasks may be going on simultaneously, or any one of them may be necessary at any stage of the campaign.* How so, may be asked? The campaign in Europe can be used as an example. Air superiority over the German Air Force was begun by the Royal Air Force while we in the United States were still indulging in pipe dreams of peace. It was finally attained after years of intensive air fighting and after the loss of the finest and most irreplaceable manhood of the allied nations, not to mention the loss of thousands of scarce aircraft. By the time of the invasion an almost undreamed of air mastery over the skies of Europe had been secured.

Just prior to the invasion the finest example known to modern warfare of air interdiction and isolation of the projected battle area was undertaken and carried to a successful conclusion by both strategic and tactical air forces of the United States and Britain. It was accomplished by a well-thought-out program of cutting lines of communications at the Seine River, thus isolating Normandy from powerful German reinforcements in the area east of Paris. Throughout the advance from Normandy across France and deep into Germany, this campaign of interdiction was carried on. Really effective close support was begun at the St. Lo break-through and was brought to a peak of perfection by the experience gained in supporting the land forces in their move toward the Rhine. During this entire period air superiority over the German Air Force was maintained.

Simultaneous performance of the three main tasks was recognized as being largely responsible for the momentum gained and maintained by the ground forces. A good example of this concurrent action is that contained in the history of the XIX Tactical Air Command. One group of fighter-bombers was kept busy in preventing the opposing German Air Force units from gathering enough strength to present a serious threat to the Third Army which the XIX TAC was supporting. This group, credited with the destruction of over nine hundred German aircraft, was equipped for and later used in the interdiction and close support tasks when the threat of enemy air opposi-

tion vanished. Other fighter-bomber groups were scheduled for armored column cover, close support of ground units, and the interdiction missions. Wherever possible, and until intelligence indicated a need for concentration of effort, groups and squadrons worked with the same ground units day after day in order to build up team spirit and mutual confidence.

There are numerous examples of how well and how closely this support was given. On one occasion the leader of a squadron giving column cover to one of Patton's armored columns was overheard giving instructions to the Forward Air Controller in the lead tank as follows: "Stop your column, the enemy has a big gun emplacement just around the bend in the road and is looking down your throat." After a few seconds he was again heard to say. "Your lead tank is only a hundred yards from the emplacement, can you back the column up about a hundred yards?" Apparently the armored column commander complied with the flight leader's wishes, for the next remark was, "O.K., you can move forward now, we have a direct hit with a 500-pound bomb on the gun emplacement."

Another example of the results of diversified tactical air operations is the classic one of the German commander, south of the Loire River, who refused to surrender his force of twenty thousand men unless the commander of the XIX Tactical Air Command was present to accept the surrender. As he put it, his surrender was made necessary by the constant air attacks he had suffered over the past few weeks.

Tactical air operations are complex and require a considerable amount of perception for complete understanding. However, the most difficult point to put across and the most constantly misunderstood is their application for the three results they are designed to attain. Interdiction is mixed with close support, and air superiority is a most necessary ingredient of both. Air superiority can be maintained only by means of first-line fighters and fighter-bombers with a kill potential exceeding anything the enemy has to offer. When this potential is lost, control of the air is lost with it. It is possible for this control to be lost at any stage of the conflict, as indeed almost happened late in World War II.

The advent of the jet-propelled German fighter was the cause of much loss of sleep in late 1944 and early 1945. Tactical Air Force units along the front from Switzerland to the North Sea were literally at the mercy of the German jets, as there was no known effective defense against them. Had the Germans elected to attack the Allied front-line airfields, the entire complexion

of the war might have changed overnight. Our Thunderbolts and Mustangs were no match for the German jets in the air, and our pitifully weak anti-aircraft defenses would have been helpless against them on the ground. In a visit to one of the advanced wing headquarters, Lord Trenchard, Marshal of the Royal Air Force, expressed the deepest concern over the possibility of loss of air mastery to the German jets and stated that every possible step must be taken to give our fighters on the ground some measure of protection. Immediate steps were taken, even to the extent of a fresh orgy of revetment building and smoke screening of airfields, which by actual test obscured every airplane on the field in three and one-half minutes after the alarm was sounded.

It was not until the closing days of the war that the riddle was solved as to why the German Air Force failed to exploit the hundreds of jet aircraft at its disposal. It was not a lack of brains but a lack of fuel which had saved us. Thanks were duly given to our "big friends," the strategic bomber force, for paralyzing the German transportation system and oil refinery system.

**W**HILE tactical air doctrine was being formulated in the massive land campaign of Africa and Europe, a similar doctrine was being developed in the island campaigns of the Pacific. Contrary to popular belief, and often-expressed views of correspondents and commentators, the tactical control system developed by the operational necessities of the various theaters were similar. The difference is one of degree rather than fundamental concept.

In the Central Pacific the major role was played by the task force organizations. The task force commander exercised close control over land, sea, and air forces allocated to him for his specific undertaking. He exercised control through land, sea, and air commanders appointed to his staff. In some cases the task force commander was in actual command of one of the services making up his force, in addition to his primary job as commander of the task force. Here a divergence in principle becomes apparent. It is the firm belief in the Tactical Air Command that seldom, if ever, should direct command of any one of the participating services be exercised by the task force commander. Instead, he should be allowed complete freedom and be given complete responsibility for the operation as a whole,

while making use of service commanders for the implementation of his orders and directives.

This belief was evident in the Southwest Pacific, where it was the theater commander, not the task force commander, who controlled all operations. The theater commander did not have the actual command of any one of the three services. The land, sea, and air forces were all "coequal."

At first glance there appears to be an unbridgeable chasm between the relatively small, closely knit, island-hopping operations of the Pacific and the immense land operations of Europe. Close study leads to the conclusion that there is a vast difference but that the difference is again one of degree rather than concept. The Supreme Commander, European Theater of Operations, was charged with the task of destroying the might of the German military machine and forcing its surrender. He accomplished his task by making land, sea, and air commanders directly responsible to him for the specialized missions of their respective services. No one service was subordinated to another and with few exceptions the service commanders, even with several countries represented, pushed toward a common goal. The success of the Supreme Commander's organization is now a matter of history.

Out of the long and arduous campaigns of North Africa there evolved certain principles of tactical air organization which were tested and found sound in the campaigns of Europe. Among these principles the most important is that of *centralized control*. The architects of this principle, Air Marshal Cunningham of the Royal Air Force and Field Marshal Montgomery of the British Army, did a lasting service to perfection of air-ground operations when they announced their plan of "coequal" and interdependent command of air and surface forces. The brilliant success attained by the desert forces under this plan of organization led the U.S. War Department to publish Field Manual 100-20, "Command and Employment of Air Power," dated 21 July 1943, which served as a guide for the organizational structure of tactical air forces and Army groups in Europe. This manual laid the ground rules for the preparation of Field Manual 31-35, "Air-Ground Operations," dated 13 August 1946. Field Manual 31-35 remains the official publication, although a more comprehensive document titled "Joint Training Directive for Air-Ground Operations," prepared jointly by the Office of the Chief of Army Field Forces and Headquarters of the Tactical Air Command, dated 1 September 1950, is

undergoing field test preparatory to publication as a joint Army-Air Force manual.

Mention has been made that the principle of centralized control proved to be a sound precept in the European theater. There is no finer example of the importance of this form of control than the rapid concentration of air effort made necessary by the German break-through at the Battle of the Bulge. Had the available Air Forces been apportioned out under control of subordinate commanders, it is quite likely that concentration of air effort would have been too late to have stopped the rampant advance of the German forces.

**D**ESPITE the fact that the greatest war in history was won with air and ground forces operating on a coequal status, cooperating towards a common victory and doing it with a minimum of friction and a maximum of effect, it was fashionable at the beginning of the action in Korea to belittle the efforts of the Air Force, which is operating along the proved lines of World War II. There will always be individuals in the military services who "won't play ball unless they can pitch," and who feel that they must run the show if success is to be attained. They do not believe that a cooperative enterprise has a chance of success, although the evidence is all to the contrary. It would probably be useless to remind them that one of the greatest military shows ever put on had several stars in the cast, all coequal and ably directed to a hit performance by the supreme commander. There was glory enough for all, and out of the performance came the concept of air-ground operations attested to by the most competent ground and air commanders of the American and British services. Even the most unreformed individualist of the lot, General George S. Patton, became a most ardent supporter of the air support system which, in the minds of many qualified observers, reached a pinnacle of perfection in the Patton-Weyland combination.

Most of the criticism of air operations in Korea has come from those farthest removed from the fighting front. Practically all is without foundation in fact. Results obtained in Korea by tactical air operations, following established principles, serve to prove these principles sound. *Air superiority* was gained in the first few days of the campaign by the F-80's. That the task of *interdiction* was successfully performed is attested to by North Korean prisoners of war who said: "We stopped in about 30 tunnels, sometimes for two days at a time. We had to

wait for bridges to be repaired and tracks straightened out. . . .”  
“ . . . . a notable decline in morale due to intensity of enemy aerial activity . . . .” “ . . . . with the aid of flares, night intruders damaged or destroyed practically all of the trucks of the brigade. *Close support*, originally hampered by lack of communications equipment, has been given credit by numerous ground unit commanders for making it possible for United Nations forces to stay on the Korean peninsula.

The Air Force has been criticized for its apparent neglect of tactical air during the post-war period. It is true that tactical air was placed in a lower priority than the strategic offensive capability and the air defense of the United States. Because of a limited budget, the Joint Chiefs of Staff were faced with the problem of getting the most good out of each available dollar. At the time their decision was a very sound one. Now that national policy has undergone a change, the recent decision to expand tactical air is equally sound.\* Steps taken recently to increase the number of groups in the USAF and the elevation of Tactical Air Command to a major command status will enable TAC to furnish tactical air support to the expanding Army.

Fighter-bomber, troop carrier, and reconnaissance units plus the necessary tactical control groups will engage in extensive maneuvers and exercises with Army units during the coming year. Plans for improved TAC support are being implemented by the activation of a special weapons squadron to study methods of applying new weapons to the support mission. An assault helicopter group is being planned to take over the job of transporting troops and supplies in and out of front-line areas. A never-ending search is being conducted to design and build better aircraft for the support mission, always keeping in mind that they must be able to “live in the air.”

The experience of the Korean war assures us that the basic doctrine of tactical air warfare has not changed. The jet plane has proved to be the most suitable all around weapon for the mission; the system of centralized control is still valid; tactical air operations will best serve everyone concerned under Air Force command in cooperation with ground command. We must have the best pilots in the best airplanes in the world. “One for one” is not good enough. We must strive for a kill rate of “twenty for one.” It has been done before and it can be done again. *Headquarters, Tactical Air Command.*

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\*This does not mean that defense doctrine has been changed. Air Force doctrine has always recognized that tactical air units must be provided to support armies that are put in the field. They were provided in Korea. Now that a national emergency has occurred and a mobilization of field armies has been determined a necessity, it follows that tactical air forces must be increased to complement them.—Ed.

# Air War in Korea: II\*

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## FEAF AND THE OUTBREAK OF HOSTILITIES

WHEN the North Koreans invaded the Republic of Korea on 25 June 1950, the Far East Air Forces was not surprised. But FEAF was certainly not prepared to assume an active role in the conflict. For one thing its mission, as laid down by higher authority, was strictly defensive: to protect Japan, Okinawa, the Marianas, and the Philippines. Its principal element, the Fifth Air Force, based in Japan, consisted very largely of fighters. Its tactical training had been concerned mostly with problems of air defense, and while it had met all ground force requests for joint training and exercises, such joint maneuvers had not been extensive. It had only a single wing of long range bombers, the Air Force's principal offensive weapon.

For another thing FEAF was suffering from an overdose of economy. Long before the North Koreans moved, General MacArthur had protested that his Air Force units were inadequate in number and that his capabilities to defend his command area had been reduced to a point even below that of a calculated risk. As late as April 1950 economy measures had deactivated two air division headquarters within Fifth Air Force. When hostilities began, FEAF had only four airfields in Japan with runways capable of handling combat-loaded jet fighters. It had only two groups of aviation engineers; and these, which were not under the control of the Air Force, were badly undermanned and equipped. Nor did FEAF have a tactical air control group, an organization not permitted to a defensive establishment but of the very greatest importance in offensive operations. Finally, housing, storage, and repair facilities were at a minimum or non-existent, parts often were in short supply, and

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\*The several articles included under this title have been written on the basis of the Air Historical Division monograph, "U.S. Air Force Operations in the Korean Conflict, 25 June-1 November 1950." The monograph is fully documented and may be used for verification of particular statements in these articles. Footnote references have therefore been made in only a few instances where they are believed necessary, and no reference to material obtained from classified messages has been permitted.

personnel was below even peacetime strength. In short FEAF, through no fault of its own, was, in the words of its commander, Lt. Gen. George E. Stratemeyer, totally inadequate for anything other than a limited air defense of Japan, Okinawa, and the Philippines.

The Republic of Korea's air arm was even less capable of influencing the course of the war. During the withdrawal of American troops from Korea in the spring of 1949 it had been decided that South Korea's economy was not adequate to support an air force and that, moreover, a substantial R.O.K. air force would increase the possibility of the numerous border clashes becoming an all-out war. So it was that on 25 June the R.O.K. air force consisted only of a few liaison types and several T-6 training aircraft.

If, on the outbreak of hostilities, the R.O.K. air force was nonexistent and FEAF was forbidden to take an active part in the conflict, the same conditions did not apply to the North Korean air arm, which had 162 Soviet-made aircraft (132 of them combat types) and which went into action on the morning of the 25th. That afternoon its planes strafed Kimpo airfield, just west of Seoul, doing a fair amount of damage to planes and installations, and the following day flew a substantial number of sorties in support of N.K. ground troops which were sweeping toward Seoul against weak and deteriorating R.O.K. resistance. But the skies over Korea were not long to be the exclusive property of the North Koreans. On the evening of the 25th MacArthur was instructed by Washington to send to Korea any ammunition and equipment believed needed to prevent the loss of the Seoul-Kimpo-Inchon area and to protect the movement with air and naval cover. He was also to take such air and naval action as was necessary to evacuate American and non-combatant dependents as might be determined by U.S. Ambassador Muccio. Pursuant to these orders, FEAF fighters on the 26th covered two freighters evacuating personnel from Inchon, and a C-47 went into Suwon airfield, where it picked up ten South Korean pilots who were to be checked out in flyable tow-target F-51's. Then on the evening of the 26th, President Truman, empowered by a U.N. Security Council resolution of the preceding day branding the North Koreans as aggressors, instructed MacArthur to offer the fullest possible support to permit the disorganized South Koreans to reform. These instructions lifted all restrictions on FEAF for operations below the 38th parallel.

FEAF immediately went into action by directing strikes against N.K. targets affecting the safety of American nationals and by ordering Fifth Air Force to establish air superiority over South Korea and to prevent by aggressive action N.K. air force interference with R.O.K. troops or U.S. evacuations. Most of FEAF's air activity on the 27th was evacuation and cover for American nationals. Protected by 131 F-80 and 32 F-82 sorties, its C-54's, C-47's, and C-46's had evacuated 748 persons by 2245 hours. Not an evacuee suffered so much as a sprained ankle, because, in part, of the fighter cover, which shot down six enemy planes. In other operations that day F-80's accounted for four more N. K. planes. No American planes were lost, or even damaged. FEAF might not have been in condition to engage in an all-out war, but when it was ordered into the conflict, it was ready for immediate action and it struck promptly and capably.

On the 28th, despite weather which kept the ceiling at Japanese bases at less than 200 feet, B-26's, F-80's, and F-82's shot up the railway yards at Munson and in attacks on tanks, vehicles, and troops left fires visible for 50 miles. Medium bombers entered the fray when four B-29's of the 19th Bomb Group, now flying out of Okinawa, hit targets of opportunity. FEAF transports began airlifting supplies and ammunition into Korea and, bringing out personnel, ran their evacuation figure to 862 persons. The enemy's air force also was active, its Yaks strafing three American planes on Suwon airfield and damaging two C-54's in flight.

On the 29th FEAF sent B-29's against Kimpo and B-26's on harassing attacks and ordered all fighters at Itazuke to attack enemy forces between the front lines (along the Han River) and the 38th parallel. In spite of these efforts the North Koreans broke through the Han River line on the 30th. MacArthur, having been granted the necessary authority, then ordered American ground troops into Korea. At the same time he authorized FEAF to extend its operations into North Korea against air bases, depots, tank farms, troops, and other purely military targets, such as key bridges and critical points on highways and rail lines, but in all attacks to stay well clear of the frontiers of Manchuria and Siberia. The United States was in the Korean War.

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## EARLY PROBLEMS OF COMMAND AND DEPLOYMENT

WHEN FEAF became involved in the Korean conflict, it found itself faced with a number of problems. It must redeploy its units in terms of its new combat role, while at the same time providing for at least a reasonable defense of the command area. It must obtain additional aircraft, air units, personnel, and materiel from the States and deploy them. It must prepare for coordinated efforts with Naval, Marine, and British air.

In the organizational framework of the Far East Command, FEAF would operate alongside two laterally coequal commands: Naval Forces Far East and Eighth Army. Actually, according to the theory of FEC organization, the Eighth Army should have been subordinate to an Army Forces Far East Command, which would have been coequal with FEAF and NAVFE, had it been created. This command, however, had not been established, with the result that GHQ, FEC, staff members also acted as the superior Army staff in the theater. With the exception of a few joint boards and liason officers, neither the Air Force nor the Navy was represented on the GHQ staff, and unification, as far as command organization was concerned, did not exist in the Far East.

Since both Air Force and Navy planes would operate over Korea, it was essential that there be a clear definition of mission, permitting the maximum utilization of force without sacrificing safety precautions. The CG, FEAF, was accordingly given command or operational control of all aircraft operating in the execution of FEAF missions as assigned by CINCFE (Commander-in-Chief, Far East); similarly, COMNAVFE (Commander, Navy Forces Far East) would control aircraft executing missions assigned to NAVFE. When both FEAF and NAVFE were given simultaneous missions over Korea, such as close support for Eighth Army troops, CINCFE would delegate to the CG, FEAF, the right of "coordination control."\* Such coordination control would not always be easily managed, because of the imperfect communications of the early months of the war. Instead of providing maximum utilization of force, moreover, the first part of the command decision set out spheres of activity and thus partitioned the air mission. Thus, at the time of Inchon, an area was established around the beachhead for exclusive operations of carrier aircraft, an area which FEAF planes could enter only at the request of the Naval air com-

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\*Ltr., Maj. Gen. E. M. Almond, CS, FEC, to USNAVFE and CG, FEAF, 8 July 1950.

mander. Such an arrangement was possible only because of the paucity of enemy air opposition. Against an enemy with strong air power, such a partitioning of carrier and land-based air activity might prove of serious consequence. And, under any circumstances, the system did not promote air's two great qualities of flexibility and concentration.

In early July, however, the problems of command were much less pressing than was that of proper deployment of FEAF aircraft within range of Korean targets, a problem involving bases available and types of planes to be employed. Moreover FEAF had to reserve enough tactical units for the air defense of the FEC area.

Movement of tactical units to Korea was desirable, but the early loss of Kimpo and Suwon cost the Air Force the two best fields in South Korea. Only Taejon, Taegu, and Pusan were currently of any use, and of these only Pusan had a possibility for basing jet aircraft in the immediate future. Although there would be no signal air warning system for Korean fields for some time to come and although there was need for a million square feet of pierced steel plank, FEAF began early in July to expand the runways at Pusan, Taegu, and Pohang to 6000 feet. The uncertain ground situation delayed a similar expansion at Taejon and Sachon.\*

Until Korean fields could be made ready, FEAF's best located bases for tactical aircraft were in the Itazuke and Ashiya areas (Japan), from which F-80's could provide thirty to forty minutes of close support along the battle line of early July. During the first days of the Korean conflict the Fifth Air Force moved its fighter units into Kyushu bases. Other units—light bombers, fighter bombers, and tactical reconnaissance—moved from Misawa and Yokota to Itazuke and Ashiya. The Twentieth Air Force's 19th Bomb Group moved from Guam to Kadena Air Force Base, Okinawa. Then, and for some time afterward, the units were short of maps, target charts, intelligence officers, and many other personnel and items of supply and equipment necessary to full-scale operations.

Concurrently with its redeployment of units and its first combat missions FEAF requested additional aircraft and personnel. General Stratemeyer asked, among other things, for 164 F-80's and 64 F-51's. Instead he got 145 F-51's, sent over

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\*Pusan (K-1) airfield would not be suitable for jet aircraft. For a discussion of engineer problems and airfield construction in Korea see the History of the 1st Construction Command (P), June-November 1950, on file in the Air Historical Division.

post-haste by carrier, and only 44 F-80's (without engines) which were already en route. The balance of the 120 F-80's could not be sent for the simple reason that they were not available.

FEAF's strength was soon augmented by the arrival of other combat units. The 162d Tactical Reconnaissance Squadron (RB-26's) completed its movement from Langley Air Force Base on 18 August. The 22d, 307th, 92d, and 98th Bomb Groups (B-29's) reached the theater during July and August; the first two to be stationed at Kadena, the latter two at Yokota, Japan. All four, together with the 19th Bomb Group and 31st Strategic Reconnaissance Squadron, were under the FEAF Bomber Command (Provisional), Maj. Gen. Emmett O'Donnell, Jr., Commanding. FEAF also began to receive additional personnel: pilots, navigators, bombardiers, communications and electronics personnel, and others essential to the command's combat effectiveness. It was not until September, however, that FEAF had approximately the manpower it needed, and even then, particularly in the case of its aviation engineers, it was short in many categories.

As soon as hostilities began, FEAF took immediate steps to expand its supply levels. The Far East Air Materiel Command was designated as the sole FEAF agency to place requisitions in the Zone of the Interior and to indicate priorities, and arrangements were made for daily radio requisitions on the Sacramento Air Materiel Area. FEAF was given an overriding S-1 [first priority supply] for unfilled requisitions on hand and all emergency requisitions. The S-1 priority quickly eliminated such shortages as oxygen masks, helmets, parachutes, life rafts, photographic supplies, power plants, and numerous categories of aircraft supplies. Other items, such as napalm and wing tanks were contracted for in Japan. Even with these advantages, however, many items (for example, ordnance and 100/130 octane gasoline) were often in short supply in the early days, while other items (for example, communications and electronics equipment) long remained in the critical category. The situation would have been much more serious but for the extremely able job done by FEAMCOM in handling supply, maintenance, repair, and manufacture.

Even at best, however, the improvements in supply and related fields did not come overnight, and for the first several weeks of the war FEAF had to fight an air war with far too few personnel, aircraft, equipment, and supplies.

## AIR SUPERIORITY

THE strangest phenomena of the Korean war was that the North Korean forces should have been so excellently equipped with armor and ordnance and so meagerly supplied with aircraft. An intelligent, high-ranking officer of the People's Army later explained that the North Koreans had few pilots. When queried as to why the Russians did not provide pilots, he drew a fine Oriental distinction, explaining that "equipment was a 'thing', whereas the pilot was a 'man', and the Russians were concerned with United Nations action . . . ."\* Whatever the reason, the lack of determined Communist air opposition was one of the paramount features of the Korean operation. In General Stratemyer's opinion any lessons learned from Korea must be predicated upon the fact that U.N. naval ships could operate close inshore, that Air Force planes remained virtually unchallenged by counter-air, and that ground troops had little to fear from enemy air attacks. General Stratemyer thought the degree to which all U.N. forces ignored the threat of Communist air attack to be a calculated risk. He constantly cautioned that similar air superiority could never be assumed in all-out war.

After initial strikes around Seoul and raids against Suwon airfield on 29-30 June, the North Korean air offensive declined suddenly. The force evidently stood down on 3-5 July, probably to perform maintenance and assess its losses. FEAF still estimated that the North Koreans could mount 105 sorties a day from their airfields at Sinmak, Pyongyang, Yonpo, and Wonsan. It expected sneak attacks and nuisance raids. Bearing out these estimates, four Red planes bombed and strafed Chonju on 11 July. Next day Yaks shot down an L-4, fired a B-29 near Seoul, and attacked F-80's near Chochuwán. On 15 July two Yak-9's attacked four B-26's, forcing one to land with damages at Taejon. Seven Yaks were sighted at Kimpo that day, and the speed with which both Kimpo and Suwon had been repaired seemed to indicate expected air reinforcements. Four Yak fighters strafed U.S. front lines on 17 July, the same day that two IL-10's ventured down to Taegu.

The threat, however, did not materialize. North Korean aircraft were no match for U.N. fighters in the air, and with little anti-aircraft protection they were easily destroyed on their air-

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\*Edward L. Bowles, Memorandum on the Interrogation of Lee Hak Ku, CS, 13th North Korean Division, 6 Oct. 1950.

fields. On 19 July, for example, seven F-80's of the 8th Fighter-Bomber Group spent twenty minutes strafing the airfield at Pyongyang. With no hostile opposition they fired fifteen enemy planes on the ground and shot-up some ten others which would not burn. By 10 August 110 enemy planes had been claimed as destroyed, leaving perhaps 35 others on hand, with some possibility of resupply. While there were virtually no North Korean aircraft about during late July and early August, the construction of revetments at Kimpo and Suwon continued to bother U.N. intelligence forecasters. On 23 August a sneak raider did cause damage to HMS *Comus* off the west coast of Korea, and FEAF cautioned the Fifth Air Force to maintain airfield surveillance, attacking any aircraft noted as a first priority. Yet few Red planes remained for destruction, and at the end of September FEAF claimed cumulative destruction of 85 aircraft, the U.S. Navy carrier aircraft claimed 51, and the Royal Australian Air Force Squadron claimed one. The North Korean air force had evidently been destroyed. Its obsolete Russian planes had been a negligible factor in the battle for South Korea.

At the end of November, as U.N. forces neared the Yalu River boundary of Korea, the Chinese Communist Air Force promised somewhat firmer opposition as jets and conventional fighters, taking-off from their sanctuary across the border, made hit-and-run passes against U.N. aircraft. The Yaks held little danger, and ten of them were shot down during the first week of November, but Red jet fighters, appearing for the first time in combat, possessed an inordinate advantage. These MIG-15's followed a standard pattern, flying a combat air patrol on the Manchurian side of the Yalu until they sighted U.N. aircraft, whereupon they would head north until out of sight, climbing to altitude on the way. They would return at an altitude advantage, pounce down on the U.N. aircraft, and then escape with a low-level sweep back into Manchuria. One such attack destroyed a B-29 early in the month, but an RB-29 tail gunner produced another "first" on 9 November when he downed a MIG-15 with approximately 130 rounds. Although the MIG-15's refused to be drawn from the safety of the Sinuiju area, F-80's managed to engage them for the first time on 7 November. Matching their greater maneuverability against the MIG-15's superior speed, the F-80's were accredited with three Red jets destroyed, while F-51's were also credited with three Red jets. Although out of full control and burning, these MIG-15's were last seen heading for crash landings across the border. U.N.

forces had overtaken a crated F-80 engine being shipped north out of Pyongyang for Communist intelligence purposes; evidently the Communist regime did not appear to wish their own jet designs to fall into American hands.

The Red Chinese Air Force continued these harassing attacks during November, and early in December it finally crossed the Yalu in force, an effort timed to coincide with the Chinese ground campaign. Enemy jets penetrated to Kanggye and were sighted thirty miles west of Hamhung. Evidently elated by ground successes, MIG-15's attacked a formation of B-29's in the face of escorting F-80's, pressing determined attacks to within fifty feet of the bombers. At the same time ground-support aircraft were moved into North Korean airfields. On 6 December twenty conventional types were sighted at Sinuiju, and on 7 December some ten Yak type fighters were observed at Pyongyang. Although the Chinese evidently meant to press a stronger air attack, the advantage still lay, at least in the air, with the U.N. forces. The F-80 fighters were a fair match for the MIG-15's and could deal easily with Communist ground-support planes. Given a month's warning that Red jets would be used, the USAF was getting Sabre and Thunderjet fighters into Korea, either of which would be more than a match for the MIG's 15's. Had the USAF yielded to the clamor in the public press during July and August and replaced its jet fighters in the FEAF with the slower piston-engined types for ground-support, the advantage might have been with the Communist Chinese, in the air as on the ground.

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### CLOSE-SUPPORT CONTROL

At the outbreak of the Korean hostilities the USAF possessed only one tactical control group. Located at Langley Air Force Base, Virginia, it would move as quickly as possible to Korea, but it would not be ready to begin operations until early October. Committed as FEAF had been to a static deployment for the air defense of Japan—a mission dictating a troop and equipment list entirely different from that required in offensive tactical air operations—FEAF nevertheless worked out an interim control organization needed in Korea with commendable rapidity and ingenuity. According to General Stratemeyer's proposal, approved by CINCFE, the Eighth United States Army in Korea (EUSAK) would make its requirements for air sup-

port directly to the Advance Headquarters, Fifth Air Force, Major General Earl E. Partridge Commanding, which would honor those requirements within its means, reporting requirements in excess to FEAF, with an information copy specifying targets to the new FEAF Bomber Command. FEAF would direct the Bomber Command to furnish such support as could not be given by the Fifth Air Force. Since he commanded the tactical air force, General Partridge would furnish most of the improvised control organization.

Although it complied with doctrine, the control system was severely hampered by a lack of experienced controller personnel and a crippling shortage of communications channels. The heart of the system was the Joint Operations Center (JOC), which was established at Itazuke Air Base, Kyushu, on 3 July and which moved to Taejon, Korea, on 5 July. On 14 July the JOC located proximate to EUSAK headquarters at Taegu, where by 19 July sufficient heavy communications equipment had arrived to establish a full scale JOC-Tactical Aircraft Control Center (TACC), less radar and direction-finding facilities. Advance Headquarters, Fifth Air Force, opened at Taegu on 20 July alongside the JOC-TACC, thus bringing command and control together at one location.\*

The forward element in the control system was the Tactical Aircraft Control Party (TACP). Six TACP's were being formed in Japan for a maneuver at the outbreak of hostilities and were promptly flown to Korea, where they were on hand when the 24th Division opened at Taejon on 4 July. By 10 August, 18 TACP's were in the field, and the Fifth Air Force would ultimately provide a minimum of four parties to each division, a number larger than World War II experience had indicated as necessary. A TACP was allotted to each Republic of Korea division and to each R. O. K. corps. One Air Liaison Officer was assigned to each R.O.K. corps to advise the ground commanders on air capabilities for close support. Under normal circumstances ground units are supposed to select the targets for close support, but being in a withdrawing action, the Eighth Army was often unable to identify enemy points of strength. The Fifth Air Force therefore began using T-6 advanced trainer aircraft to spot targets behind the enemy lines. It activated the 6147th Tactical Control Squadron, Airborne, to furnish the airborne controllers, who, with the call-sign of "Mosquito,"\*\*

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\*For the organization and operations of the JOC see Fifth Air Force Historical Data, 25 June-31 Oct. 1950, II, 139-149.

\*\*The Air Historical Division has an informative file of unit histories of the 6147th Tactical Control Squadron, Airborne, which covers the organization, operational problems, and achievements of the MOSQUITO squadron.

hovered over the enemy's positions to direct attacking fighters.

The Fifth Air Force had therefore staffed its side of the JOC and the control system; it had further improvised the Mosquito control. The Eighth Army unfortunately was unable to complete the Army side of the system. By Field Manual 31-35, August 1946, the manning, equipping, and operation of communications required by the air-ground operations system was the function of the Army. In Korea, however, the Air Force had to provide the communications from the divisions to the JOC, a none-too-reliable improvisation with high-frequency radio. The Eighth Army was also unable to staff its sections of the JOC. On 1 September, GHQ, FEC, informed FEAF that the Eighth Army was aware of these discrepancies and would attempt to remedy them when more personnel arrived. Meanwhile, GHQ was satisfied: "It is fully appreciated that essential elements of the air-ground system were not available in the Far East Command at the outbreak of the Korean emergency and that substitutions and field expedients were necessary. That such a highly successful and workable system has been developed in a relatively short period of time speaks well of the resourcefulness and ability of the commanders concerned."\*

Yet the improvised control system was less satisfactory than was desirable to the Air Force. TACP's in the field generally had no direct communications with adjoining parties, or the air liaison officer at division, or the JOC at Taegu. Missions would be requested by a division, but in many cases the control parties would know nothing concerning the flight until it arrived over them. They were similarly unable to inform the JOC whether the air strikes had been effective or whether additional flights were needed. The TACC could scramble fighters at Taegu and Pohang, but it had no rapid communications to the air bases in Japan. Aircraft based in Japan were commonly dispatched on a daily schedule (normally two planes at fifteen-minute intervals) to report to the TACC. Because of the inflexibility of the dispatching schedule, fighters from Japan might stack up over Taegu when there were no missions or prove insufficient to the task when many support requests were at hand. Because of the many communications shortcomings the Fifth Air Force had to use this procedure: all pilots entering Korea would fly in the vicinity of the TACC at Taegu and receive a mission, specifying the call sign of a division TACP. The air liaison officer at the division TACP would give them another frequency and instruct

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\*Ltr., Stratemeyer to CINCFE 13 Aug. 1950; 1st Ind., Brig. Gen. K. B. Bush, Adjutant General, FEC, to CG, FEAF, 1 Sept. 1950.

the flight to a specific forward TACP. If directed, the pilots might contact a Mosquito airborne controller at the front lines for instructions. On completion of the mission the flight would report to the TACC, give a mission report, and check out of the target area.

Defects in the control system were most obvious when Navy carriers moved into South Korean waters to augment the Fifth Air Force close-support effort. Since General Stratemeyer possessed "coordination control" of naval aircraft striking land targets, he expected them to utilize the existing control facilities. FEAF also gave the Navy a list of more than a hundred key interdiction targets, which carrier pilots might use as secondary objectives in the event that they could not find close-support missions. Several difficult factors nevertheless arose each time that the naval carriers attempted close support. Communications between the JOC and the Navy command ship were tenuous because the Navy prefers to maintain radio silence while cruising. As a result of deck loading of carrier aircraft the Navy habitually launched aircraft in large strikes, which swamped the ground control system. Apparently limitations of carrier operations did not readily permit frequent and periodic launching of smaller numbers of aircraft throughout the day, as was required for orderly close support.

Marine aviation furnished a third agency of air support in the campaign for South Korea. When the Marine Brigade went into the line early in August, it had support from the 1st Marine Wing units located on two escort carriers offshore. The wing had its own ground control intercept and tactical control squadrons, and while the ground Marines were in combat, it gave a relatively constant rate of about forty-five sorties a day. Without question the Marine pilots, flying from "jeep" carriers close to their concentrated target areas, offered excellent close support, but their advocates failed to appreciate the unusual circumstances of the situation. Small carriers so close inshore had been demonstrated as being exceedingly vulnerable to enemy air attack during World War II. All combat experience had similarly shown the gross waste in committing air units specifically to the support of particular ground units, in this case a brigade. Yet a surprising number of Army commanders seemed willing to unlearn these lessons. They could have better used more supporting artillery.

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## CLOSE SUPPORT OPERATIONS

"Without question the Air Force definitely blunted the initial North Korean threat to the southward," observed Maj. Gen. William F. Dean. "Without this continuing air effort it is doubtful if the courageous combat soldiers, spread thinly along the line, could have withstood the onslaught of the vastly numerically superior enemy." General Walker so quoted General Dean, adding his sincere appreciation for the air effort. Such support for General Dean's 24th Division, the first U.S. division rushed into Korea, was accomplished despite the fact that it was committed to combat without any advance planning for its air support. As Major General Partridge, Commanding the Fifth Air Force, described it, the control parties had been forced to "catch up" with the division. The Fifth Air Force, however, employed its full resources in close support. Its F-51's went out of Japan on missions, landed at Taegu, rearmed and refueled from supplies flown in from Ashiya, and returned to the attack. FEAF placed primary effort on the main battle line "until the threat to our front-line troops is eliminated." Ground controllers vectored B-29's to front-line support for the first time in USAF history each day between 14-17 and 21-28 July.

In the withdrawal southward General Walker relied heavily on the maneuverability of air power, outlining his weak spots at his morning staff conference so that the air commanders in attendance could lay on effort and shore up the Allied lines. Early in August, Walker wrote that "the 5th AF has given all-out support of our efforts and all of our troops including R.O.K. forces are high in their regard for the support sorties . . . They have destroyed enemy tanks that had penetrated our lines. . . . Their effort has been of tremendous value to our forces and have saved many, many lives of our infantry troops."

By the middle of August EUSAK had been forced back to the Naktong River line, and General Walker was fighting with determination to hold the key city of Taegu. In the emergency CINCFE made the entire medium bomber strength of the new FEAF Bomber Command, Major General Emmett O'Donnell Commanding, available to EUSAK for 16 August. General O'Donnell had already laid out his target requirements: sufficient ceiling for visual bombing, a designated area with a maximum width of five miles, a line of attack parallel to U.S. front lines, a clearly defined topographic feature, such as a river, to mark the bomb line, mosaics of the area with careful interpreta-

tion, two or more enemy divisions in the area, and, if possible, some assurance that the enemy meant to attack from the region. On 15 August FEAF had a target which met part of the requirements: an area 3½ miles wide and 7½ miles long paralleling the west bank of the Naktong, just opposite Waegwan, where the enemy appeared to be probing for a weak spot in the 1st Cavalry front. FEAF ordered a five-group mission on 16 August, provided weather permitted visual bombing. General O'Donnell fully realized the impracticability of attempting to saturate an area of 27 square miles with 12 squadrons of B-29's, but he felt the ground situation merited the attack if for nothing but psychological effect. Having no indication of enemy groupings within the area, his staff divided the area into twelve equal squares, with an aiming point in the center of each square, and assigned each squadron to one aiming point. Beginning at 1158 hours, 98 B-29's of the 19th, 22d, 92d, 98th, and 307th Groups went over the target area, and the last plane cleared the area at 1224 hours. They left behind 3084 five-hundred-pound general purpose and 150 thousand-pound general purpose bombs. From 10,000 feet the crews could report no more result than that their bombs were on the target.\*

After the bombing, EUSAK ground troops made no immediate effort to advance into the area, and exact assessment of results was never possible. General O'Donnell, over the area for more than two hours, saw no evidence of enemy activity below. Feeling that the area set out had been too large, he recommended no more such missions unless against concentrated targets and in an extremely critical situation. General Partridge felt that the ground commanders had at last learned the beneficial lesson that air power had limitations. General O'Donnell later observed that high-ranking ground force officers had asked him to "make a wilderness" out of the 27-square-mile area with 98 B-29's. General Walker believed, however, that the strike had a psychological effect upon the enemy and had helped the morale of his forces. FEAF's final evaluation was that area bombing by medium bombers should be undertaken only as a desperation measure against identified and definite concentrations of enemy troops ready for an attack, or in an area where U. N. troops would attempt a breakthrough into enemy territory.

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\*Final Mission Rpt., FEAF Bomber Command, No. 45, 16 Aug. 1950. For details of medium bomber employment in the first phase of the Korean operation see the excellent History of the FEAF Bomber Command (P), July-November 1950.

In its recommendations regarding the Waegwan carpet-bombing, FEAF stated that tactical aircraft were eminently better suited to halt an enemy drive than were medium bombers, a contention justified early in September when nearly seven enemy divisions assaulted the 2d and 25th Divisions southeast of Masan, at the extreme southern end of the Pusan perimeter. The Fifth Air Force laid on full support on 1-2 September, and on 3 September Maj. Gen. William B. Kean, 25th Division Commander, reported that "the close air support [sorties] rendered by Fifth Air Force again saved this Division, as they have many times before." Maj. Gen. Lawrence B. Keiser, commander of the 2d Division, thanked the Fifth Air Force for its support on 11 September, support which resulted in a confirmed destruction by air and ground action of approximately fifteen hundred enemy troops and their equipment on his front.

Most of the close-support missions flown by fighters followed a routine which became so accurate that the pilots, closely directed by a TACP or Mosquito controller, only vaguely realized their mission accomplishments. Often they did not see their objectives, which almost invariably were obscured by vegetation. The enemy also followed a careful camouflage discipline while in movement, but as the war progressed, fighter pilots began to learn the tricks to their trade. Seeing vehicle tracks leading up to a school house at Pyongtaek, four 35th Fighter-Bomber Squadron F-80 pilots launched a rocket into the building and then strafed about 200 North Koreans who came tumbling out. Enemy tanks moving around the front were usually hidden by day, but their tracks, especially when they ended at some building, haystack, or clump of trees, frequently gave them away. Orchards dotting the hills of South Korea, more often than not a bivouac for enemy soldiers, were kept under surveillance and attacked when such seemed profitable.

Selection of weapons and tactics for attacks against enemy armor caused the Fifth Air Force no little difficulty, especially during the early weeks of the war when solid cloud banks, often no more than a thousand feet high, forced the fighters to attack at an exceedingly flat angle of approach. With better weather and more experience rocket hits were found most effective when fired from a 45-60 degree dive angle, and fighter pilots obtained optimum results when they attacked the lightly armored rear of the tank or aimed low at its sides to hit the tracks. So aimed and released from 1500 to 2000 feet, a 5-inch

High Velocity Aerial Rocket (HVAR) would normally disable or destroy a Soviet T-34 tank. When all eight rockets were fired in salvo, the kill was almost inevitable. The Antitank Aerial Rocket (ATAR), highly touted in the public press as the answer to enemy tanks, proved very acceptable in Korea, but very few of these armor-piercing rockets could be obtained for combat use. Against vehicles and troops, rockets were usually fired individually.

Jet strafing attacks proved particularly lethal, especially if groups of the enemy were caught on the march. Because of their great speed the jets were frequently able to fire on dismounted troops moving along roads before the enemy realized he was under attack. The 16th Fighter-Interceptor Squadron adopted a standing operating procedure of strafing a road movement, leaving the area for two or three minutes, and then swooping back to catch the survivors as they attempted to get underway again. At first the F-80 pilots attempted to locate North Korean anti-aircraft weapons in order to avoid them, but as it gradually became clear that their fire was relatively ineffective against the fast-flying jets, they began to strafe and rocket the weapons to clear the area for further attacks on other targets.

From the very beginning of tactical air operations in Korea General Stratemeyer insisted that napalm, already battle tested during World War II, would again prove to be an excellent weapon against enemy troops and materiel. The Fifth Air Force, however, encountered technical difficulties with the fuses used to ignite the napalm tanks (used like bombs). Group commanders seemed reluctant to impose an additional burden upon already overworked unit armament crews, protesting that the wing-base organization did not permit sufficient personnel to service airplanes with rockets, bombs, and napalm in addition to the normal machine guns. Once these problems were solved, napalm was found to be a highly efficient weapon against tanks, troop concentrations, and other enemy targets. Against tanks, napalm hits as much as a hundred feet off the target would still burn the tank treads and fire its internal fuel supplies. By August F-51 and F-80 units agreed that napalm was the most effective weapon yet introduced in the Korean war.\*

The full extent of the effectiveness of U.N. tactical air effort

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\*Fighter group histories on file in the Air Historical Division make an especial effort to describe weapon utilization and tactics employed. See especially those of the 18th and 49th Fighter-Bomber Groups, July-November 1950.

was not revealed until November, when the Translator and Interpreter Service, G-2, FEC, issued a research study based on some 2000 prisoner of war interrogation reports, translated enemy documents, and other parallel sources.\* Prisoner of war testimony indicated that the North Korean regime, while expecting the U.S. to provide logistical aid and advisors to the Republic of Korea, had not planned to meet ground or air forces of the U.N. Scant training had been given in protection against air attack or in ground countermeasures to such attack. Unserviceable roads and high motor vehicle attrition crippled the replacement system, forcing commanders to use conservative tactics with decimated units. Similarly the supply system completely degenerated, necessitating strictest rationing and stringent conservation. The North Koreans, moreover, were forced to fight at night, digging in during the day to escape air attack. On morale, air attacks had decidedly adverse effects. Initially flushed with success and then suddenly exposed to the deleterious effects of air attack, the North Korean soldier rapidly lost much of his *esprit de corps*. The interrogations indicated that psychoneurosis engendered by constant air attack actually outweighed the physical destruction. One prisoner said the common soldiers expected an atomic bomb at any moment. A company commander reported his unit in high spirits when it departed southward on 28 July, but seeing many blown bridges and observing everywhere a dread fear of air attack, the soldiers were convinced of their ultimate failure before they reached the front lines.

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## INTERDICTION

RECOGNIZING the seriousness of the U.N. ground situation, the Commanding General, Far East Air Forces, declared on 8 July that isolation of North Korean forces on the battlefield, by destruction of key bridges and communications lines, was the paramount objective of FEAF at that time. Being a mountainous country served by only a few well-developed railroads and highways, which in turn have many bridges and tunnels, Korea lent itself well to interdiction. By 24 July FEAF units had de-

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\*TIS, GHQ, FEC, Research Report 19, Effectiveness of the United Nations Tactical Air Effort, 6 Nov. 1950.

stroyed 58 bridges and had damaged 31 others, but CINCFE emphasis on close support was hampering any great attention to an interdiction program. CINCFE appeared most interested in the interdiction of targets on the immediate front, an interdiction in fact taking the nature of close support. GHQ planners, moreover, had used erroneous maps, and a part of the railway bridges which they ordered destroyed were on lines which had never been built. On 24 July, after a strong presentation of the case, FEAF secured the release of two medium bomb groups from close support for an interdiction program, primarily north of the 38th parallel.

As a result of this delay FEAF was unable to effect a coordinated and comprehensive program for interdiction until 28 July. The plan worked out by Operations and Intelligence was designed to interdict the flow of materiel and personnel by rail into Korea from the north, between the principal areas of Korea, and finally into the immediate combat area. Destruction of the Pyongyang railway bridge and marshalling yards, the Hamhung railway bridge, and the Hamhung and Wonsan marshalling yards would sever the rail routes to the north. Interdiction of the Seoul railway bridge, marshalling yard, and an alternate railway bridge east of Seoul would sever rail movement between North Korea and the battle-front. Additional rail cuts on the lines would complete the interdiction. Bombing of these targets, together with key highway bridges on a companion motor-route plan, was allocated to the FEAF Bomber Command. FEAF issued another list of interdiction targets south of the 38th parallel to the Fifth Air Force. This list, sent out on 3 August, was furnished to the Navy for coordinated attacks.

Bomber Command dealt expeditiously with the choke-points assigned to it. Wonsan marshalling yards had been attacked by the 22d and 92d Groups as a shakedown mission on 13 July; Seoul marshalling yards had been hit on MacArthur's special order on 16 July. On 7 August the two groups, joined by planes of the 98th which had left the U.S. only five days earlier, devastated the yards at Pyongyang, and Hamhung yards were attacked by 307th Group planes next day. During August the medium bombers also gave attention to nine smaller railway yards along the main routes northward. By early September Bomber Command had destroyed all but seven of its 44 priority bridges, and when, on 4 September, FEAF listed 56 more, Bomber Command destroyed 12 of them in three days. The

most successful method of attack and the one generally used by the medium bombers was individual aircraft bombing on an axis of 40 degrees, releasing a string of four bombs on each bombing run. Two groups adopted the procedure of dropping only one bomb in the first run to obtain correct ballistic data and establish target altitude. In several instances the bridge attacked was destroyed by this one bomb, but other bridges required many direct hits.

Of all the targets assigned none was so perverse as the steel cantilever west railway bridge at Seoul. For nearly four weeks this bridge was attacked almost daily by Bomber Command aircraft with 1000-pound, 2000-pound, and 4000-pound general purpose bombs. Fuse settings were varied to obtain damage to the superstructure of the bridge as well as to its abutments, but despite numerous hits the bridge remained standing. General Stratemeyer at last offered a case of Scotch to the crew who would take it down. On 19 August nine 19th Group B-29's put 54 tons of 1,000-pound bombs on the bridge. They returned next day only to find that a Navy carrier-based strike had put three spans of the now weakened bridge in the water. CINCFE, however, presented a U.N. flag trophy to both the 19th Group and the Navy for the destruction of the key bridge. Against this strongly built bridge Bomber Command had used 86 sorties and 643 tons of demolition bombs.

Heavily committed to close support, the Fifth Air Force could give less specific attention to interdiction. Its light bomb group, however, attacked communications lines, rolling stock, and transportation. When no ground-support targets were immediately available, fighters were sent off on road sweeps, a procedure which made for a sporadic route coverage, since most pilots preferred the main thoroughfares, neglecting secondary roads. Nevertheless by 12 September FEAF could claim the Seoul bridges destroyed, 140 additional bridges unserviceable between Seoul and the front, 47 rail cuts established, and 93 unserviceable highway bridges around the perimeter. At this time EUSAK, R.O.K., and FEAF claimed a total of 875 enemy vehicles as destroyed and 560 as damaged, a large part of the motor transport available to the North Koreans.

But the North Korean battle-line was still getting some supplies. Using truck convoys at night and an estimated army of 300,000 human carriers, each bearing about forty-five pounds for a twelve-mile trip during the hours of darkness, the North Koreans were moving about five hundred tons from the Seoul

area to the front each day. This was a small resupply effort by Western standards, but FEAF estimated the combat supply requirement of a North Korean division to be no more than fifty tons per day. It was estimated that each North Korean needed only seven pounds nine ounces of supplies each day.

Cognizant of the night movements, General Stratemeyer ordered Bomber Command to undertake nightly visual reconnaissance of Korean routes, beginning on 6 August. General Partridge also put his entire Fifth Air Force B-26 strength on night intrusion, and by 24 August he was averaging thirty-five sorties each night. At General Vandenberg's suggestion, General Stratemeyer converted the 3d Bomb Group (Light) to night attack work. Late in August cooperative B-29 and B-26 flare missions were begun, in which a B-29 orbited at about 10,000 feet, releasing M-26 parachute flares set to ignite at 6000 feet, while cooperating B-26's attacked road movements within the illuminated area. Much difficulty was experienced with duds among the M-26 paraflares, and when one exploded in the bomb bay of a B-29 on 30 September, General O'Donnell declared them too old (World War II stores) and otherwise unsuited for use. British flares were secured by expedited movement, and while about six out of forty-eight failed to explode properly, they were better suited to the purpose. Experiments were continued and by the end of December the 3d Group was getting good results with Navy Mark VIII flares, dropped from C-47's and detonated by a static line. Further to hamper night movements, Bomber Command medium bombers dropped delayed action bombs along main routes in the late afternoon. This appeared to be no more than a harrassing action, but North Korean prisoners of war later declared it effective, especially before their commanders discovered that the bombs had delayed action. This technique appears to have broken up use of a pontoon bridge which the enemy swung across the river at Seoul during hours of darkness. Yet flare and delayed action attacks were expedients improvised for the situation.\* To the mind of the FEAF commander, General Stratemeyer, one of the main lessons of the Korean conflict as of 14 October was the need for development of "equipment and tactics to seek out, see, and attack hostile ground equipment at night."

The two thousand prisoners questioned by FEC, Translator and Interpreter Service, were less critical of the U.N. interdiction campaign, and, in short, they believed air power to be the largest single factor in wrecking their system of supply. Air

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\*Night intruder and cooperative flare missions are well discussed in the histories of the 3d Bombardment Wing and Group, June-November 1950.

interdiction had so seriously limited North Korean supplies that only by strictest conservation, salvage, and over-riding precedence to ammunition and fuel movement was the enemy able to keep his armies in the field and continue a much-weakened offensive. Enemy prisoners estimated that over half of the total tonnage destined for the front was destroyed en route. Shortage of food was the most frequently mentioned cause of low morale in the North Korean army. The restriction of convoy movements to the night, prisoners indicated, reduced the distance covered to no more than thirty miles a day. Destruction of a road or rail line rarely occasioned more than a one or two-day delay in the delivery of supplies, but the cumulative delays encountered constituted a very real brake on the logistical support of front-line troops.

The Translator and Interpreter Service, an organization assigned directly to GHQ, FEC, and admitting of no Air Force bias, also attempted a comparative analysis of enemy personnel, tank, truck, and artillery destruction by air and ground action, an analysis based on prisoner of war interrogations. According to these estimates, U.N. aircraft destroyed 47 per cent of enemy personnel, 75 per cent of his tanks, 81 per cent of his trucks, and 72 per cent of his artillery pieces. Such an analysis would indicate the reasons for what U.N. forces discovered when they landed at Inchon: North Korean resistance, by 15 September, had become a hollow shell around the Pusan beachhead. Cut off by air attack from his sources of supply and battered without respite from the air, the enemy was sustaining his offensive by measures of desperation. This desperate plight of the enemy was well illustrated in attacks against the 2d U.S. Division in the Yongsan area on 9 September. Three waves of troops were sent forward with arms, and two latter waves were sent against U.N. lines without weapons but with instructions to pick up their arms on the battlefield.

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### THE AIR FORCE IN THE INCHON LANDING AND THE NAKTONG BREAK-OUT

ON 30 August General MacArthur issued the operations order which set up an amphibious landing at Inchon, the port of Seoul, by the X Corps (Major General E. M. Almond), composed principally of the 7th Infantry Division and 1st Marine Divi-

sion. The X Corps would seize and secure Inchon, Kimpo Airfield, and Seoul, cut all North Korean lines of communication in the area, and, in cooperation with an offensive on D-Day plus 1 by Eighth Army, together with air and naval attacks, destroy the enemy's army south of the line Inchon-Seoul-Utchin. NAVFE would provide designated Naval and Marine forces; transport the landing forces and follow-up forces; and, when the Commanding General, X Corps, assumed control ashore, dissolve the Attack Force and establish a Naval Support Force for air, naval gun fire, and initial logistical support for X Corps. FEAF would provide general air support as directed, isolate the objective area, furnish air-ground support as required (with its principal effort in support of Eighth Army), provide cargo air support initially at Kimpo and later at Suwon, and would be prepared to transport, provide cover for, and drop and supply the 187th Airborne Regimental Combat Team on order of General MacArthur.\*

As the result of several conferences this basic plan, insofar as it concerned FEAF and NAVFE, underwent a number of changes. Although NAVFE would control all air operations in the initial objective area, FEAF was given control of all air effort outside that area and was to participate in the mission of sweeping all Korean airfields which might endanger the beachhead. FEAF and NAVFE by mutual agreement, instead of NAVFE alone, would designate the approach and retirement routes for troop carrier and cargo planes. Land-based Navy and Marine air units, when no longer performing a mission for the Navy, would pass to FEAF coordination control.

In the week before the landing a typhoon slowed down all pre-invasion air operations. Even so, a substantial number of sorties were flown; in fact on 11 September, when the weather was good, a new sortie record was established: 364 USAF, 38 RAAF, and 11 Marine, for a total of 683. Fighters regularly swept enemy airfields. On the 12th, for example, a formation caught four Yaks on the ground at Pyongyang, destroying three and damaging the fourth; on the 14th they shot up nine fields north of the 37th parallel. B-29's carried out an extensive interdiction program designed to stop the movement of troops and supplies into the Inchon area. Their main targets were railway yards, bridges, tracks, and tunnels.

Then on 15 September, with FEAF units operating outside the invasion area, X Corps went ashore at Inchon and by the

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\*GHQ, United Nations Command, Operations Order, 1, 30 Aug. 1950.

afternoon of the 17th the Marines had taken Kimpo and were along the west bank of the Han River.

Tactical air support during the establishment of the beach-head was provided by aircraft from three carriers. As X Corps moved inland it was given air support by Navy and Marine planes. A Marine TAC control squadron furnished control parties, a control center, and a small GCI installation. Since General Almond, in effect, had his own tactical support, he had little need for FEAF's fighters and fighter-bombers. But he had great need for logistical support by Maj. Gen. William H. Tunner's FEAF Combat Cargo Command. Three C-54 loads came into Kimpo on the 19th, and full-scale lift began the next day with FEAFComCarCom immediately bettering its allocation of 226 tons to Kimpo daily. Before the end of the month Cargo Command also had airlifted the 187th Regimental Combat Team to Kimpo, made emergency drops of ammunition and rations to front-line troops, and had flown into Suwon airfield with emergency supplies for the 7th Division.\*

FEAF also was active along the east coast in support of the R.O.K.'s. On the 15th, north of Pohang, fighters neutralized enemy artillery, enabling the friendly forces to land without further opposition.

The special business of FEAF's tactical units was support of the Eighth Army in its break-out along the Naktong. After hitting key interdiction targets in a concentrated effort between 13-15 September, all five B-29 groups went out with 82 aircraft on the 16th to soften a sector of the enemy line east of Waegwan, but cloud cover forced them to hit secondary targets. On the 18th 42 mediums bombed heavily ahead of Eighth Army near Waegwan. An area of two square miles or more was saturated with 1600 five-hundred-pound general purpose bombs. Other B-29's mined roads northeast of Seoul with delayed-action bombs. Flare missions further pinned down the enemy. On the night of the 22d, for example, B-26's by such illumination destroyed an ammunition train and bombed and strafed two others. B-29's also bombarded the enemy with psychological warfare leaflets, 4,000,000 in the week of 17-23 September.

Fifth Air Force planes paced Eighth Army's break-out. Fighters, fighter-bombers, and light bombers strafed and bombed,

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\*The Historical Report, FEAF Combat Cargo Command (P), 10 Sept. 1950-24 Jan. 1951, provides a comprehensive coverage of troop transport and cargo functions during the first phase of the Korean conflict.

inflicting extremely heavy casualties on the enemy, breaking up his formations, knocking out his tanks and vehicles, and speeding up his disintegration and flight to the north. On the 17th, near Yonsan, fighters scored a particularly notable triumph when they hit some 2000 enemy troops so hard that they inflicted 1200 casualties and sent the remainder fleeing across the Naktong River without their equipment. On the 20th, F-80's and F-51's knocked out 14 tanks out of 30 ahead of the 24th Division. On the 23d FEAF's airmen could claim, conservatively, that they had killed 6500 troops in the previous week. By that time the Eighth Army was attacking with regiments in columns, a tactic possible only with absolute air supremacy, and by the 28th Fifth Air Force's planes could no longer find suitable targets, so completely had the enemy's ground units been broken up.

Once the North Korean forces along the Eighth Army perimeter, already in desperate circumstances from casualties and shortages of supplies, were outmaneuvered the end came quickly. The Eighth swept north under a complete aerial umbrella. On 26 September elements of the 7th Cavalry Regiment made contact with the 7th Division, while on the east coast R.O.K. troops were driving toward the 38th parallel. On the 29th the government of the Republic of Korea returned to Seoul.

On 1 October MacArthur, wishing to save what was left of the South Korean communications network, prohibited destruction of railway facilities and equipment south of the 38th parallel unless known to be actively supporting the enemy. Marshalling yards and bridges below the 38th parallel were also not to be destroyed. FEAF prohibited attacks on runways and installations on airfields south of the 40th parallel unless absolutely necessary to destroy enemy aircraft. The Joint Chiefs of Staff cancelled its strategic targets, ordering all further attacks to be made for tactical purposes.

The North Korean armies had been decisively beaten, and within two months U.N. forces, moving against limited ground opposition and powerfully supported both by combat and cargo aircraft, would have penetrated to the Yalu. Here the Chinese Communist Forces were gathering for a new and distinct campaign against the U.N.

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**THE F-80 AND THE F-51**

It has been well said that in war the first casualty is Truth. The validity of the epigram was certainly demonstrated in the Korean War in the case of the F-80. The conflict had hardly got underway before the American press was reporting that the F-80 was so thoroughly unsatisfactory that World War II F-51's had had to be brought in to take over tactical operations—close support, strafing, bombing, tactical reconnaissance—and escort. This publicity directed against the F-80 proceeded from lack of information, misinformation, and insufficient understanding of air operations, but undoubtedly it was taken seriously by the public with serious derogation of Air Force equipment and Air Force preparedness.

It is true that in the beginning F-51's in large numbers were thrown into the war. But the reason is simple: the USAF did not have enough jets to supply FEAF's needs and at the same time provide even a minimum of defense for the Continental United States. Unfortunately the USAF could not admit that fact without endangering the national security. On the other hand the USAF had 150 F-51's which could be shipped immediately to Japan, more than 750 others in the National Guard, and almost 800 more in storage.\* The matter of availability, without regard to any other factors, was reason enough for the employment of F-51's. There were, however, other good reasons for using the F-51 in the early days of the war: it had, in the beginning, a range greater than the F-80; it could operate from the rough, short fields then available in Korea; the enemy was not using jets to oppose it; and the F-51 had demonstrated in World War II that it was well suited for the type of low-level missions which were common in the Korean War.

Under existing conditions the USAF would have been guilty of the grossest stupidity had it not used the F-51. Moreover, the airplane did a first-class job. But today no honest and informed person can believe that the F-80 is not superior to the F-51 or that it has not done an excellent job. Such a news item as "jet-propelled fighters have proved absolutely worthless in Korea" was not true when it was written in July and in the light of events is utterly absurd.

Those who criticized the jets did so on certain premises: the jet's speed made it almost impossible for the pilot to locate the target and made accurate attack difficult if not impossible;

\*Rough Draft of Conference Minutes with . . . USAF Representatives at FEAF, 0810 hours, 7 July 1950.

high fuel consumption meant a short radius of action and not enough time over the target; it required longer and better runways.

By the time the F-80's and F-51's had been in the conflict long enough for objective evaluations to be made, it was evident that not one of the criticisms was valid. The longer and better runways were available. Even before that the jet pilots had shown great skill in handling runways that were less than optimum. The problems of radius of action and time over target were solved by the use of 265-gallon wing tanks, which brought the F-80's radius close to that of the F-51 and gave it all the flight duration it needed. Additional training in visual recognition and a little experience in combat were all that was necessary to enable the jet pilot to pick out a target quite as well as did the F-51 pilots. The jet's high speed in no wise made accurate attack impossible. On the contrary, the plane not only was capable of all the deceleration it needed, but it was a weapon platform of far greater stability than was any propeller-driven aircraft.

The jets had other advantages. They could approach a target faster, thus achieving a greater degree of surprise and at the same time avoiding ground fire. They could pull off of a target at great speed and in a nearly vertical climb, which made them less vulnerable to anti-aircraft and small arms fire. Additionally, they were far less vulnerable at any altitude to enemy fire from underneath than the propeller-driven aircraft, and obviously, because of their greater speed were never at a disadvantage against enemy jets when the latter appeared over Korea. The proof lies in the loss rate per sortie for the F-80's, which has been just over one-third that for the F-51's.

Further, the F-80 carried more firepower than the F-51, had better pilot visibility, and was easier to maintain. (Its abort rate has been only one-half that of the F-51.) And—what has been consistently overlooked—the jets with their greater speed can fly three missions a day to the F-51's two.

Not only did the jets very quickly prove themselves superior to the F-51's in almost every respect, but they have consistently done a superior job. Were that not true, GHQ could never have reported that air power had been responsible for almost half of all enemy troop casualties, around three-fourths of all tanks and artillery destroyed, and better than four-fifths of all trucks destroyed. Nor could a sifting of reports from more than 2,000 Communist prisoners have shown that the jet fighter "is the most effective and feared weapon we have employed against the North Korean military machine."

## Fire Bomb

The devastating napalm fire bomb with its splashing blob of flaming jelly has been highly successful in Korea for close support and interdiction. In the fleeting seconds of an aircraft's pass it can bathe tanks, locomotives and cars, guns, houses and buildings, or even entire enemy-held areas in almost inextinguishable flames. One spot of the burning jelly on a uniform is usually fatal, spreading with the victim's effort to put it out. Troops entrenched in villages are destroyed or driven into the open without costly assault. Attacking forces are scattered or burned up. Dug-in troops in strong points are smothered or seared in their fox-holes. Supply dumps go up in fire wherever they can be found. Early in May the three-millionth gallon of the deadly gasoline-jelly mixture was pumped into its tank-like bomb. The target was a Communist headquarters in Kaesong.

*Mute testimony of the accuracy of close-support missions flown by Fifth Air Force fighters is this dug-in and once camouflaged Communist tank, burned out of the path of advancing U.S. infantry. The casing of the jellied gasoline napalm bomb which turned the trick is shown in the right foreground. Napalm can destroy the insulation in the electrical wiring of a tank, burn the rubber off its boogie wheels, set off the ammunition inside, and destroy the steel of its shell. All that is left is scrap iron.*



*Fiery inferno envelops enemy troop concentrations in this wooded area as United States Air Force B-26's loose their loads of napalm bombs in close support of U.N. ground forces.*

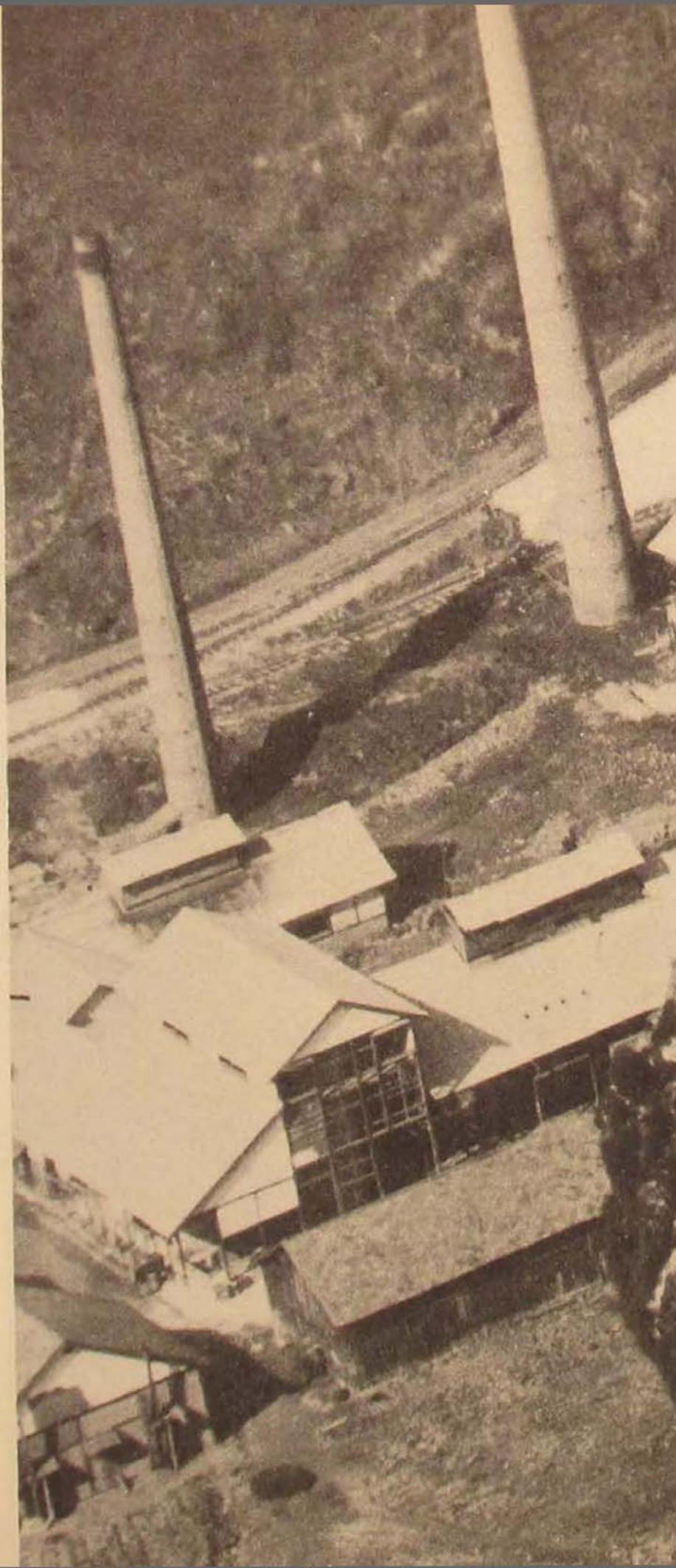


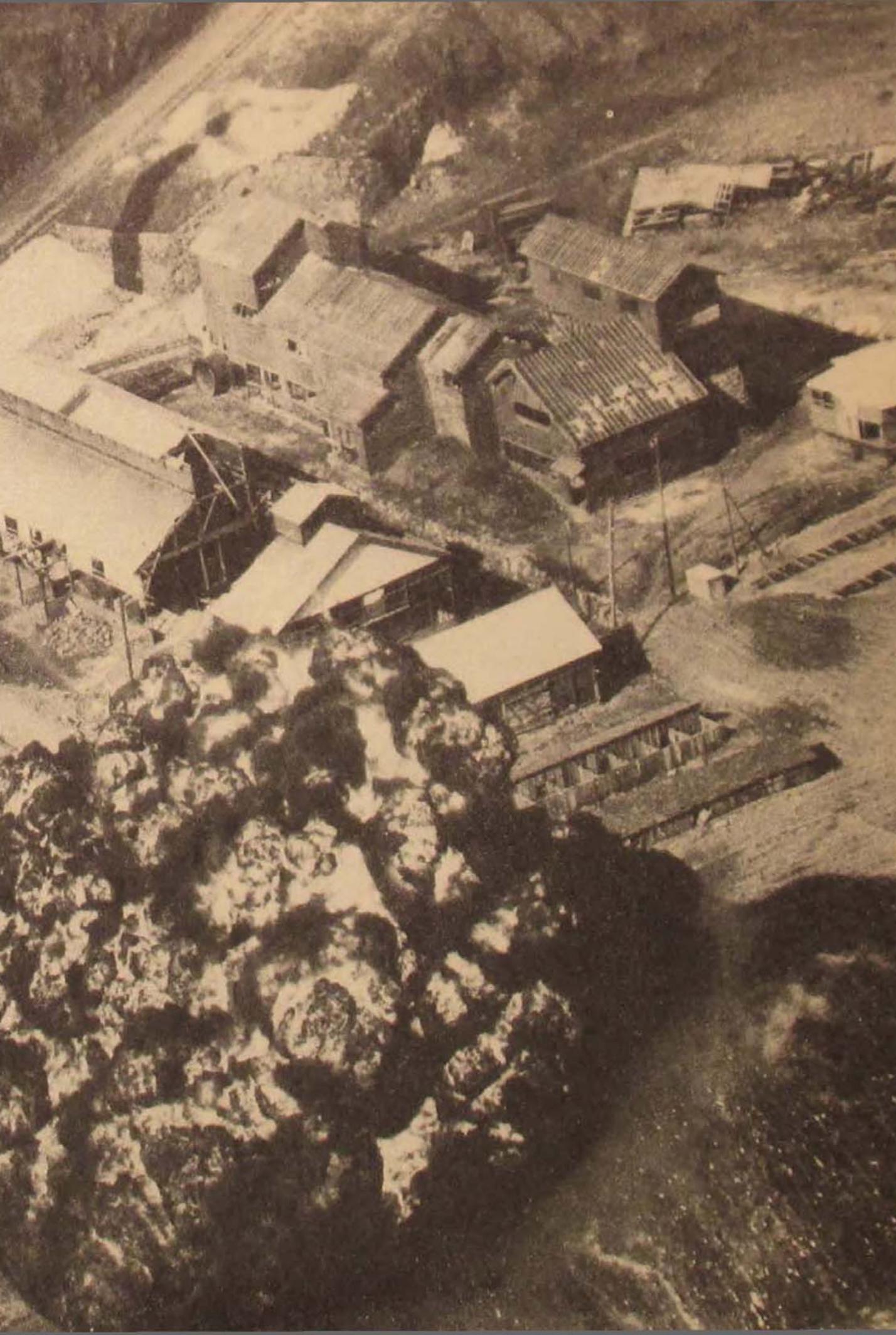


*This swath of charred earth in North Korea marks the path of a napalm tank which was dropped on enemy positions by a USAF fighter plane. An enemy troop casualty can be seen at far left center. The primary advantage of the napalm is that it spreads its burning death and destruction over a large area of 100 by 200 feet.*



*A Fifth Air Force B-26  
of the 452nd Bomb  
Wing (Light) makes a  
direct napalm hit on a  
mine building in North  
Korea near Changdo-ri*



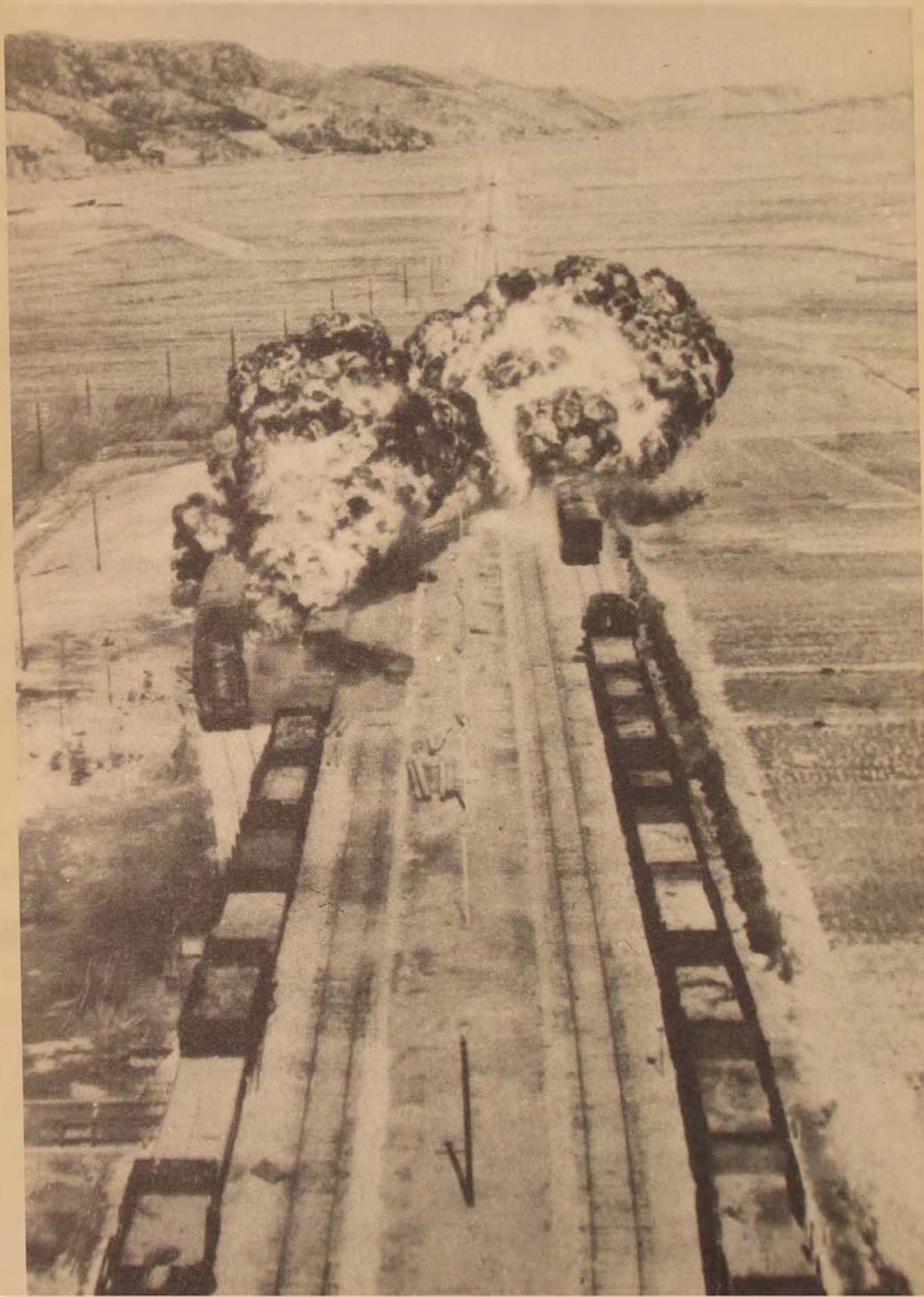






*This dramatic picture shows how enemy supply build-up areas look during a napalm strike by USAF light bombers. When aerial reconnaissance revealed that a dock landing along the river near Hanchon in North Korea contained stockpiles of supplies, B-26's, laden with napalm, rockets, and caliber .50 ammunition, soon attacked. Brisk winds fanned the flame into every nook of these thatched-topped huts and prevented thousands of tons of supplies from reaching the forces at the front.*

*Twin masses of fiery napalm make direct hits on a rail junction at Munchon, deep in Communist-held North Korea. The B-26's placed their napalm where it would do the most harm—directly astride the two tracks where loaded enemy rail cars were standing.*



# The Other Battle

COLONEL HARRIS B. HULL

**T**ODAY America is fighting two wars, the war of military operations and the economic war. The struggle of economy is elusive, cold and vague, unfamiliar to most of us. Yet because of the fact that it has hazy, and remote qualities, and because we do not recognize it clearly, it is all the more real and dangerous.

Our enemy eyes the economic war as his great opportunity. It is certainly one that he will devote as much effort to winning as he does to the operational war. Lose it and the results of any military campaigns we may win largely will be nullified. Win it and we provide the base for an American structure on which all our efforts in war and peace are founded.

This is hardly new. The economists have been telling us these facts for many months. Similarly our role as officers in the battle of economics is clear. It is to cut the unnecessary losses we take through poor employment of our resources. The question is: What are we doing about facing up to the enemy? In particular what are we doing about improving the utilization of the resources made available to us?

For proper utilization is one of the keys to success. With it we have a reasonable and equitable distribution in numbers and skills throughout our organizations. Without it we tend to accumulate large and partially unproductive reservoirs in the top headquarters while the lower units are starved. As in industry, with good utilization we reduce our overhead and simultaneously increase our production. Without it we are lavish and wasteful at a time when we cannot afford such losses. It is important to remember that the expenditures of World War II were concentrated for the most part in a forty-eight month period. Today we have good reason to believe that it may be a considerably longer time before we see a general demobilization reminiscent of late 1945 and early 1946. The significance of this situation to the American economy is staggering.

Impairment in utilization, or waste, arises out of a basic misunderstanding of mission, or from failure to restudy a changing mission, from faulty employment of skilled personnel, from

competitive practices when there is no need for competition, from duplicative undertakings in the several military echelons. Frequently it is waste that arises simply out of faulty supervision, from a failure of leadership.

Whatever the cause, it is the waste we cannot afford. We know by experience that the American people will appropriate millions or billions of dollars for the military establishment and they will not grumble if it is used effectively. They will, however, look at us with a jaundiced eye if they discover that their hard-earned money has been, in part, wastefully dissipated. It is as much our responsibility to create and preserve an attitude of confidence in the military as it is to win battles.

It is important that we gain the initiative in the battle of the dollars and that we gain it now so that we can curb the heavy losses which might be incurred as mobilization goes forward and as our strength becomes even larger. The dollar, however, as important as it is, certainly is not the only casualty here. Anyone who has seen a reserve officer or a reserve airman recalled abruptly from civilian life and sitting around in uniform doing nothing can appreciate readily that more than money is at stake.

Many of us, far too many of us, assume that economy is someone else's business. Perhaps it belongs to Manpower Control, perhaps to the Comptroller or to the Inspector. But wherever it belongs it is someone else's affair. This is the first and it may well be the fatal error. For economical utilization of resources can never be attained unless the responsible staff officers and the unit commanders are imbued with the urgency of the problem. To grasp the consequences of faulty utilization is the first objective. This understanding cannot be just the appreciation of a group of senior officers and civilians. It must be an understanding that extends throughout the structure of the Air Force. The sergeants, warrant officers, and lieutenants may well be the top commanders in the fight to curb manpower waste. For those in direct supervision are the "generals" in the Battle of Economy, and they must assume, if we are to be successful, their command responsibilities. The manpower expert, the comptroller, and the inspector are only staff officers in this battle. They can counsel and advise and assist, but they cannot take over the fundamental responsibilities. Only the unit commander with his close understanding of his task, his resources, and the assistance he can secure elsewhere is in a position to have a thorough understanding of what he

needs, and also important, what he can surrender.

We have all heard of the discussion of manpower that started with a firm desire to effect a cut and ended with the manpower specialist walking away shaking his head and saying: "From what you tell me, you need more people."

It may be that more people were needed. But very often they are not needed. More likely the hoarder had prepared a splendid argument that threw the manpower specialist into confusion. First he blew up tasks with wordy descriptions. The roles of majors sounded like assignments for Major Generals. The secretaries were clearly—from the job sheets—the supervisors. Functional and organization charts were produced that would have done justice to a structure the size of General Motors. And working on the theory that he wanted a completely self-sufficient organization the officer in charge skipped very lightly over the things that he was doing that others were prepared and were ready, willing, and able to perform for him.

When a manpower specialist can sit down with a commander or with a staff and honestly discuss utilization, including numbers and skills, with a view to more equitable distribution Air Force wide, we will have taken one of the objectives in the Battle of Economy.

The ruins of an old castle in Scotland are faithfully guarded by four sturdy Scotsmen, who keep all visitors at a considerable distance. An American soldier, bent on picture taking, became intrigued with the diligence with which the guards patrolled the once beautiful structure. Perhaps, he reasoned, there is a vast treasure hidden in the pile of bricks and rubble.

But when he questioned the local townsmen he found to his amazement that there was no pot of gold in the ruins. It seems that the Queen of England had visited the castle two hundred years before. The mayor of the village had organized an honor guard to patrol the grounds as a mark of respect for the visiting royalty. But during the Queen's stay the Mayor died, and there was no one to withdraw the Guards when the monarch departed. Within a matter of two generations it had become an honored tradition to walk the grounds of the old castle. The task was passed from father to son, and today the local Scots guards still protect the grounds, always training their sons to take up the duties in the years ahead. Through the years no one had the courage to say: "Stop doing this job. It is finished."

The story of the castle guards patrolling through the years seems a little far fetched. But is it? How many of our functions

have not been reviewed and analyzed during the past six or twelve months? How many of them have become traditions? We assume that at the start a good task analysis was made and that an appropriate number of people were assigned. But tasks seldom remain static and, despite the demands for additional personnel that one hears every day, all tasks do not grow larger. Some of them diminish and some of them expire, or should expire. Some tasks wither away but are somehow kept alive.

**P**ROPER utilization of personnel dictates that we follow the pattern of task development and that we remain sensitive to the rises and the falls, turning back the people we do not need and picking up for short periods enough muscle to carry us through the peaks. How often is this done? The answer is: not often enough. Can the annual visit of the Inspector or the quick trip of the manpower specialist make these adjustments? Certainly not. They have neither the time nor the detailed knowledge to make such adjustments. They are concerned primarily with broader aspects of manpower control. Who can do it? There is only one person. In business it would be the immediate supervisor. In the military establishment it should be the unit commander.

In probably no field of endeavor is the example of leadership of such importance as it is in the military service. Tremendous numbers of men are ordered to duty and frequently are organized under officers with relatively little military or civilian background. Lacking the experience that comes only with years of service, these young officers turn instinctively to their superiors for example. If they see waste they will do little to curb waste within their own units. If they see overstaffing, if they do not see a premium on efficiency, they are not likely to seek efficiency. A reasonable amount of soul searching in high places is in order before we answer these questions: "What kind of an example have we set? What kind of guidance are we giving?"

There are many factors which contribute to poor utilization of personnel. None ranks quite as high as the practice of ignoring what already has been done by other staffs at higher or lower levels, or of dismissing as unreliable what others have done or can do.

The several echelons of the military services are made necessary more by the requirements of wartime expansion than by peacetime operations. The structure very logically must stand ready to accommodate the great influx of people which accom-

panies full scale mobilization. It is an absolute necessity in the expeditious handling of the build up when hundreds of thousands of men are poured into the service. But the echelon organization also is susceptible to great abuse by those who seem intent on building a "completely self-sufficient organization" in each of the several echelons. Somehow, somewhere, a theory developed that each military headquarters must be a complete "package" independently capable of performing all the multitude of missions that must be accomplished for the subordinate units. This idea is father to many of our duplicative practices. Capable officers and civilians have been endeavoring during the past many years to stamp it out. While progress has been made, unfortunately there are a few outposts where it still persists.

This concept of independence of the staff stems apparently from the belief that the entire organization may be transplanted to some far away theater and that to function there the staff must be a completely serviced vehicle, equipped with spares, capable of self start and of high speed operations without assistance. Few of our top staffs, in fact, will be transplanted. It is more likely that task forces will be organized to undertake specific missions. The manning of such task forces will be eased if a more modest approach is adopted in the establishment of the original staff.

The basic task of the *whole* staff structure is to support combat units. Each echelon must take off that portion of the task which is fundamental to command responsibilities. It is difficult to make hard and fast rules, field manuals notwithstanding. The principle to preserve is that all of the staffs have a single purpose, to back up the combat elements. They should spread the work load required to provide this support. Much of the inefficiency resulting from duplication will then be eliminated.

One helpful procedure to follow in our efforts to confine the growth of staffs and to limit them to logical missions is to briefly rotate officers among the several staffs. The Air Force is extensively distributed over the entire world. We know that we tend to be suspicious and distrustful of those things which we have not seen, of those things of which we are ignorant. Short periods of rotation tend to dissolve some of these fears and are of proved assistance in developing cohesion. Such rotation should not be confined to the assistant chiefs of staff but extended to the more junior officers at the working level.

A few commanders give encouragement to faulty staff practices by treating as unreliable any study not prepared directly under their supervision. Or similarly, if a report is prepared

elsewhere that almost, but not quite fits the needs, some commanders will set it quietly aside and ask for a completely new study written from a slightly different viewpoint. Such practices, needless to say, are very costly. They demonstrate that sometimes our top officers seem to have strange ideas as to what a report can do for them. In the final analysis most studies are only informative, and the minor differences in the approach to a report are seldom fundamental to the decision of the commander. A few commanders have been known to ask for a new study before even reading what already has been prepared. It is safe to say that all of the errors in the Battle of the Dollar are not committed at the lower levels. The commanders make their share.

No comment on staff procedures would be complete without a word on reports. The chairman of a large corporation in New York gets a daily report on his operation that consists of exactly eight figures. At the end of the week his secretary adds these up and thus constructs a weekly report. The more detailed reports have been tried and scrapped in this particular company.

In the military service we are concerned with the preparation of a tremendous number of reports. Some of them no doubt are necessary. However some of them are prepared in far too great a detail and are not easily interpreted. We might well devote more time to the analysis and interpretation of reports and not quite so much time to the accumulation of endless columns of figures. The properly analyzed report incorporating a brief text of explanation and comment is of far more value to the chief of staff and his deputies than the raw figures.

Reports have a tendency to become repetitive. Sometimes this is desirable. But sometimes it is entirely unnecessary. We should make a real effort to ensure that "one shot" reports are fired only once and that we do not reload the piece and turn it into an automatic weapon. To ensure against developing a mass of useless information, one commander cancelled every six months all but the standard reports required for higher headquarters. Then as a need was expressed, the reports were reinstated but only when ample justification was made to him.

**T**HE one sure way to ensure accomplishment of a task is to request and to assign a highly competent, well-trained man of proved capability. Under ordinary circumstances there can be no challenge to this procedure. In the several phases of mobilization and expansion, however, there is a great deal to

challenge. Highly skilled people are in short supply. When we reach for one of these "All Americans" we should think of the other people who would like to have him, of the skills he may possess which we will not utilize to the fullest.

Personnel requests at higher headquarters usually take precedence. As a result, unless there is a curbing of this tendency to call for the most skilled person, the higher headquarters builds up a tremendous overhead of very competent people who could be more profitably distributed throughout the several echelons. It should be remembered that while a single highly trained man at headquarters may be very useful to ensure the expeditious handling of staff work, he may be of vital importance in a command role at a lower level in the activation of a new unit. There is no substitute for experience, and there is not an unlimited supply. The hoarding of skills like the hoarding of numbers is costly, especially during a period of build up.

A contrast here with industry is pertinent. The young man on his way up in business instinctively seeks the employment of his highest skill, for it is in the top positions that he will earn the highest salary. In the service a colonel, for example, earns exactly as much when elevated to the position of chief of staff as he does when assigned to some minor task because someone asked for "the best available man." It is not suggested that we should alter the basis of pay of military personnel. However, we must appreciate the facts and see that our assignment machinery is sensitively tuned, so that equitable distribution of skills and experience can be attained. This, to borrow a British expression, takes some doing. For the bargaining power of unit commanders tends to decrease as we walk down the several steps of the military echelons. The reversal of this trend cannot be handled by the issuance of a directive. It must originate at the very top where the large pools now are accumulated.

The "upgrading" technique of industry might well be studied and, in some cases could be utilized by the services. In this system every effort is made to raise a junior foreman or executive to his highest potential position, once he has demonstrated a capacity to advance. The factory foreman and the higher executives in the offices thus are released for duties connected with the expanding effort. "Downgrading" is the opposite of this. While not practiced deliberately, it is none the less detrimental. In the process of "downgrading" we employ a highly skilled man in a routine or repetitive task. It is bad enough under ordinary conditions. During an expansion it is paralyzing.

A few years ago an army commander in Europe called his

senior staff officers together for a discussion on the utilization of personnel. Here is what he said:

"Virtually all the qualified personnel must be assigned to combat units. We cannot maintain the unattractive spectacle of an overstaffed headquarters while others are engaged in fighting. Inefficiency very quickly can become legendary and is demoralizing to the men carrying the big load. Therefore we will cut back twenty-five to thirty-three and a third per cent.

"To accomplish such a cut each Section head will explain the homogeneous nature of this staff to all personnel. We cannot tolerate the accumulation of personnel in one section based on a temporary peak condition. Peak loads need not appear suddenly and unanticipated. Many peaks can be spread. Other peaks can be forecast and scheduled so that the headquarters does not labor under a number of peak loads simultaneously. If two or three heavy loads appear unavoidably we will work overtime. And we need not work all night. One hour and a half overtime can step up our production nearly twenty per cent.

"It is the responsibility of the Section heads to become acquainted with the work of other sections in order to effect this leveling of the work load in an orderly fashion. The barriers that tend to isolate our activities must come down. Borrowing and interchange of personnel, especially of supporting personnel such as clerks, typists, and secretaries, will become the general practice."

Within a week thirty per cent of the staff was cut back. This in turn made possible a reduction in supporting services such as motor pool and messing.

The real transformation took place in the attitude of the men. They had become members of a vital team. They joined in the development of improvisations. One or two grumbled and were relieved. One developed several further short cuts and was given two quick promotions. A body that might have become sluggish and inefficient came to life. Enlightened and informed leadership had lighted the path and the way was followed.

**W**ASTE is too often associated exclusively with numbers. A general or "across the board reduction" frequently is proposed as the solution that will cure all ills. It would be simpler if this were true. However, there are many organizations within the services that are genuinely short of personnel. One obvious factor that contributes to their plight is that other units, tables of organization notwithstanding, are overstrength.

Improved utilization offers us our *only* opportunity to fill these critical shortages. Better utilization throughout the structure tends to relieve a certain amount of personnel pressure between organizations. By effecting better distribution it contributes to over-all efficiency.

Separate from the question of numbers is the matter of skills. The organization that has genuine shortages is more likely to need a few skilled men than an over-all increase in numbers. While competent manpower specialists can ferret out many of the abuses in the "numbers racket," the losses we incur through the submerging or hiding of skills are, to say the least, elusive. A clear understanding of the objectives of rotation policies is required here, for with periodic rotation as an excuse the gross-est errors may be made in assigning skilled personnel.

Rotation is designed to fill us out as officers, to acquaint us with the many aspects of the Air Force program, to give us an opportunity to grow in our service so that we can occupy more and more important positions. Fundamentally rotation is intended to increase our ability. Especially it is designed to equip us to be commanders. But it is not intended to make us adopt and then scrap one military specialty after another until we arrive at the age of 45 or 50 with six or eight tours behind us with no specialty developed in which we have become expert.

Where do we draw the line? It is not easy. First we must remember that the problems of the Air Force today are not problems to be undertaken by amateurs. They are complicated beyond belief and they will become more complicated. To solve these problems specialists must be developed who, with time, can become expert in their fields. And to develop as experts, we must specialize in a general area. Does this mean that we must stay in one position throughout our careers? Certainly not. Does this mean that an occasional tour in an allied field of effort is to be turned down? Again, no. Then what does it mean? It means that usually we rotate in our own general area, confining our occasional sorties for the most part to associated fields where the training we receive will be of some benefit to us in the development of our basic specialty.

Twenty or thirty years of duty may seem like a long time. It might be better to speak of seven or ten tours of three years. Who benefits if three or four of these are frittered away in attractive but aimless meanderings which do nothing to fortify our basic skill? The individual does not benefit and neither does the service. Each of an officer's ten tours must be pointed in the direction of bolstering his basic skill, if it is to be employed with

dollar value to the taxpayer. Otherwise long-range utility has been compromised.

The personnel assignments officers are familiar with these fundamentals. To ensure effectiveness they must have the cooperation of the commanders who control the personnel. In some cases the assignments officers need the cooperation of the assignee who, for one reason or another, may buck logical and sensible assignments designed along constructive career development lines and, instead, endeavor to embark on a course that can best be described as a cruise, a sojourn, or a lark.

The large increase in numbers which accompanies expansion tends to effect a dilution of skills. There are just not as many "old hands" per thousand men as before. Thus as we go up in numbers it follows that we tend to go down in the level of experience. The conservation and proper utilization of skills, important as it is at any time, becomes vital during an expansion. Tighter assignments of the personnel in their basic specialities is one of the very few steps that can be taken during a build up to compensate for the general shortages. Another step is to effect a careful and up-to-date review of the records, especially the civilian history of incoming reservists, in an effort to achieve an assignment in a field in which the civilian training can be used to the best advantage of the service. Many reservists have picked up new civilian capabilities during the period that they have been away from the service. Thus their military records may not be completely up to date and accurate. The careful placement of the recalled officer gives us one of our few opportunities to combat a general lowering of the level of skill.

Regarding the reservist, we should strenuously resist capricious transfer and unnecessary rotation. Twenty-one months, or even thirty-six months, is a relatively short period of time. If the service is to benefit from the assignment, and all other measures should be subordinated to this, the reserve officer must be constructively assigned, with exploitation of his capabilities as the goal. Above all, the short-time reserve officer should not be allowed to stray from his basic specialty. Time simply does not permit expeditions into several other areas of interest, no matter how attractive they may appear. Another set of criteria, obviously, is required for the reservist on indefinite extended active duty, whose career potential closely resembles that of the Regular Officer.

Every industrialist is familiar with the advantages of keeping an organization small and compact. Many companies refuse to expand because of the complications that inevitably fol-

low. They prefer to remain small and flexible. Certainly there is nothing small about the Army, the Navy, or the Air Force. But the principle can be applied to many of the units and the staff sections within the structure of the military organization. "Keep it small" and "Keep it as simple as possible" might well be the battle cries in the fight against inflation. If a unit is too small, a need for temporary expansion will become apparent and it can be handled on a temporary basis. The organization to worry about is the organization that is prepared without strain to take on the unduly heavy loads that periodically appear on the horizon. It is organized to meet the peak conditions, and in this situation great waste is inevitable.

Every general manager is familiar with the balances of influences and interests which must be maintained in any large organization. The sensitive weighing and relative positioning of the several factors basic to the operation of a large corporation presents the top executive with his most important task.

Research and development, for example, as vital as it may be, cannot consume more than a portion of the corporate dollar. Selling expenses must be watched to ensure that they do not climb out of line. And the cost of manufacturing, fundamental as it is to the enterprise, cannot be allowed to go through a series of gradual rises until the product is priced out of the market. Assisting the executive as he evaluates the relative importance of his several departments is the ever-present treasurer with his balance sheet and other statements. While the Military Establishment does not have a profit and loss statement to help us as we seek a balancing of interests, nevertheless we still have the problem. We seek a sensible balance; we must endeavor to keep the solution within focus.

In time of all-out war we tend to abandon most controls. In our rush to push ahead with mobilization of personnel and materiel we become lavish in our utilization. This is the inevitable character of full-scale emergency. The nation pulls up its belt and becomes reconciled to very high expenditures accompanied by considerable waste extending over a period of two or three years. With the termination of hostilities the inevitable reaction takes place, and the structure is torn down haphazardly.

However in the present situation we have no assurance that we will be in a position to tear down any parts of the military structure within four or five or even six or seven years. The critical importance of husbanding our resources is self apparent. We must infuse economy into our planning as a matter of basic interest and we must give it proper weight. For this may be a

war of waiting, a war in which our enemy arouses us to a high state of preparedness and then avoids the all-out collision of arms. This may well be a war of economics in which we are stimulated to high rates of expenditures over a long period of time with the inevitable impact on our economy. It is time that we included this as a possibility in our appraisals of enemy intentions and that we prepare ourselves to fight intelligently on this most difficult front.

There is no exact formula for better utilization. It would help if one could be devised. The greatest opportunities for advance as we seek to improve utilization are these: an awakened consciousness that the problem belongs to us, to all of us; tighter assignments during expansion in the fields in which we are specialists and where we can make the greatest contribution; very careful placement of the incoming reservist to exploit his civilian background; scheduling of work loads to avoid the simultaneous accumulation of several peaks; easier interchange of personnel to assist during periods of heavy strain; careful analysis of missions of staffs at higher and lower levels in order to avoid duplication; periodic review of the over-all direction of our effort to compensate for the gradual changes of mission; and finally leadership.

Great losses can be incurred in the War of Economics. Conversely great gains can be achieved if our campaign in the Battle of the Dollar is a successful one. It is fundamental to remember that we cannot fight what we do not understand. Our first objective then is an awareness of the rot of waste.

When we have achieved this we will be prepared to tackle the losses we incur with intelligence and with vigor. We will find too that our junior officers, once they are properly led in this battle, will do most of the fighting for us just as they have in all the other battles.

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# The Uniform Code of Military Justice\*

COLONEL FRANCIS W. SCHWEIKHARDT

**H**ISTORICALLY, military law was regarded as summary in nature. The term "summary" is not to be confused with "star-chamber" proceedings, however, since the latter used arbitrary or secret methods to accomplish their results, while as the result of the former, proceedings were relatively more swift than in civilian procedure and punishment swiftly followed a sentence.

In 1776 a Committee of the Continental Congress prepared a set of Articles of War patterned almost entirely upon the British Articles. In his autobiography<sup>1</sup> John Adams wrote:

"This report was made by me and Mr. Jefferson, in consequence of a letter from General Washington, sent by Colonel Tudor, Judge Advocate General, representing the insufficiency of the articles of war, and requesting a revision of them. Mr. John Adams and Mr. Jefferson were appointed a committee to hear Tudor, and revise the articles. It was a very difficult and unpopular subject, and I observed to Jefferson, that whatever alteration we should report with the least energy in it, or the least tendency to a necessary discipline of the Army, would be opposed with as much vehemence, as if it were the most perfect; we might as well, therefore, report a complete system at once, and let it meet its fate. Something perhaps might be gained. There was extant one system of articles of war which had carried two empires to the head of mankind, the Roman and the British; for the British Articles of War were only a literal translation of the Roman. It would be vain for us to seek in our own inventions, or the records of warlike nations, for a more complete system of military discipline. It was an observation founded in the undoubted facts, that the prosperity of nations had been in proportion to the discipline of their forces by sea and land; I was, therefore, for reporting the British Articles of War, *totidem verbis*. Jefferson, in those days, never failed to agree with me, in everything of a political nature, and he very courteously concurred in this. The British Articles of War were, accordingly, reported, and defended in Congress by me assisted by some others, and finally carried. That laid the foundation of a discipline which, in time, brought our troops to a capacity of contending with British veterans, and a rivalry with the best troops of France."

\*Public Law 506, 81st Cong., chap. 169, sec. 1, 64 Stat. 108, Title 50 U. S. C. (chap. 22), secs. 551-736.

<sup>1</sup>Works of John Adams, Vol. III, pp. 68-69, Autobiography, Monday, August 19, 1776.

These were the articles under which the Army operated, with minor modifications, until World War I. They were summary in nature, but they evoked no protest and on the whole they worked well. Early in that war some troops stationed near Houston, Texas, engaged in a riot and a mutiny. Some of the offenders were promptly brought to trial by courts-martial for mutiny. The trial lasted several days and was carefully, fairly, and scrupulously conducted. Each night the stenographic transcription of the day's proceedings was brought to the Department Judge Advocate, who wrote his review as the trial progressed. On the last day several of the mutineers were found guilty and some were sentenced to death. That night the review was completed. The sentences were approved and confirmed by the Department commander pursuant to his authority under Article of War 48 of the 1916 code to confirm death sentences in time of war, and the next morning the sentences were carried into execution.

This was justice speedily effected, but too summary for a citizen army of the twentieth century. Quite a reaction was created among the public and in the War Department itself, although all of the proceedings were in accordance with the law as it existed at that time. The War Department promptly promulgated its General Order No. 7, 1918, which required review by a board of review in the office of the Judge Advocate General or in a branch office before any serious sentence by court-martial could be carried into execution. General Order No. 7 served as a pattern for appellate review in the Army. Its essential provisions became statutory in 1920 as Article of War 50½. It was modified by Article of War 50 in the 1948 revision of the Articles of War, which empowered the boards of review to weigh evidence, judge the credibility of witnesses, and determine controverted questions of fact. A judicial council for the further review of serious cases, with power to consider the propriety as well as the legality of sentences was also created.

This brings us to the next development—the Uniform Code of Military Justice, hereinafter cited as UCMJ. Heretofore, the rules and regulations have been different for the different services, but now, for the first time in American history, all members of the armed forces are subject to one set of disciplinary laws. In its broad aspects, however, the UCMJ is far closer to the former Articles of War than to the former Articles for the Government of the Navy.

According to the report of the committee of the House of

Representatives<sup>2</sup> the UCMJ provides for the following:

1. Offenses made punishable are identical for all the armed forces.
2. The same system of courts with the same jurisdictional limits is set up for all.
3. Identical general court-martial procedure, including that for pre-trial investigation and post-trial review, applies to all.
4. Rules of procedure at the trial including modes of proof are equally applicable to all the armed forces.
5. Uniform rules of procedure for Boards of Review in each of three Departments must be set up by the three separate Judge Advocates General.
6. Qualifications for members of courts-martial, law officer, and counsel are the same for all services.
7. One Court of Military Appeals is the court of last resort for each of the armed services.

**P**ERHAPS the most difficult problem of unification which the drafters of the UCMJ faced was that of reconciling the Army-Air Force and the Navy systems of company punishment. The UCMJ introduces a new term to Military Law. By Article 15 of Part III, "nonjudicial punishment" replaces "mast punishment" in the Navy and Coast Guard and "company punishment" in the Army and Air Force. It may well be that "nonjudicial punishment," in addition to wide-spread usage on its own merits, will take over most of the area formerly occupied by the summary (military) or deck (naval) court-martial, now used along with special and general courts-martial to impose "judicial punishment."

In the Army and the Air Force, power under Article 15 may be exercised by commanding officers only, whereas an officer in charge of any unit of the Navy or the Coast Guard who is within a category authorized by the Secretary of the Department concerned to exercise such powers, may impose punishment under Article 15.

Such punishment may be imposed for minor offenses only. A minor offense is defined as misconduct not involving moral turpitude or any greater degree of criminality than is involved in the average offense tried by summary court-martial. An offense for which the punitive article authorizes the death penalty or for which confinement for one year or more is authorized is not

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<sup>2</sup>H R. Rep. No. 491, 81st Cong., 1st Sess. 3 (1949).

a minor offense. When punishment under Article 15 has been properly imposed, it is a bar to trial by court-martial.

For Army and Air Force personnel a selection of punishment must be made, since no combination of punishments is allowed except that admonition or reprimand may be imposed in any case. Article 15 is a combination and revision of Article of War 104 and Article 14 of the proposed amendments to the Articles for the Government of the Navy. Withholding of privileges and extra duties may be imposed for two weeks instead of one, and forfeitures imposed in officer cases are limited to one-half of one month's pay instead of the three months authorized under Article of War 104. Relative to extra duties, extra fatigue has not been used in the Army as a punishment for noncommissioned officers because of the consideration of degradation of rank. However, the Navy has exercised extra duty punishments for petty officers upon the theory that certain duties would not affect or degrade the rank of the individual. Therefore a limitation is included that the punishment of extra duty not be such as to degrade the rank of a noncommissioned or petty officer. For noncommissioned officers and petty officers there is a punishment added which has been used in the Navy but is new to the Army and Air Force—that is, a reduction in grade. But under Departmental regulations only a commanding officer who has authority to promote to a grade can demote from that grade to the next inferior grade. In the Army a further limitation is placed on one grade reductions of noncommissioned officers—that is, the rank of the commander imposing it must be at least the rank of major. In the Air Force there is no such limitation.

As to other enlisted personnel, all the previous punishments discussed—with the exception of forfeitures—may be imposed, and in addition if a person is attached to or embarked in a vessel, he may be confined for a period of seven consecutive days or for a period of three consecutive days on bread and water or diminished rations. Confinement on bread and water has been used by the Navy for some time. It is new to the Army and Air Force, and at the Congressional hearings it was indicated that the Army and Air Force did not desire to employ this kind of punishment. The Navy, on the other hand, had a point of great merit in the fact that restriction, to a man on a vessel at sea, was hardly a punishment. Some special type of confinement or other punishment might be necessary in some cases for the sake of discipline. The law is now so written that punishments of the nature described may be imposed upon any

military person while embarked in a vessel. Thus, Army or Air Force personnel could be punished by confinement on diminished rations while on a transport or other ship. We may note here that while Army and Air Force courts-martial cannot adjudge such punishment a commanding officer may under Article 15.

Personnel of the Army and Air Force still have an absolute option to elect trial by court-martial in lieu of accepting nonjudicial punishment under Article 15, but in the Navy and Coast Guard, no such option exists. Each service has therefore seen fit to continue its traditional practice.

The provisions for appeal are continued substantially as they were in the past. Article 15*d*, however, permits an officer who has imposed punishment not only to remit or suspend any unexecuted portion but also to set it aside completely and restore all rights adversely affected by that portion of the punishment already executed. This provision will serve to afford a remedy to an accused in that rare case where punishment has been imposed upon an innocent person. Some slight difficulties might arise in some few cases. It would be a simple matter; for instance, to restore a forfeiture or restore rank to a reduced noncommissioned officer, but not quite so easy to restore diminished rations, except perhaps over a period of time.

The UCMJ preserves the classification of courts-martial familiar to the Army since 1913—general, special, and summary—and discards the Navy list of general, summary, and deck. If a commander decides that nonjudicial punishment of an offender will not serve the purpose, he should then consider whether or not punishment by court-martial is in order and if so, what type of court-martial. It is axiomatic that charges should be tried by the lowest court that has power to adjudge an appropriate and adequate punishment. Although the lowest of the courts of our court-martial system, the summary court is as important as the special or general court-martial. Generally, with regard to summary courts, there has been only one important change under the UCMJ from the Articles of War. The privilege formerly extended certain noncommissioned officers to object to trial by summary court will apply to all enlisted persons, "unless under the provisions of Article 15 he has been permitted and has elected to refuse punishment under such article. Where objection to trial by summary court-martial is made by an accused who has not been permitted to refuse punishment under Article 15, trial shall be ordered by special

or general court-martial, as may be appropriate."<sup>3</sup> Although the wording of the statute seems to indicate that such an objection to trial by summary court-martial would make a trial mandatory by either special or general court-martial, this is not necessarily true because the statute must be construed in connection with powers and duties of commanding officers and convening authorities as to proper disposition of charges. Since, for minor offenses, charges may be dismissed or punishment imposed under Article 15, either reference to a higher court or other disposition of charges would be appropriate in such cases. It is anticipated that some difficult problems will arise because of this correlation between Articles 15 and 20. It is provided that two copies of the record of summary court-martial will be forwarded to the staff judge advocate or legal officer in order that one of these copies, after corrective action, if any, has been taken, may be forwarded to the chief custodian of personnel records of the armed force concerned under appropriate departmental regulations.<sup>4</sup> This method will ensure that a copy of the record, as corrected on appellate review, will be filed in the proper office of record. If the sentence, as ordered executed, involves confinement on bread and water or diminished rations, a certificate of a medical officer, containing his opinion as to whether serving the sentence would produce serious injury to the health of the accused, must be obtained before the sentence is ordered into execution and attached to the original record of trial. A copy of such certificate will be attached to each copy of the record.

For special courts-martial the UCMJ continues the rule set forth in Article of War 11 that when trial counsel is a lawyer, defense counsel must be one too. One notable change is that special courts-martial are given the power to try capital cases, that is, one for which a general court-martial may adjudge the death penalty, under such regulations as the President may prescribe instead of when the officer exercising general court-martial jurisdiction over the command authorizes it. The Navy sought this procedure so that prior blanket authority could be obtained for capital offenses to be tried by special courts-martial aboard ship where circumstances make it desirable, since it is not practicable to refer such cases to the officer with general court-martial jurisdiction. Otherwise special courts-martial will be treated as they were under the Articles of War as implemented by the Manual for Courts-Martial, 1949.

General courts-martial can now be convened by a Secretary

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<sup>3</sup>UCMJ, Article 20.

<sup>4</sup>Par. 91c, Manual for Courts-Martial, United States, 1951.

of a Department as well as those persons especially empowered as an incident of their command authority. Each armed force now has court-martial jurisdiction over all persons subject to the UCMJ. The exercise of jurisdiction by one armed force over personnel of another armed force has been limited to the commander of a joint command or joint task force when empowered by the President or Secretary of Defense. Even then, the appellate review subsequent to action on the record of trial must be carried out by the armed force of which the accused is a member.<sup>5</sup> An accused enlisted person is still entitled to have enlisted persons to the number of at least one-third constitute the membership of the court when so requested by him in writing before trial. The court members may not be from the same unit as the accused, and since a ship's crew constitutes such a unit, regardless of its size, it will be difficult for sailors to be tried by a court-martial consisting of one-third enlisted persons as members.

THE UCMJ provides that general courts-martial shall consist of a law officer and any number of members not less than five.<sup>6</sup> In addition thereto, there shall be a trial counsel and a defense counsel who *must* be duly qualified lawyers.<sup>7</sup>

Perhaps the most radical change in general court-martial procedure introduced by the UCMJ is the removal of the law officer from membership on the court and his establishment as an impartial judge in the manner of civilian courts. Article 26, which provides for a law officer on general courts-martial, changed the practice of the Navy which heretofore had had no judge on its courts. It also changed the practice, since 1920, of the Army and Air Force, which provided for a law member. In 1948 the requirement was passed that the law member be present at all times and that he be a trained lawyer. Now, however, this official will act solely as a judge and not a member of the court, which becomes much like a civilian jury. The law officer is now charged generally with the responsibility for the fair and orderly conduct of the proceedings. He has been given about the same powers with respect to interlocutory questions as the judge of a civilian court. One restriction on his powers is that his ruling is not final if it involves the question of insanity or a motion for a finding of not guilty.

The law officer may in a proper case conduct hearings out-

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<sup>5</sup>UCMJ, Art. 17.   <sup>6</sup>Ibid., Art. 16.   <sup>7</sup>Ibid., Art. 27.

side the presence or view of the members of the court; examine proffered documents outside the view of the members of the court; recess the court to hear argument, conduct research, or consider written briefs, motions, requests, etc., submitted by counsel. He is required by Article 51c to charge the court as to the presumption of innocence, the rule of reasonable doubt, and the burden of proof. In addition he is to instruct the court as to the elements of the offense. These instructions and charges must be given in every case—even those in which the accused has pleaded guilty. The law officer is permitted to give instructions additional to those required by Article 51c but he is not required to do so.

The law officer no longer retires with the court to deliberate on the findings and the sentence. He and the reporter, however, may be called before the court for the purpose of putting the findings in proper form. Any discussion between the court and the law officer at this time is to be reported verbatim. The law officer should put the findings in proper form in any case in which findings by exceptions and substitutions are made. If, after conferring with the president, the law officer is in doubt as to what offense the court intended to find, he should give it proper instructions, and advise the court to close and reconsider its findings, and to make a new finding that is not ambiguous. If there is a clear indication, however, that the court has found the accused not guilty of a particular offense, it cannot thereafter, under the guise of clarifying an ambiguous finding, find the accused guilty of that offense.

Article 67 contains the most revolutionary changes which have ever been incorporated in our military law. Heretofore all appellate reviews were conducted solely within the departments concerned. Now the UCMJ provides for a Court of Military Appeals (COMA) to consist of "three judges appointed from civilian life by the President, by and with the consent of the Senate, for a term of fifteen years." Each judge will receive a salary of \$17,500 a year and will be eligible for reappointment.

The Court of Military Appeals will review the record in the following cases:

- a. All cases in which the sentence, as affirmed by a board of review, affects a general or flag officer, or extends to death.
- b. All cases reviewed by a board of review which the Judge Advocate General orders forwarded to the Court of Military Appeals.
- c. All cases reviewed by a board of review in which, upon

petition of the accused and on good cause shown, the Court of Military Appeals has granted a review.

To provide a remedy for certain miscarriages of justice which were bound to have arisen during World War II, when some ten to twelve million men and women became persons subject to military law, Article of War 53 was enacted as part of the 1948 revision to the Articles of War. This Article permitted the Judge Advocate General, upon application of an accused person, and upon good cause shown, to grant a new trial or vacate a sentence and restore rights, privileges, and property lost as a result of an executed sentence. The Judge Advocate General was also authorized to substitute for an executed dismissal, dishonorable discharge, or bad conduct discharge, a form of discharge authorized for administrative issuance.

In spite of the clamor concerning the administration of military justice less than one-third of one per cent of the persons tried in the Army and the Air Force since 7 December 1941 have felt so strongly that they were the victims of an injustice that they took the trouble to apply for a new trial. The number who presented meritorious grounds for such relief was infinitesimal.

Article of War 53 was applicable only to the Army and Air Force. In considering the UCMJ Congress felt that similar relief with respect to possible wartime injustices arising in the Navy and Coast Guard should be accorded to the personnel of those services. Consequently, Section 12, UCMJ, a substantial reenactment of Article of War 53, was adopted and made applicable to all the services. It became effective 5 May 1950 and is applicable only to cases involving offenses committed during World War II. It is provided that with respect to Section 12 and Article of War 53, World War II is deemed to end as of 31 May 1951, the date the UCMJ and the Manual for Courts-Martial, 1951, become effective.

Throughout the Congressional hearings on the proposed bills which eventually resulted in the UCMJ, a great hue and cry was raised to curb "command influence." This, sometimes referred to as "command control," is a tag which has been affixed to the influence exercised over a court-martial by the officer in command. In his statement before the Subcommittee of the Committee on Armed Services of the House of Representatives, Mr. Frederick P. Bryan, Chairman of the Special Committee of Military Justice of the Bar Association, stated:<sup>8</sup>

"It seems to me, as far as the command function is con-

<sup>8</sup>Hearings before the Subcommittee of the Committee on Armed Services, HR 629, 8 March 1949.

cerned, the requirements of military discipline are completely sad if the following things happen. A commanding officer has an accused arrested, charges are preferred against him, and the case is referred for trial. There is the dividing line. Once the case is referred for trial, no longer has the commander any interest in the case except to see that objective justice is done. It seems to me that the argument for retention in command of the power to appoint the courts is perhaps only for one reason: That the retention of the power carries with it the ability to influence or dominate. Now, that ability to influence or dominate is something that the command disavows."

In his last sentence the witness negates the fancied harm which he has attempted to create in the early part of his testimony. The argument of nongovernment witnesses concerning "command influence" appeared so frail that it vanished upon the most casual examination. Article of War 88 of 1948 prohibited all censures, reprimands, admonitions, coercion, or unlawful influence of courts-martial. The UCMJ preserves the prohibition contained in Article of War 88 and the present provision against unlawful influence is even broader.<sup>9</sup> Any violation thereof is expressly made a military offense.<sup>10</sup>

The UCMJ has accomplished its primary objective, which was to make its provisions uniformly applicable to the four armed forces, especially with respect to courts-martial. With respect to nonjudicial punishments there still is no uniformity. The Army and Air Force will continue as they have in the past, and the Navy and Coast Guard will do likewise.

Colonel Wiener, an acknowledged authority on military law, questions the wisdom of removing the law officer as a voting member of the court. In both his book<sup>11</sup> and in his testimony before the Subcommittee of the Armed Services Committee of the House of Representatives, he maintains that the system of military justice loses something of value when it denies the services of a trained lawyer sitting with the voting members of a general court-martial in closed session. It is still too early to predict the ultimate success or failure of the UCMJ, but since it represents a radical and forward step in the administration of military justice, it deserves a serious and fair trial in return for the months and years of intelligent research that went into its preparation.—*Headquarters, Air University*

<sup>9</sup>UCMJ, Art. 37.

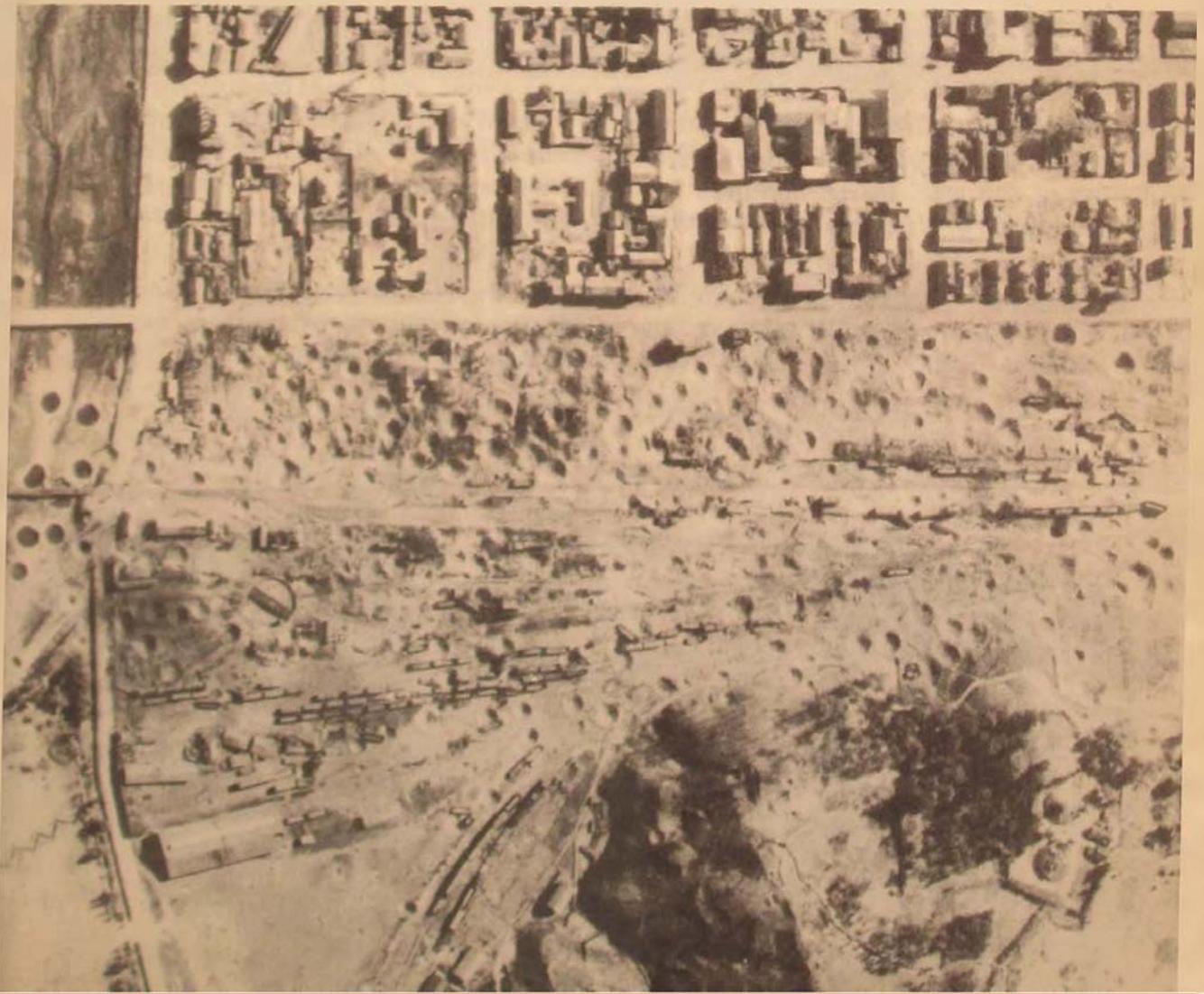
<sup>10</sup>*Ibid.*, Art. 98.

<sup>11</sup>The Uniform Code of Military Justice, Col. F. B. Wiener, Combat Forces Press, Washington, D. C., 1950.

### Marshalling Yards

Korea, a mountainous peninsula, with only a few well-developed railways and highways, lies well for the techniques of interdiction. Whenever the fighting has been so far from the Yalu boundary as to expose enemy lines of communication, it has been possible to reduce the flow of supply and troop reserves for the forces on the battlefield to the point of desperation. Steady daily air attack of railroad and highway bottlenecks in Korea, such as bridges and switchyards, has denied the Communists any movement of troops, munitions, food, or equipment in large volume and forced them to primitive means of transport to move supplies to their front lines, frequently on the backs of coolies. Signally important was the rail transportation system; and the prime targets it offered were the marshalling yards, the focal points through which rolling stock must pass for assembly and dispatch to destination. The main yards were fat with traffic and big repair shops for cars and locomotives. After the main yards were demolished, traffic had to be diverted to the secondary yards, making them, in their turn, key targets. During the first three months of the war 162 marshalling yards were attacked, including the main ones at Seoul, Wonsan, Pyongyang, Chongjin, and Hamhung.

*Pockmarked with bomb craters, the marshalling yard and railroad repair area at Songjin is now useless. Songjin, a key link in the vital east coast rail system, is just fifteen miles south of Kilchu, the junction point of main lines from northwestern and northeastern Korea, which then lead down the east coast from Kilchu to Wonsan. The precision bombing of the choke point avoided damage to adjacent residential areas.*

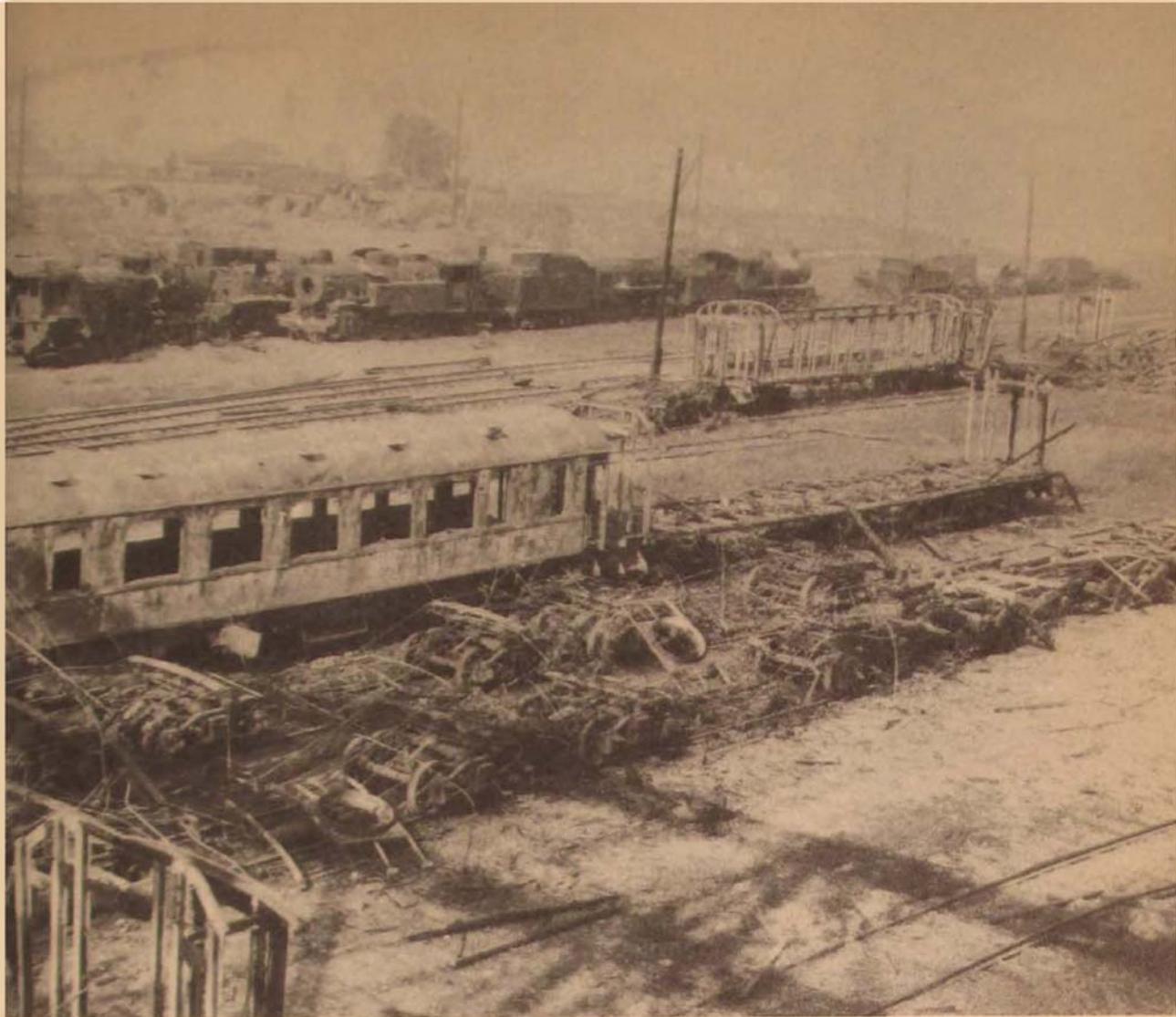




*What B-29's did to the marshalling yards and roundhouse at Wonsan. The 24-track wide switching center handled all supply-train traffic from the north and east, which passes through Wonsan en route to Pyongyang or Seoul. Rail lines leading from Pyongyang south to Seoul or across the peninsula from Wonsan on the east coast to Seoul were carrying a large percentage of the Communist war materiel moving south after the start of the war. USAF bombing of the three key yards at Seoul, Pyongyang, and Wonsan and of bridges along the connecting rail lines successfully interdicted traffic.*

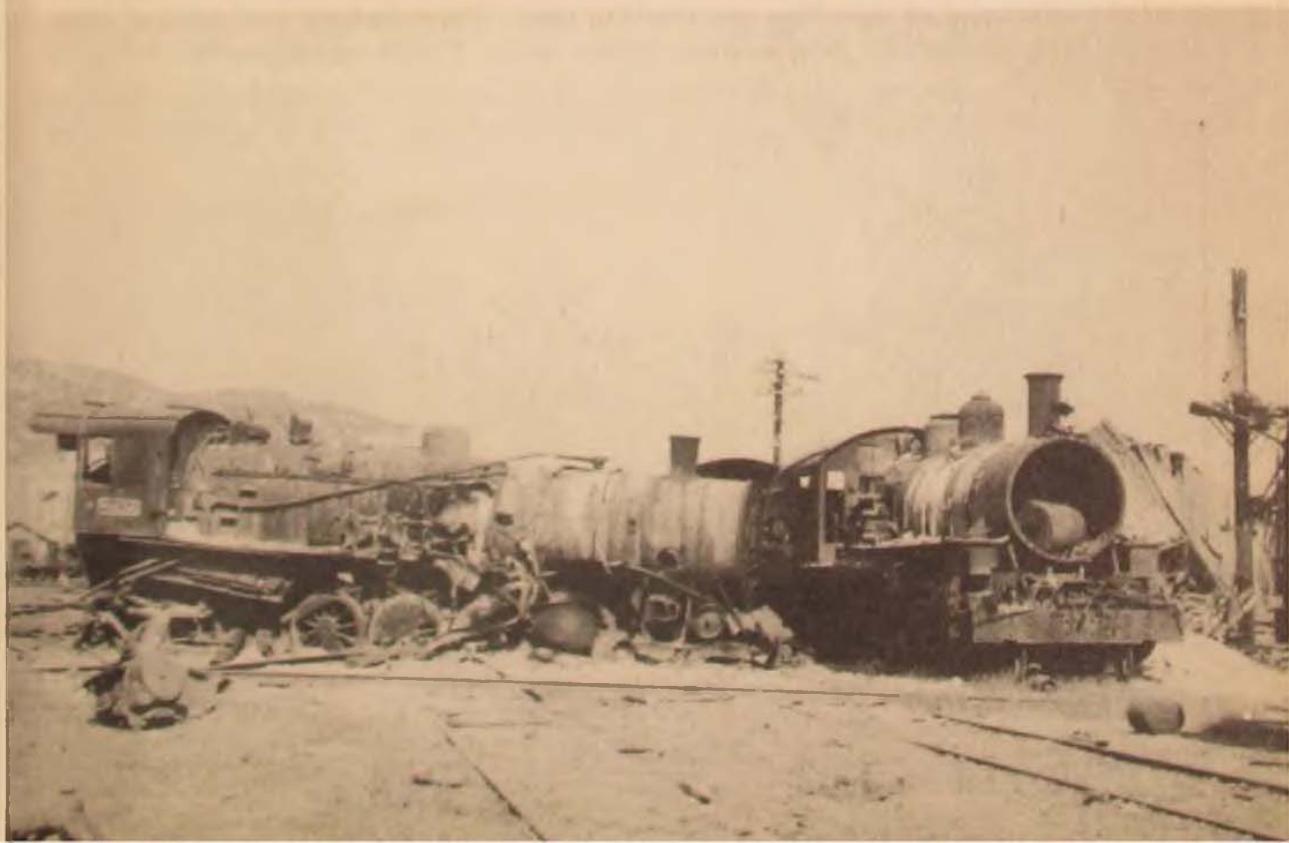
*A rubble pile of railroad cars at the Seoul yards. In the early weeks of the war this marshalling yard was an important center for the movement of military supplies to the southern battle fronts. Air Force bombers soon blasted it out of operation.*

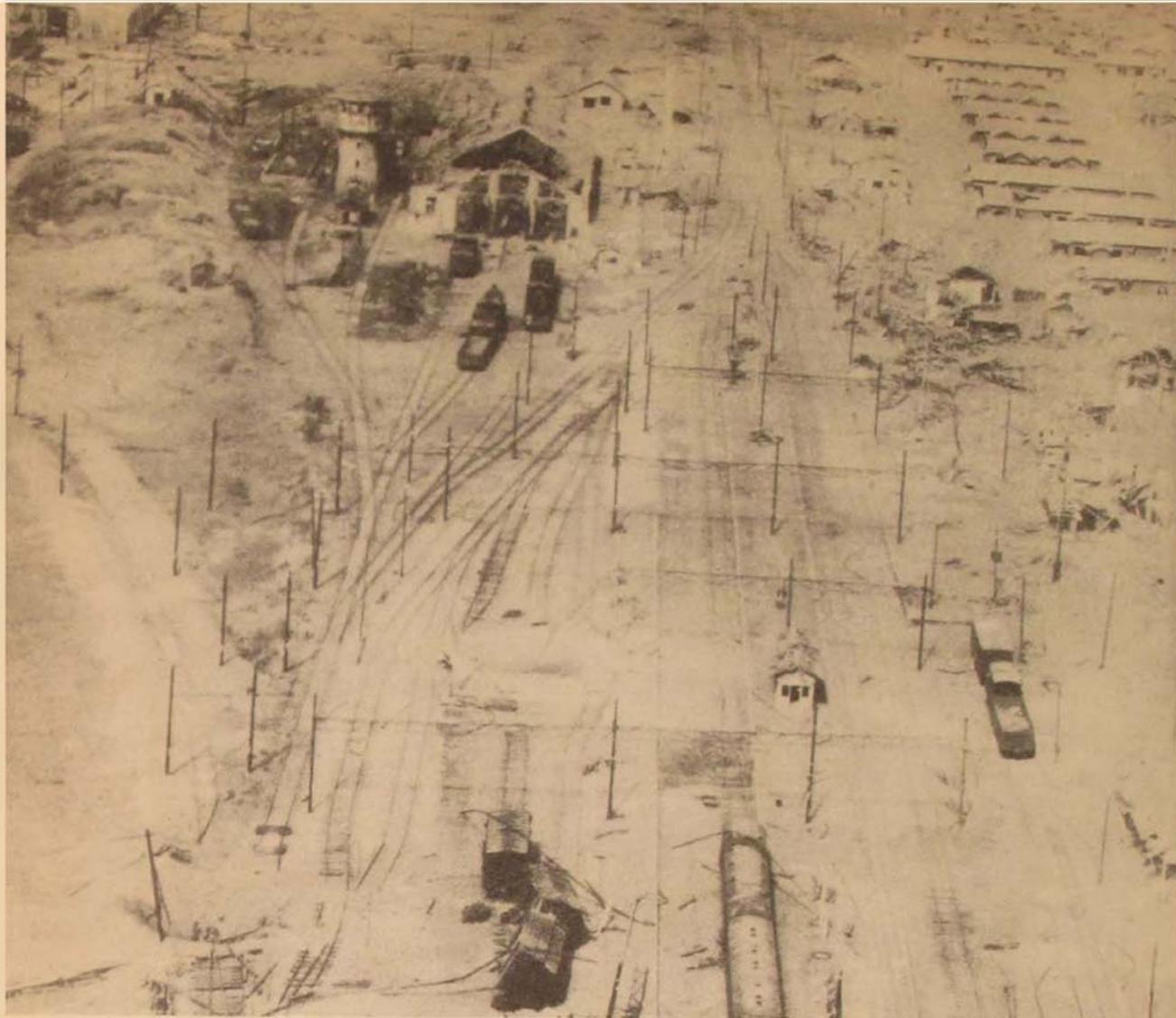




*Burned-out skeletons of railroad cars and sidings of shattered locomotives show the destruction at the Seoul marshalling yards and the locomotive and car repair shops.*

*Bomb-smashed locomotives were blown athwart the tracks at Seoul marshalling yards.*

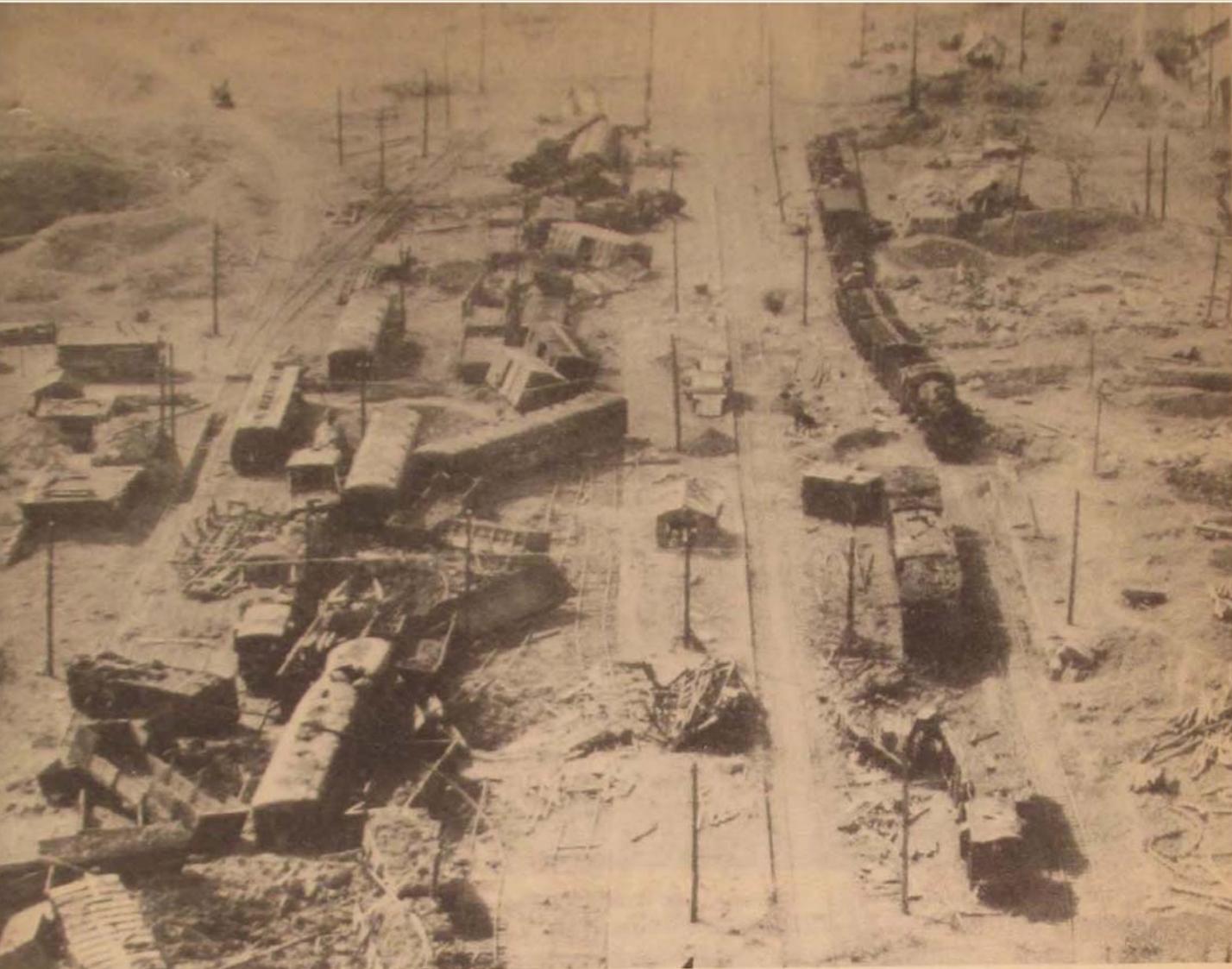




*Bomb and rocket damage to trackage and rolling stock at the Pyongyang marshalling yard. A heavy B-29 attack of 7 August so devastated this major switch point that General O'Donnell eliminated it from the bomb target list "for some time to come."*

*Close-up of the wreckage at Sunchon marshalling yard. Wrenched-up and twisted rails and shattered cars display the intense blast power of B-29 high-explosive bomb loads.*

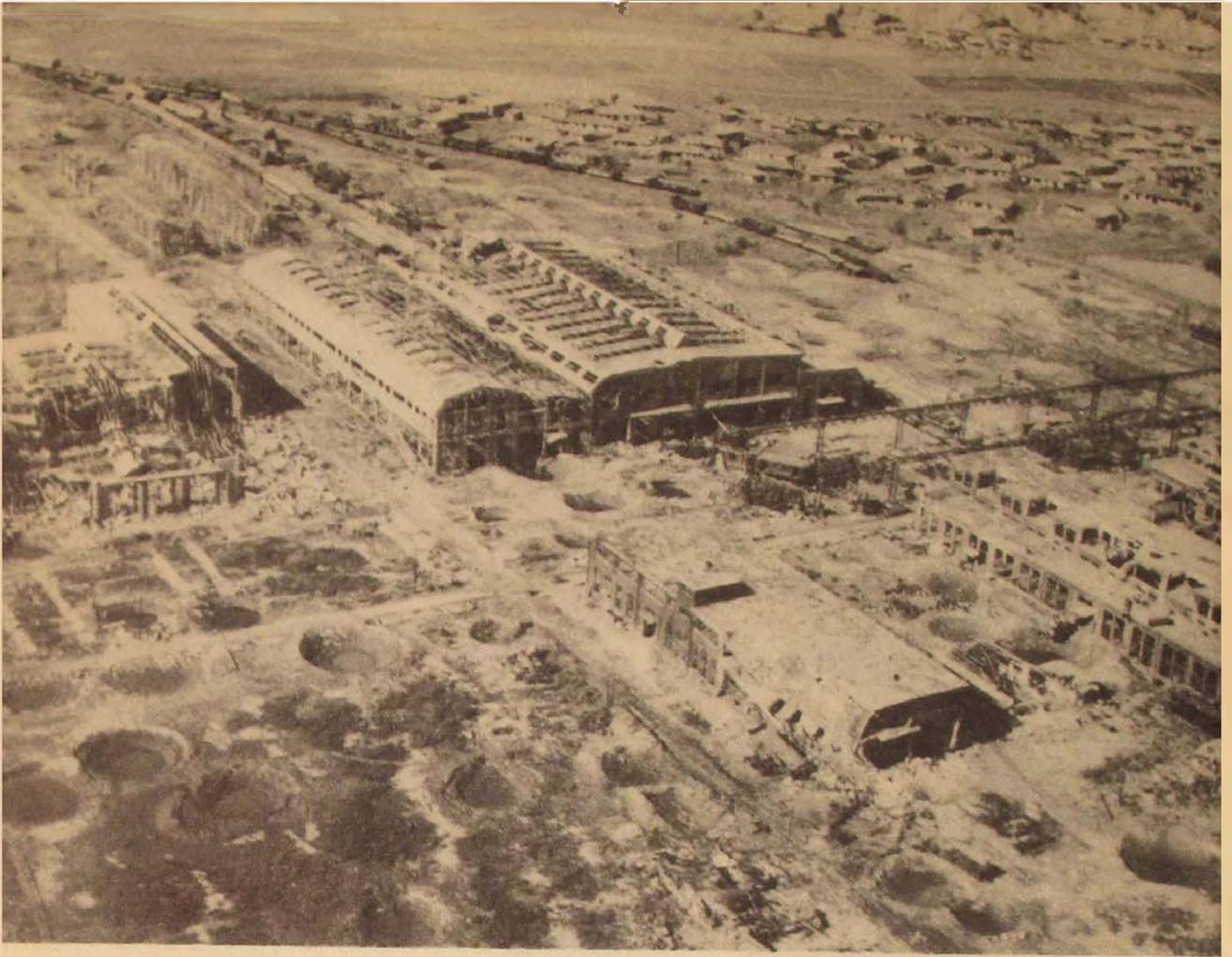




*Typical of the thoroughness of USAF missions against marshalling yards is the scene at Singosan. Attacks have neutralized every piece of rail equipment in the yards.*

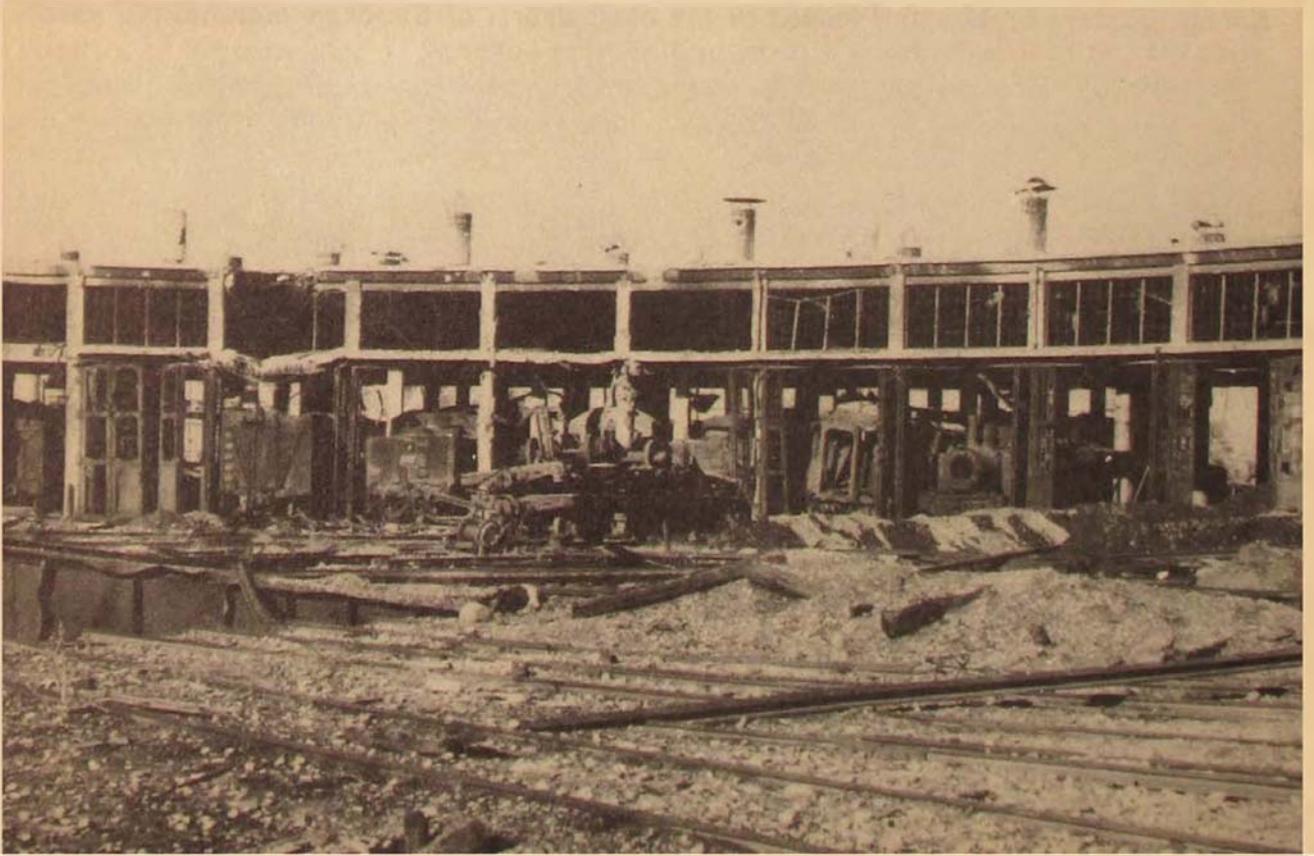
*Korean boxcars broken and buried in the blast debris at Sunchon marshalling yards.*





*Also vital to the continuous flow of the rail traffic assembled and dispatched by the marshalling yards were the shops for repair of rolling stock. Here the ruins of the second-largest locomotive repair and manufacturing plant in Korea stand useless at Wonsan after being bombed out by USAF B-29's. Shops at other yards met a like fate.*

*A close view of the severe damage in the railroad repair shops at the Wonsan yards.*





*Views of the wreckage of the huge Wonsan Locomotive Works serving the main east coast lines from Manchuria and Siberia. The shops were bombed out 10 August 1950.*



# Air Force REVIEW

## Aeronautical Charts and Korea

Hostilities in Korea, dictating aerial operations not characteristic of the patterns of World War II, threw down the gauntlet to the USAF Aeronautical Charts and Information Service, which, as a component of the Air Materiel Command, provides the U.S. Air Force with all required aeronautical charts and related materials. At first, when the invasion of Korea began, the Far East Air Forces possessed a bountiful supply of charts. In fact the chart coverage of the operational area was superior in quality to that existing at the close of World War II. Yet although the charts were generally satisfactory, they were not ideal. Necessity required that they be refashioned to satisfy the demands of the situation.

Two paramount factors were involved. The more important was the Air Force role in Korea, differing as it did from that of World War II. In Korea true strategic bombing and air-to-air operations were almost nonexistent, and tactical air operations were most active. The second factor was the advent and progress of the jet aircraft and its effective use in fighting the Red hordes.

On hand in FEAF were supplies of World Aeronautical Charts, scale 1 : 1,000,000, and the series at a scale of 1 : 500,000, both designed for navigation. There were also some approach charts at 1 : 250,000 scale. Up until the start of the Korean crisis the 1 : 250,000 scale approach chart and the jet fighter had never been brought together for test under actual combat conditions. This fact was well understood in the USAF Aeronautical Chart and Information Service, which had begun huge shipments of charts to supplement the stocks in the theater. The Commanding Officer proceeded to FEAF in July 1950 to determine how particular charting requirements could best be met. Conferences with F-80 pilots flying close ground-support missions showed that the 1 : 250,000 scale approach chart, with a simple grid placed thereon, best met their needs. It was evident that the larger-scaled maps published by ground force organizations were not usable by pilots, primarily because the amount of detail and method of presentation, although suitable for ground troop use, was confusing to the pilot in a fast-flying fighter-type aircraft. It was generally agreed that the 1 : 250,000 scale USAF Approach Chart in color would be best for close ground support. In accordance with previous agreement with the U.S. Army and U.S. Navy these charts were overprinted with the Universal Transverse Mercator Grid, better known as the UTM grid.

It was realized that these approach charts, while entirely practicable, should be improved. The charts had been based on partial aerial photography coverage and on land surveys made by the Japanese in 1937. Some details, such as railroads, bridges, and tunnels, were depicted although they did not exist. The reason was, according to report, that the Japanese had planned them but had not actually built them. In some instances, for example, roadbeds for railroads had been built but no tracks had been

laid. Also, after World War II, North Koreans had carried out some of the projected construction but rarely in the same locations planned by the Japanese. Intensive research was undertaken by the Aeronautical Chart and Information Service to verify the information. The Air Force also flew aerial photography of Northern Korea. The result of the added information was a 1 : 250,000 scale (3.426 nautical miles to the chart inch) chart which contained greater detail. Terrain information required for pilotage was included, but it was subdued in order to bring out the needed cultural and other information. Numerous spot elevations were shown, a necessity in the mountainous terrain of Korea. Pastel gradient tints, plus shading, were employed to assist the pilot in determining elevations with ease.

At this writing these "support" charts are undergoing continuous operational use and test in the theater. At the same time experiments are still being made by ACIS to achieve even better methods of terrain presentation. Chart making for Air Force purposes is a never-ending process of improvement and of adaptation to new requirements.

Flexibility is a must. So is receptiveness to new ideas. Many new ideas are obtained directly from contact in the field with the men who fly the aircraft. So ACIS representatives go to the theater, listen to complaints, welcome ideas for improvements, and answer questions.

As jet aircraft were employed so largely and so effectively in the Korean fighting, a special jet navigation chart was needed. A series of such charts already was being produced to cover the continental United States and was undergoing operational tests. The special experimental charts of FEAFF area were also nearing completion. The need for a special navigation chart covering Korea and Japan had been anticipated.

The jet navigation chart is produced at a scale of one inch to sixty nautical miles. It eliminates much of the detail on conventional navigation charts for the slower, lower-flying aircraft, which would only be clutter to the pilot of a jet with its much greater speed and higher flying altitude. Sizeable aerodromes (with runway patterns), powerful radio stations, easily identifiable cities, large rivers, truck railroad lines, and the like are shown, but hamlets, small streams, and such details do not appear. The chart presents a "picture pattern." Color is applied to depict ground masses rather than details. Gradient tints and spot elevations are used.

The reverse side of the chart shows airways and all the radio information required for use on or off the airways. All the data needed by the jet pilot is thus contained on the two sides of the one chart. A crowning feature is the small size of the chart: only 15½ by 18½ inches.

This chart is being tested by jet pilots in FEAFF. Operational experience doubtless will lead to further improvements and will add to the sum of information to be reflected in the progressive betterment of charts necessary to the Air Force mission.—*Headquarters, USAF Aeronautical Chart and Information Service.*

## The Arnold Engineering Development Center

Just midway between Nashville and Chattanooga, Tennessee, work is going ahead on the construction of the Arnold Engineering Development Center—a group of development-type testing facilities intended eventually

to add up to the most advanced air research center in the world.

When it became apparent in late 1944 that the Air Force was drastically behind in such air engineering development facilities, it was Gen. Arnold who directed that a thorough inspection be made of German facilities. The idea of constructing a center came as a result of this survey, and now the Center, which carries Gen. H. H. Arnold's name, is slowly but surely coming into being.

The necessity for such advanced facilities was also apparent to the aircraft industry, and the project received the blessing of the Research and Development Board in 1948. This cleared the way for Congress to enable the wheels to start turning, and on 1 January 1950 the Air Engineering Development Division was activated with Major General Franklin O. Carroll in command. It was given the mission of the design, construction, and operation of the Arnold Center, directly under the Chief of Staff, USAF.

The present \$157,500,000 construction program at Tullahoma involves the building of three major test facilities, each a tremendous undertaking within its own right. The first priority laboratory is a high-altitude engine test facility, using a German jet engine testing plant as a nucleus. This equipment, acquired at the end of World War II, is being greatly modernized and expanded and will accommodate ram-jet as well as turbo-jet engines at simulated flight conditions of approximately 80,000 feet. The high-altitude engine test facility will require considerably more than 75,000 horsepower in its operation—one of the reasons for locating the Center in mid-Tennessee in the heart of the giant TVA power distribution system—and will offer testing capacities from six to eight times as great as similar facilities at Wright-Patterson AFB. It will be situated in a building about the size of six football playing fields. Typical basic components will include refrigeration drying equipment, four air supply compressors, three test chambers and a test bed, exhaust gas coolers, six exhausters, and special cells for free and connected tests of ram-jets.

The second principal test unit is the gas dynamics facility, otherwise termed a hypersonic wind tunnel. Capable of developmental testing of models of aircraft and guided missiles and their components through the supersonic and hypersonic speed ranges at very high Reynolds numbers, the tunnel will require approximately 90,000 horsepower to operate. The maximum Reynolds numbers attainable are fairly constant through the Mach number range, which makes testing within the facility very comparable with full-scale operating conditions for supersonic aircraft and missiles and will offer the greatest possible usefulness in aerodynamic development of very high speed aircraft.

The third principal unit to be built points up the emphasis on developmental needs in power plants. It is to be a propulsion wind tunnel designed to test full-scale, operating ram-jet and turbo-jet power plants as installed in missiles and aircraft, as well as full-scale components of aircraft and missiles. Its speed range extends from the high subsonic well up into the supersonic realm. To provide the air-flow for this tunnel, the Air Force has contracted with Westinghouse to build for it what will be the largest piece of rotating machinery of its kind in the world—a multistage compressor system requiring over 200,000 horsepower to drive. Two of the electrical motors in the drive system will be considerably larger than any electrical

motor ever built. It has been estimated that the power needed to drive this compressor will be greater than that used by a city the size of Nashville, Tennessee.

It is readily apparent, when one adds up these power factors, why the Center could not have been undertaken just anywhere in the United States. At that, some of the equipment will in all probability be operated at so-called off-peak hours, since the power drain will be enormous.

One of the additional requirements of the Center's facilities will be great quantities of cooling water. For this reason a nearly 4000-foot dam is being built across a nearby river, which will provide a twelve-mile long cooling reservoir. Water will be pumped into the Center at tremendous rates, equaling the requirement of a city the size of Washington, D. C.

This year, 1951, marks a high point in construction activity, easily apparent to the casual visitor. Construction on the big engine test facility is well under way, and its shakedown is scheduled for early 1952. The gas dynamics and propulsion wind tunnel facilities are as yet in the design stages. Intended to support the permanent base that the Arnold Center is to become, a group of central facilities is also being started: underground utilities, a steam generating plant, warehouses, fire, police, and communications buildings, instrument, model, and maintenance shops, and so forth.

All construction on the huge project is being supervised by the Army's Corps of Engineers. The Chief of Engineers has established a special District at Tullahoma, unique in the organization of the Corps, to handle this one construction task. A very high degree of cooperation is possible locally, resulting in vast gains in a particularly high-priority item—time. But directing the whole construction operation in Tullahoma is the AEDD, with its Commanding General and his staff based on civilian William Northern Field. This tiny organization, about two hundred and fifty strong, is expediting design and seeing buildings go up and into operation.

The Arnold Engineering Developmental Center is being rushed toward operational status in order that it may take its place in the national Unitary Wind Tunnel Plan and start contributing to aeronautical progress as soon as possible.—*Hq. Air Engineering Development Division.*

## Women in the United States Air Force: 1951

The Women's Armed Services Integration Act, Public Law 625, was enacted by the 80th Congress, 12 June 1948. During committee hearings the three services had been unanimous on the importance of maintaining a small nucleus of trained women capable of rapid expansion in emergency. Their testimony, in the light of current events, has proved sound.

Mrs. Anna M. Rosenberg, Assistant Secretary of Defense, testifying before the Senate Armed Services Preparedness Committee on Manpower, asked that the present two per cent limitation be lifted and that no arbitrary ceiling be placed on the number of women in uniform. She further stated that no draft of women is contemplated but that a minimum of 140,000 women is presently needed by the armed forces. The present recruitment of service women is geared towards reaching the authorized two per cent strength as quickly as possible. To meet this figure, the present strength will have to be more than doubled. Recruitment interest in the Air

Force by women has been excellent, but present stock levels of clothing and available housing facilities preclude reaching this goal by 30 June 1951. Existing facilities can accommodate the enlistment of 240 women every two weeks through April 1951. Air Force summer uniforms for women will then be available, as will expanded indoctrination training facilities, which will allow a greater input of WAF recruits.

Indoctrination training is eight weeks. WAF recruits receive technical training based upon results of aptitude tests, classification interview, and, if possible, their individual desires. Training is in broad areas of non-combatant skills consistent with the requirements of the Air Force. Particular need is already apparent for trained personnel in aircraft warning, communications, personnel, and supply. Present circumstances do not warrant the use of women in heavy maintenance work or in duties such as engine change, service of aircraft, armament, and welding.

Women are presently assigned to thirty-one career fields in one hundred and three Air Force Specialties. It was never contemplated, and consequently was precluded by law, to use them in units where combat normally is envisioned. Neither is it practical to assign them to duty in isolated locations or where an abnormal safety hazard would be imposed. Thus women can be utilized to greatest advantage in units more or less stationary, in permanent installations, and in large headquarters where deployment would of necessity be outside a combat zone and where civilian housing most probably would be available.

No specific schools or new types of training have been provided for WAF's. Women may and do qualify for technical training in the same manner as male personnel. The technical schools at Keesler, Lowry, Scott, Chanute, and Francis E. Warren indicate satisfaction with the scholastic standing of WAF students, many of whom have graduated among the first ten per cent of their classes. In addition five per cent of the Air Force quota for non-combatant schools under Army jurisdiction may be filled by WAF, providing housing for women is available.

Enlisted women may be assigned to overseas units in such numbers as are pre-determined by theater commanders, the availability of housing, the mission of the unit, and the priority of that mission. Unless a waiver is granted by Headquarters USAF, no woman less than twenty-one years of age can be sent overseas. Women must also complete a minimum of one year's service in the Zone of Interior before shipment and must have the recommendation of their WAF squadron commander. Overseas duty is popular with the WAF, and these restrictions have caused no difficulty in filling overseas requisitions.

Two programs are in effect for WAF officer procurement: Officer Candidate School and the specialist program for USAF reserve officers. At the present time forty candidates may enter the U.S. Air Force Officer Candidate School at Lackland every three months. Qualifications for entrance are identical with those for male candidates. All courses of instruction are co-educational except physical training. Also, while the men are having field training, including firing, the women receive additional training in management and leadership problems likely to be encountered by WAF squadron commanders. Women may qualify for and receive reserve commissions under the provisions of Air Force Manual 36-5 in exactly the same manner as male personnel, up to and including the grade of lieutenant colonel.

WAF officers are assigned by MOS, both within the Zone of Interior and overseas in exactly the same manner as male personnel. The administration of the WAF program requires approximately twenty per cent of the WAF officers on active duty. The remaining hold fifty-one various SSN's within fields of clinical laboratories, Air Force exchanges, technical supply, special service, information and education, public relations, budget, program analysis, legal, and air intelligence. WAF officers are eligible for technical and special staff schools under the same criteria established for male officers.

Plans for new Air Force barracks provide for quick and inexpensive conversion for use by either male or female personnel. It is no longer deemed necessary or practical to have WAF housing surrounded by a fence in isolated areas of an installation. An area readily accessible to duty, dining, and recreational facilities eliminates rather than creates problems. Since men and women work, eat, study, and enjoy joint recreational facilities in normal community living, it is only reasonable that the adjustment from civilian to military living will be easier if the military maintains as much normalcy as possible in its treatment of men and women.

The Women in the Air Force want to be accepted on their own merit. They know that they are not qualified for all the jobs airmen do. They realize the limitations strength, hardship, and danger impose. They do know, however, that many assignments can be filled equally well by men or women and that in some fields women are more skilled. Manpower in 1951 has had to be reduced to terms of work hours, production, and accomplishments. Thus in those fields where men or women can be equally successful, manpower and womenpower become identical.—*Office of the Director, WAF, Hq. USAF.*

## Mobile Support For Defense

The resources of the Civil Air Patrol, nationwide auxiliary of the U. S. Air Force, have been placed at the disposal of Civil Defense agencies as support to the organization's, requirement for air power. Early this year the Civil Air Patrol, with technical guidance from National Headquarters, firmed up its Mobile Support Unit system throughout the fifty-two wings in each state and territorial possession.

The fundamental value and utility of the CAP MSU lies in its speed and mobility. In the event of disaster—atomic or otherwise—the nearest CAP MSU's would be alerted and sent to the scene, airlifting most of their personnel and much of their equipment to aid in relief at the disaster site and to evacuate as many victims as possible.

This package of civil air power comes under the command of a CAP Mobile Support Unit Commander, who has air and ground echelons at his disposal. His right-hand man is a radiological special assistant, since the MSU structure is designed for aid in the worst type of attack or disaster. The alerted MSU would send fifteen light airplanes and seventeen pilots, with adequate reserves of maintenance equipment and personnel, in the CAP "Sunday punch" for civil defense.

Both pilots and aircraft would be capable of operations under "tight" conditions, such as short fields (or no field at all, but just a road), and

unfamiliar territory. To meet these stringent conditions, commanders at various levels have been cautioned to schedule—either for training or the actual thing—only those pilots who are well qualified in their type of aircraft and who possess experience in emergency operating conditions. In the ranks of 44,000 active senior members there is no dearth of expert pilots in any part of the CAP framework.

In the ground echelon, under separate command, the MSU would send teams of CAP technicians into action against the disaster well trained in problems of transportation, communications, reconnaissance, rescue, first aid, and messing. Both ground and air echelons in CAP MSU's have their fire-fighting teams.

In support of the total effort and in constant service to CAP units and the public are the 7000 radio stations of CAP's radio network. Through the net isolated units and communities—which otherwise would be without benefit of emergency communications—have means of immediate radio aids. Last winter, for example, Civil Air Patrol's radio net operated in emergency to provide the only communications for a Mississippi railroad during an ice blizzard.

CAP plans ahead while firming up its part for immediate possible assignments in Civil Defense. A continuing program of recruitment for a Cadet Corps of 100,000 members has already enrolled 30,000 youths between the ages of fifteen and eighteen. A thorough syllabus of training is provided, administered by CAP senior members or Air Force Reserve Officers or through aviation courses in secondary schools. CAP cadet work entails the usual "ground school" subjects of aviation, which are directed toward preparation for further aeronautical pursuits or merely life in the air age.

CAP is a flying organization. Along with such resources as its senior membership of 44,000 actives, 30,000 cadets, 7000 radio stations, and a wealth of knowledge and experience in aeronautics are CAP's 4000 privately owned aircraft. Supplementing these two to five-place craft are numbers of Air Force surplus types on loan to units at various levels.

To serve evidence of Civil Air Patrol's ability as an organization "in being" to meet assignments of defense immediately, airmen of the organization have flown on sixty-five per cent of all the Air Force's search and rescue missions of the past several months, in many cases actually earning the honor of locating the missing aircraft. On one recent air search in Texas, Civil Air Patrol was authorized to conduct a mission in the Panhandle without aid of USAF in any of the air or ground phases. An hour and twenty minutes after the difficult search began, a CAP flyer located the body of the airline pilot, who had fallen from his airplane while attempting to secure the cabin door.— *National Headquarters Civil Air Patrol.*

## Dock Maintenance

At the close of World War II the ever-increasing demands of aircraft maintenance made a functional aircraft maintenance organization necessary at wing-base level to use personnel and facilities for maximum availability of aircraft. The dock maintenance plan provided a solution, especially for larger aircraft of the four and six-engine type.

In November 1949 the Strategic Air Command adopted dock maintenance

and provided for a B-36 maintenance dock at squadron level with one officer, a dock chief, and approximately thirty airmen. After the design was completed, construction of the docks was a minor problem. The major components required by the plan were ground maintenance stands, power plants, air compressors, power tools, and communications, together with on-the-job training for dock personnel.

Reduction of the time for 60 to 120-hour inspections was achieved by the preparation of a detailed inspection guide for each section of the B-36, experienced mechanics, inspectors, and technicians. This guide tells the mechanics what to inspect, when to inspect, and exactly what to look for during the inspection, thus establishing a systematic and thorough inspection procedure, which can be controlled by the Maintenance Officer through the requirement on the mechanics to initial the items in the guide they have completed. Repeated service tests of the dock maintenance plan have shown that a 120-hour inspection can be completed in seven days, reducing maintenance man hours by one half.

The greatest advantage of dock maintenance over squadron maintenance is the consolidation of equipment and personnel at a fixed station where electrical power, air, and tools can be kept accessible. The sheltered dock, which can be heated in cold and shaded in hot weather, provides improved working conditions.

The dock chief is a key figure in the dock maintenance plan and is responsible to the Periodical Maintenance Officer for the performance of periodic inspection and maintenance on aircraft scheduled for his dock, control and supervision of assigned personnel, housekeeping in his area, and proper maintenance of his equipment.

The permanently assigned crew chief and crew from the flight line maintenance section accompany their aircraft to the dock. This crew chief, as the "customer," knows his airplane and is of vital assistance to the dock chief in the layout of work during the inspection process and in the maintenance necessary to return the aircraft to the best possible "in commission" condition.

The primary duty of dock crews is the performance of routine periodic inspections. Abnormal maintenance, special inspections, compliance with Technical Orders, engine changes, etc., are accomplished in conjunction with periodic inspections. Upon completion of the periodic inspection, the decision whether the aircraft will remain in the dock is made by the Maintenance Control Officer.

Since there is a large man-hour potential at the docks, all periodic maintenance personnel are encouraged to be continually alert in developing improved techniques, procedures, and facilities for better and speedier maintenance. Personnel can be made aware that retention of aircraft in the inspection docks for special tasks requiring only a few mechanics results in wasted man-hours and defeats the purpose of the specialized maintenance procedure.

To eliminate that waste of man-hours, the Field Maintenance Squadron provides individual specialists or teams wherever needed within the aircraft maintenance organization to perform work in such specialities as power plant, communications, electronics, armament, sheet metal, and instruments.—*Hq. Carswell Air Force Base.*

# *Airman's Reading*

**Soviet Politics — The Dilemma of Power: The Role of Ideas in Social Change, by Barrington Moore, Jr. (Harvard University Press, \$6), pp. 503.**

*Reviewed by*  
Professor Ossip K. Flechtheim

SINCE the books published on "The Soviet" are legion, the question arises whether anyone can add another fact or a new idea to what has already been written. Yet on closer inspection one finds that, of the huge literature on Russia and Communism, the works that succeed in interpreting Russian Bolshevism objectively and meaningfully are few and far between. Especially today when a wave of hysteria and hatred, frustration and fear is sweeping this country, the Harvard Research Center is to be congratulated for publishing a series of studies, all devoted not to propaganda but to serious scholarship. In spite of a few shortcomings presently to be pointed out, the volume at hand fulfills all scholarly requirements, thus making a most valuable addition to the series. Indeed the difficulty of the task that Dr. Moore has set himself and the great measure of success that he has achieved can perhaps be fully appreciated only by someone who has himself wrestled with the issues for a considerable time.

In the words of the author his main objective is "to provide more tenable answers to the problem of the interaction between Communist ideology and certain Soviet political practices." Skillfully exploiting a wealth of Russian and non-Russian source material (all this reviewer can criticize is the omission of the valuable collection of primary sources published by the Hoover Library), Dr. Moore gives us a painstaking and comprehensive picture of the evolution and present status of the Bolshevik polity, economy, and society. He shows admirably how the Bolshevik regime has come to be what it is today, a regime that represents "a curious amalgam of police terror and primitive grass-roots democracy."

The author goes further, however, in that he tries to explain

the present condition of the Soviet Union as the inevitable and logical result of necessary policies of the Bolshevists, necessary in the sense that, in order to realize some of their goals, theirs and no other course of action was open at any given historical moment. To Moore, as to so many natural and social scientists, the casual chain of events seen in retrospect is so overwhelming and determinant that he tends to overlook, or at least under-rate, the wide horizon of open possibilities that have remained unrealized, though, at one time or another, they were there. True, Moore admits himself that history, rather than being a barren record of events, is pregnant with alternatives and choices. Still he fails to disprove that a different Bolshevik strategy during the crisis years immediately after World War I or during the Great Depression would have resulted in the victory of Communism in some one industrial country (for instance, Germany). And this might have brought with it a decisive alleviation of all kinds of pressures caused by the industrialization of an isolated agrarian country such as Russia. Nor does the author refute the claim that the road advocated in the late twenties by the right-wing opposition of Bukharin, Rykov, and Tomsky, rather than leading to the restoration of reactionary capitalism, might have turned into a "middle way" somewhere between old-fashioned capitalism and new-fangled totalitarianism. Indeed, we cannot help feeling that the workers' and farmers' democracies as they have been developing in Mexico, Palestine, or Burma, not to speak of Sweden and New Zealand, support this thesis.

The inevitability of Russian developments is not the only conclusion that the author imposes upon the reader. He also holds that "the Bolshevik experience . . . reveals the need for inequalities of power in an industrial society. . . . All of these requirements add up to the necessity of a system or organized social inequality." Thus, according to Dr. Moore, the Russian situation not only is inevitable but may also serve as a paradigm for the rest of the world. Since Russia has gone back to a system of power and inequality, what chance is there for other movements to succeed in establishing a greater measure of equality and responsibility? Thus the author, accepting the generalizations of Mosca and Pareto, Sorel and Sumner, assumes with them that the moderate measure of rationality which "a modern industrial democracy" has achieved is the *non plus ultra* (the vague concept of "modern industrial democracy" is not defined). Yet anyone critical of the methods and findings of

these elite theorists may well ask why a world society of, let us say, the next century might not be somewhat more rational and charitable, more equalitarian and fraternal, than the present capitalist or Bolshevik nation state. Indeed, in the light of the experiments of wealthier, maturer, and more peaceable societies such as Sweden, New Zealand, and last, not least, Britain we may well doubt the soundness of the thesis that the modifications of the Bolshevik ideology in the direction of inequality and authority are primarily the results of the requirements of modern industrial organization. Is it not more plausible to assume that the specific conditions of rapid and forced industrialization in a backward, isolated, and poverty-stricken continent brought the type of person to the foreground who would deal with obstacles in the typically Bolshevik or Stalinist way (not to speak of the authoritarian elements in the Marxian and even more in the Leninist ideology!)?

This reviewer is, nevertheless, quite willing to accept the author's one-sided interpretation of the issues of power and equality in an industrial society for the sake of his careful and stimulating description and interpretation of the trends of Russian society and culture. Moreover, the chapter on "Soviet Foreign Policy" is the soundest and finest analysis he has yet read. All those who are naive or self-righteous enough to assume that our present predicament in an interdependent and yet split world is but the outcome of the evil intentions of the wicked men in the Kremlin and who are convinced that the "liquidation" pure and simple of Russian Communism will automatically ensure peace on earth and good will among men, should read and ponder this chapter and the following conclusion: "The several phases of Soviet foreign policy in Europe and Asia represent in their essentials a single, continuous pattern. In this pattern the Marxist-Leninist-Stalinist tradition has had, at each stage, varying degrees of influence upon the specific way in which the Soviet Union has reacted to the shifting distribution of power in international politics. Sooner or later, however, the Soviets have danced the power political quadrille, throwing the weight of their force against any grouping of powers that showed signs of threatening their security. They have always aligned themselves against their 'natural' antagonist in the balance of power at a given time. The choice of antagonist or allies has been determined not primarily by ideological factors, but by the structure of the balance-of-power system itself."

**Tito and Goliath**, by Hamilton Fish Armstrong (Macmillan, \$3.50), pp. 312.

Reviewed by  
Professor C. E. Black

**I**N the concerted effort which the United States is making to build up a grouping of states sufficiently powerful to counterbalance the Soviet coalition, Tito's Yugoslavia plays a very important role. The split between Tito and Stalin reflects some of the fundamental weaknesses of the Soviet system. The decision to aid Tito, a Communist leader, marks a turning point in American policy. The size and strategic location of Tito's army has become a crucial factor in the delicate European balance of power. Yet many doubts continue to be raised concerning the Tito regime. Has Tito in fact made a genuine break with Stalin, or does he represent some sort of a trap for American policy? Does Tito have sufficient support within his own country to make him a reliable associate? Is the spread of Titoism among the Communist parties on both sides of the Iron Curtain a movement which American policy should encourage with the expectation that it will become an important ally against the Soviet power bloc?

To the discussion of issues such as these, Mr. Armstrong brings a wealth of experience. Ever since his first assignment to Belgrade in 1918 as Military Attache he has had an expert knowledge of the political problems of the Southern Slavs. This knowledge has been continually refreshed by a wide personal acquaintance with Yugoslavs of all political views and by regular visits to southeastern Europe both before and since World War II. As editor of *Foreign Affairs* since 1922, moreover, Mr. Armstrong has never failed to consider Yugoslav problems in their larger European setting. His views are thus those of a wise observer, and his *Tito and Goliath* is by all odds the best available guide to this vital sector of the European scene.

Mr. Armstrong leaves no doubt that he regards the conflict between Tito and the Russian "Goliath" as genuine. He quotes liberally from the published correspondence between the Yugoslav and Soviet Communist party leaders, and explains the contrasting interpretations of Communist doctrine which characterize the split that astonished the world in June 1948. The doctrinal dispute involved the question whether the techniques developed in the Soviet Union for the conduct of Communist party affairs, the collectivization of peasant property, and the

planning of industry and trade should be applied without change in Yugoslavia. Mr. Armstrong moreover comes to the conclusion that beneath this controversy, which occupies so much of the correspondence, lay a deeper source of disagreement. This is that the Yugoslav Communists resented the way their country was exploited by the Russians. The author presents many facts and figures to show how the Russians took advantage of Yugoslavia in trade agreements, in jointly owned corporations, and through the direct interference of Soviet officials. Tito soon realized that if he let this trend continue, the Russians would gain full control of his country, and this was not his understanding of how relations between Communist states were supposed to be conducted. He therefore broke with the Soviet regime, and dealt Stalin's authority a telling blow. In Mr. Armstrong's words, "the fact that his heresy could have existed will continue to exert its influence on all subsequent Communist development. World Communism will never again be quite the same."

When Stalin made public his criticism of Tito's regime in 1948, he doubtless expected that pro-Soviet elements would be able to gain control of the Yugoslav Communist party. Yet in fact only a handful of Yugoslav party members turned against Tito, and the Communist leader became a sort of hero even to the anti-Communists. How can this be explained? The explanation lies partly in the temper of Yugoslav nationalism. The aim of the Yugoslav people, and of all the peoples in the Soviet orbit, is to raise their standard of living. They are convinced, moreover, that in a hostile and competitive world this can be accomplished only if the national government preserves its sovereign bargaining power and uses it astutely. When Stalin challenged this conviction by adopting a policy of converting his allies in eastern Europe into satellites, he met a type of resistance which he had never encountered inside Russia. Mr. Armstrong discusses in some detail the growing list of Communist leaders in eastern Europe who have been charged with treason and in many cases executed: Xoxe in Albania, Rajk in Hungary, Kostov in Bulgaria, Gomulka in Poland, and most recently Clementis in Czechoslovakia. The details vary from person to person, but the underlying motivations are very similar. The "nationalist deviationism" of which each has been accused, means in substance that they refused to throw themselves wholeheartedly into the task of making their countries subservient in an economic and political sense to Soviet policy.

One is not surprised when non-Communists oppose Russian domination, but when key Communist leaders are willing to risk their lives resisting Soviet pressure, much is revealed about the character of the Soviet orbit.

Is it then likely that other satellites will soon break away from Soviet control without armed conflict, as Yugoslavia did in 1948? That would be too much to expect, for Tito had certain advantages in his relations with Stalin which the other satellite leaders do not possess. During World War II Tito built up his own armed force without Soviet assistance, and after the war the Soviet "advisers" were never able to infiltrate it thoroughly. Moreover Russian troops never occupied the whole of Yugoslavia, as they did the neighboring countries, and were stationed only in the relatively small area to the north of Belgrade. Thus when Tito decided to make the break, he possessed the physical means, whereas other Communist leaders in the Soviet orbit do not have at their command armed forces independent of Russian control. Mr. Armstrong points out these differences with clarity and provides many anecdotes from his interviews with east European statesmen to illustrate the complexities of the situation. He leaves the impression that if Titoism is not a ready-made rift within the Soviet world, it is at least a movement which deserves close observation.

*Princeton University*

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**The Soviet Union, the Land and Its People, by Georges Jorré, translated by E. D. Laborde (Longmans, Green, \$4.25), pp. 353.**

*Reviewed by*

Lieutenant Colonel A. E. McKenzie

**T**ODAY we frequently ponder the march of recurring world political events, the communistic intrigue, and the international strife created principally by the dealings of the Communistic states with the democracies. Our first thoughts may well be centered on what has occurred within Russia to elevate her from a completely wrecked nation to the position of a dominant world political power, the world's second economic and the greatest single military power. And this revolutionary change has occurred within the relatively short period of thirty years.

In his recent *The Soviet Union, the Land and Its People* the eminent geographer, Georges Jorré, has clearly shown the

sources from which the Soviets have derived their power and economic strength. A study of the economic geography of the U.S.S.R., his book presents a clear and authentic description of the industrial expansion and agricultural development since the Bolshevik revolution. Sociological factors, structural geology, land relief, soils, and water resources are discussed to the extent commensurate with the influence each has upon the general economy. Discussion of political and social changes has been omitted, except for very brief references necessary to stress an economic point.

In the true fashion of a geographer, M. Jorré begins with building and setting the stage, the environmental conditions for human adaptation: climate, forests and vegetation, animal life, soils, and means of transport, and then introduces the actors and the roles played to date, the book being in four parts with appropriate descriptive headings: Part I, "The Physical Setting;" Part II, "Expansion of the Russian World from Early Times;" Part III, "Advance from a Backward to a Revolutionary Economic System;" and Part IV, "Main Natural Regions of the Soviet Union."

Part III carries forward with a vivid discussion of economic changes and accomplishments, beginning with ascendancy of the Communist Party to complete control of the entire Russian land mass, during which period the economic revolution began. By 1928 the Communist party, under the dictatorial control of Stalin, had gained control of the human masses and imposed absolute states socialism upon the entire U.S.S.R. All lands, natural resources, capital assets, and even manpower became property of the state. State industrial monopolies (*Kombinants*) were established to control and operate all industries and trade; collective farms (*Kolkhozs*) and state farms (*Sovkhozs*) were established to control and develop all agriculture and the Soviet lands. Trusted, undeviating Communist party members were placed in immediate control of the monopolies. Administrative and operational directives, however, were promulgated by the Politburo or by Stalin himself. The completely regimented population was converted to a mass of state workers for economic development and building of a mighty military machine experienced the bitter hardships and sufferings. Opposition to the policies of the Communist masters could mean imprisonment at hard labor or death by the firing squad. Thus was the industrial or economic revolution.

In Part IV, M. Jorre subdivides the U.S.S.R. into several natu-

ral regions to discuss in detail the natural factors, industry, and agriculture in each. The wealth of statistical detail in this survey is enlightening and valuable for reference. It will be noted that Stalin and the Politburo have given much attention to the economic development of every section of the Russian land mass. This attention was not so much for the purpose of providing for the thousands of citizens in each of the areas but for maximum production to advance the Communist regime and its ideology—to accumulate wealth and strength for the Communist state.

Those who read this book should at all times keep the following in mind. First, the phrase “state socialism” was used above with some reservation. In reality in a state of socialism the people should all share alike in their productive efforts and be able to enjoy a higher standard of living. This is not true in Soviet Russia. All production and wealth created by the masses belong to the state, to be rigidly controlled by Stalin and his personally selected Politburo. Only enough of the production and wealth are permitted the masses to provide them with a meager existence at an extremely low standard of living. The ruling regime is therefore really enforcing a very oppressive “state capitalism.”

How then have Stalin and his underlings been able to accomplish so much in the way of capital developments, in building industrial complexes, in land improvement and irrigation for agriculture, in the construction of hydroelectric dams and generating plants and roads and railways, and in other types of economic improvements? The answer is simple. The Politburo has absolute control over all citizens and all natural resources. Thousands of human beings are transferred from one area to another to accomplish a development program. Individuals are assigned work and can not change their jobs unless granted permission. They can not travel from one area to another except by authority from the police. In addition the Soviets have upwards of ten to twelve million enforced laborers, who are nothing more than prisoners confined to slave labor. This enforced slave labor is used to build roads, railways, dams, canals, and all types of capital construction. It is used to mine metals and coal, to quarry stone, to cut timber, and to operate saw mills and pulp mills. A large amount of enforced labor is used to mine gold, silver, and other precious and rare metals and gems. It is impossible to estimate the wealth in gold and silver alone accumulated through its employment in the rich gold

and silver deposits in Eastern Siberia and the mountains of Central Asia. Yes, the Soviets have grown strong economically and are growing progressively stronger by leaps and bounds. They will continue to grow stronger as long as two hundred million people are completely regimented to produce for the state without equitable division of the results of their labor.

*Evaluation Division, Hq. Air University*

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**Major Problems of United States Foreign Policy, 1950-1951, prepared by the International Studies Group of the Brookings Institution (Brookings Institution, \$3.00 cloth, \$1.50 paper bound), pp. 416.**

*Reviewed by*  
Dr. Eugene M. Emme

**T**HIS volume is a comprehensive survey devoted to the difficult task of outlining the current position of the United States in world affairs. Prepared under the direction of Leo Pasvolsky by the International Studies group of the Brookings Institution, it provides ready access to enlightening discussions on vital areas of future decision that confront American planners during the present period of international conflict. Above all, however, it is a volume that clearly illustrates the critical methodological problem confronting all governmental agencies that formulate American foreign policy and action.

By assuming the position of governmental officials charged with providing solutions to specific problems, the authors have sketched out the *Major Problems of United States Foreign Policy* as a basis for intelligent discussions and for projected thinking. Although the volume is focused on the area of American policy decisions, the objectives and actions of the other major powers are dispassionately presented. Alternative courses of action open to the United States in the solution of a particular diplomatic problem are consistently suggested. This volume, as those before it in the series, will be one widely used by serious students, educational groups, and governmental agencies as a basic reference text.

The mainsprings of American foreign policy are the concern of Part One of this useful volume. The events of critical consequence from July 1949 to July 1950 are first reviewed: the creation of the North Atlantic Pact; the birth of two German

governments; the upheaval in China; the existence of the Russian A-bomb; the defection of Yugoslavia from the Soviet Empire; and the steady deterioration of relations between the Soviet Union and the United States, further animated by the end of the "cold war" on June 25th in Korea. After a summary of the post-war pattern of international politics, the basic interests and objectives of the United States are identified and contrasted with factors which have determined current American policies throughout the world. The dynamism of the world revolution joined with the national power of Russia; the defeat of Germany and Japan; the material weakening of all of Western Europe; and the reluctance of the United States to assume completely the mantle of world predominance in political, military, and moral affairs—these post-war facts basically determined the course of international politics since Potsdam. Importantly, the authors explain that "by far the most important step to be taken in restoring a world equilibrium of power was to reconstitute the current military strength of the United States."

Glancing into the future, the authors suggest that the challenge of militant Communism has animated the bulk of current American policies in Western Europe, the Mediterranean, and the Far East. This prevailing emphasis in American foreign policy, while not completely negatively inspired, has probably created disadvantages for the long-range national objective of achieving stability in an expanding world economy.

Part Two is a catalogue of specific problems of current American foreign policy discussed both from functional points of view (i.e. political, economic, and military) and from the standpoint of the particular problems in various geographic regions of the world. In essence this detailed section leaves few of the headaches of the State Department undisturbed. Each basic problem is italicized so that it cannot be missed even by the casual reader, while every chapter lists helpful bibliographical aids for use by the serious student.

Finally, the volume contains a timely problem paper on the security and stability of southeast Asia. This section is designed as a sample of the type of material prepared by governmental agencies as a basis for policy decisions. Though the subject matter is by itself of importance, the professional military reader will perhaps be motivated to compare and evaluate the "staff study" approach to a military decision with the technique of analysis and discussion presented here. At the end of the vol-

ume is an annotated general bibliography and a very useful index.

In his prefatorial remarks Mr. Pasvolsky points out that the techniques employed in the preparation of this fourth in a series of annual volumes were founded upon the so-called "problem approach." Herein lies the tremendous contribution of this volume, also its minor flaws. Firmly resting upon a bedrock of reliable information and buttressed with impeccable logic allied with clearcut terminology, this volume presents its readers with an undistorted image of the nature of current American foreign policy. This image, though undistorted and formed with an array of pertinent information, is not wholly complete. The factor of personalities, the role of national leaders, and the interest and power of leaders of social and economic groups (e.g. trade unions and religious groups) has been somewhat discounted throughout this volume. By the worthy and concerted effort of its authors to eliminate all evidence based upon human emotions, the book, in effect, testifies in behalf of the unsupportable assumption that man is a completely rational animal. National prejudices and myths have helped determine the course of human affairs in the past. World politics in the near future will probably neither be denied the distortion of human passion and prejudice nor be without the influence of leading personalities.

Yet Mr. Pasvolsky and his colleagues deserve highest praise for their realistic definition of the basic issues facing American planners. Ever attuned to the pressing of time in the formulation of contemporary policies and actions, their volume is an outstanding contribution to an understanding of the nature and the problems of American foreign policy.

*Air University*

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**Economics of National Security, by George A. Lincoln, William S. Stone, and Thomas H. Harvey (Prentice-Hall, \$6.50), pp. 571.**

*Reviewed by*

Lieutenant Colonel John B. Rose, Jr.

**W**ITH the publication of *Economics of National Security* a long-existing void has been filled, a need for a clear, concise presentation of the elements of economic as they affect national security. As the editors have expressed it, "This book discusses the position and the operation of the eco-

conomic factor in the strategy of our national security. . . ."

To approach the subject of economics and at the same time avoid pedantry is a difficult task; nevertheless the editors, Lincoln, Stone, and Harvey, have done it quite neatly. The result is the production of a readable and understandable presentation of the action of economics in a sphere of utmost interest to the military reader. It is of interest to note in passing that this work has been accomplished by a group of officers in the military establishment.

The editors have divided their subject into what they consider the major elements of the whole. They do not pretend that these elements encompass the entire scope of the subject. But they do believe, and the reader will probably agree, that they furnish a firm framework around which to erect the discussion. A random selection here of the selected elements provides an indication of the scope of the work. Elements discussed are the role of the government, raw materials, industrial mobilization, war finance, and economic and foreign aid programs. Within these and the other chosen areas effort is directed toward parallel development. In general the approach is a broad discussion of the pertinent problems and considerations for background, which is then followed by discussion of World War II experience. Last are the developments since 1945 and a few thoughts as to future outlook. The editors have carefully avoided overamplification, yet they have retained the heart of their subject. However, for the reader who feels a need for additional light, a bibliography has been included with each chapter.

Since past experience forms the basis for learning new techniques and lessons, the editors have wisely leaned heavily upon our experience in World War II for lessons and examples. This procedure is particularly fortunate in view of current mobilization activities directly paralleling those of World War II. Opportunity is afforded to compare present activities and those of the past war for the same mistakes and for improved machinery for handling economic problems. *Economics of National Security* must also be considered an extremely timely book for understanding of the problems of economics in national defense.

*Air Command & Staff School*



# The Periodical Press



**General Carl A. Spaatz, USAF (Ret.), "The Airpower Odds Against the Free World," Air Force, April 1951, pp. 23ff.**

GENERAL CARL A. SPAATZ has written an interesting and forceful analysis of present air power odds. The highlights are as follows:

(1) In the face of tested and proved facts the United States is looking backward in military thinking. It is well to recognize the importance of the American Army and the importance of the American Navy but not to the extent that air superiority becomes subordinate.

(2) The importance of air superiority was well demonstrated during World War II at Stalingrad. Here the ground troops were helpless. Presently in Korea seventy-five per cent of enemy tanks destroyed and forty-seven per cent of enemy casualties have been attributed directly to air power. It is not expected that Russia will permit such easy successes from the air should her own troops become involved.

(3) Our present diplomatic strategy may result in our losing all possibilities for command of the air. General Spaatz does not believe that our ground forces would have even a remote chance of defeating the Russian Army without air superiority.

(4) The amount of air support required can not be determined by the number of ground troops to be supported. Air support can be determined only by the amount of air power required to defeat the Russian air power. This also means that quality must be considered, for our aircraft must be able to defeat the most modern Russian plane.

(5) The crux of the article lies in what our 95-group program will actually add up to. In 1948 the President's Air Policy (Finletter) Commission made a recommendation for the minimum air power requirements for "Survival in the Air Age." Yet our present air power will not measure up to this 70-group "survival" program.

(6) It has been announced that a 95-group Air Force is the goal desired by the end of 1952. Such a goal may be reached by using obsolescent aircraft and poorly trained personnel. According to our present production rate the figures indicate that in terms of modern planes needed we are only building the equivalent of a 50-group Air Force through 1952.

(7) On the basis of our present production Russia holds at least a ten to one margin. These production deficiencies indicate that we are not preparing to give our troops, and those of other free nations, even the minimum of air protection.

(8) In consideration of these air power odds there should be no more fiddling. The goal for command of the air must be reached but the one real barrier must be conquered at the outset. Quoting from General Spaatz, "Before we can broaden our mobilization base to achieve command of the air, we must first broaden our mobilization thinking. This is the crucial step in the air battle, and we must take it today."—C. L. G.

**David J. Dallin, "Russia's New Empire,"** *Yale Review*, Autumn 1950, pp. 6-26.

THIS article is an invaluable examination of Soviet imperialism. Historically, Mr. Dallin reminds us, Russia's expansionism before the Bolsheviks ruled in Moscow was comparable to that of other imperial structures—those of Germany, Japan, Italy, Britain, France, and the Netherlands. Although the Bolsheviks conducted the most powerful drive against traditional imperialism in the early years of the Soviet State, Stalin's regime was not able to resist the motivation for power provided by the economic and geographic forces which once animated the expansion of Tsarist Russia. To be consistent with Communist dogma, however, Soviet imperialism conducted its expansion along traditional Russian avenues with the techniques of subversive Communism in the areas to which they lead. In addition, Soviet imperialism was not only notably assisted by the promotion of the "class struggle" but the new empire itself was to be exploited to the hilt in the furtherance of the Kremlin's imperialistic objectives.

The claim that Russia's economic recovery since the end of the war has been considerable is no empty boast. Mr. Dallin points out with considerable detail the economic techniques profitably used by the Soviet Government to exploit fully the imperial gains in Eastern Europe and Asia in the past decade. These new imperialistic techniques are worthy of attention, but serious students should read the entire article.

Significantly, as Mr. Dallin explains, the bolting of Yugoslavia from the Russian Empire provided a harsh lesson. The Kremlin was forced to re-institute its control mechanism to guarantee that its "satellites" would remain economically useful and politically reliable. In this sense, the installation of Marshal Rokovosky in Poland was symbolic. The author does not predict, however, how long the political and economic exploitation of Red China by the Russian Politburo can endure.—*E. M. E.*

**Ellen Deborah Ellis, "Turkey Looks Toward the West,"** *Current History*, November 1950, pp. 282-286.

A most timely and informative article by a student of modern Turkey. The theme of the article is the progress which Turkey has made in the years since the formation of the republic in creating a liberal, progressive state, with emphasis on the elections of May 1950 and the Western orientation of the Turkish people.

The political campaign of 1949-50 was fought out between the three principal parties: the People's Republican Party, led by President İnönü, which had been in power since the early days of the Revolution, when it was founded by Mustapha Kemal; the Democratic Party led by Çelal Bayar; and the National Party headed by the venerable Marshal Fevzi Çakmak. An electoral reform having been established in February 1949, the Democratic Party, which had boycotted elections since 1946 because of the inadequacy of electoral reform, took a vigorous part in the election. The National Party is new to the Turkish political scene, having been founded in 1948.

The campaign was not marked by large areas of disagreement. All parties subscribed to improving the welfare of the peasant and to the current foreign policy of firm alignment with the West. The points of difference

were mainly on governmental economic policy and on the proper attitude of government toward religion.

The election was carried through in a mature, orderly fashion and resulted in an overwhelming victory for the Democratic Party. President İnönü was succeeded by Çelal Bayar. The author emphasized the moderate and dignified spirit of the election. The new government to date has been most energetic and conscientious both in fields of domestic and foreign affairs.

Particularly noteworthy has been the forthright, positive stand of Turkey on the side of the United Nations in the struggle over Korea. In August 1950 Turkey applied for admission to the North Atlantic Treaty. Turkey was not admitted to full membership, presumably because of the fear of extending the commitments of the signatory powers over too wide a range. "Given, however, the enormous strategic importance of Turkey in relation to Russia," the author observes, "together with the will to resist of the Turkish people, more marked than that of some other European peoples, and the increasing strength of the Turkish Army, the validity of such reasoning is open to serious question."—*L. B. A.*

**Kusum Nair, "India on the Fence," *Fortune*, January 1951, pp. 61, 142-143.**

KUSUM NAIR, one of the young (thirty-one years old), emancipated women of India, is a lively writer on India's new status. In this article she warns that her country should not be taken for granted by the American people. Actually, she asserts, India is undecided whether the democracies are worth fighting for or not. "Democratic imperialism, although dying, is not dead;" and "nothing in India is so valuable that Communism's threat can inspire the resistance many Americans gladly make in behalf of their highly successful free-enterprise society."

The Communist party in India cannot be dismissed as a threat to internal security. It blundered before the war in its attempt to capture the Indian National Congress, and it lost mass sympathy after the war when its leaders shrieked at Gandhi as a traitor and attacked the Nehru government with strikes, murders, bombings, and derailment of trains. But the party, now pushing its "Peace" campaign, in which the British and Americans are charged with using India and Pakistan as a base against the U.S.S.R., is making some headway; and few Indians today are not convinced there is a definite "Anglo-American threat."

As a result India is on the fence. Nehru's neutrality is supported by a vast majority opinion, and nowhere in India is there disposition to put troops into the field to match the five million Asiatic troops that would fight for Russia. The Indians are hungry, tired of waiting; they have had their hopes raised by American talk of financial and technical aid, but they see little substantial change in their lot. "Unless the economic and social condition of the masses improves fundamentally and quickly, danger will remain." Strong and general anti-American sentiment cannot be dissolved by more or bigger promises.

The article is written from the standpoint of one deeply interested in improving India's social and economic condition, but it reflects no spirit of self-reliance, no determination for India's helping India. Rather the position is negative, one almost of threat: If the American people fail to raise India's standard of living, then they can expect to wake up some morning and find India going Soviet. Nowhere in the article is there recog-

nition that the fundamental difficulties of India can be solved by India alone: excessive breeding, mass illiteracy, class obstructionism.—W. A. H.

Kaguo Kawai, "Japan: A Focal Point in the Cold War," *World Affairs Interpreter*, Autumn 1950, pp. 246-263;

Romney Wheeler, "Stalin's Target for Tomorrow," *Harper's Magazine*, January 1951, pp. 28-33;

Shigeru Yoshida, "Japan and the Crisis in Asia," *Foreign Affairs*, January 1951, pp. 171-181.

Is Japan to develop into a truly Democratic nation or will it eventually become a victim of Communism? The writers of these articles consider the situation hopeful, but they do not think that victory for Democracy is a certain conclusion.

Though they agree that the occupation has been successful, all three emphasize the fact that the basic situation which brought about the aggressive policy of the Japanese militarists remains unsolved. The population of Japan continues to grow at a tremendous rate, in a land area which neither increases in size nor becomes more fertile. The only hope for the future lies in greater industrialization and free access to raw materials and markets in Asia and elsewhere.

All three emphasize the need for expanding Japanese industry and foreign trade. This expansion requires the creation of a merchant marine, freedom from financial restrictions, and freedom to seek and exploit markets throughout the world. Japan must be permitted to participate in the industrial development of Asia in particular, since that is her natural sphere of economic activity.

Shigeru Yoshida, who presents the official Japanese point of view, believes that a peace treaty will help materially. The treaty must guarantee the Western powers against Japanese aggression, but also protect Japan from foreign aggression. It must provide the Japanese with internal security, and it must make possible the economic rehabilitation of Japan.

Yoshida thinks that the Communist threat to the internal security of Japan is constantly diminishing, but Mr. Wheeler does not agree with him entirely. The latter admits that the Communists have lost ground with labor, but he says that they have continued to work and may even have gained adherents in the rural areas. He points out that the Communist Party is the only true political party in Japan, in the sense that it has a party organization with working cells throughout the nation. Wheeler thinks that the real development of democracy in Japan is yet to come. The present constitution and governmental processes were imposed by the occupation authorities. How the Japanese will develop them once they are on their own remains to be seen. Mr. Wheeler particularly emphasizes the problem of population. He contends that the occupation authorities have failed to recognize it and have even suppressed the Ackerman report because it proposed birth control as a partial solution.

Kaguo Kawai calls attention to some psychological factors. Chief among these is the feeling of insecurity resulting from the realization that present Japanese prosperity depends upon temporary American subsidy and from conflicting pronouncements regarding Japan's place in the American strategic defense structure. This feeling of insecurity enhances the appeal of Communism, which offers the prospect of trade with China and South-

east Asia. Another factor is the Japanese tradition of centralized government, which is closer to Communist than to democratic ideology. The Communists also exploit Japanese psychology in their advocacy of nationalism and Pan-Asianism.

These authors seem to think that the Japanese are attempting to follow a democratic course and that they need assistance and understanding in working out their problems. They believe a peace treaty would do much to fill the spiritual vacuum left by defeat.—*R. W. S.*

**Clinton Rossiter, "The American Mission," *The American Scholar*, Winter 1950-1951, pp. 19-28.**

PROFESSOR ROSSITER, member of the political science faculty at Cornell University, makes an eloquent plea for the fulfillment of what he calls "the American mission" in this readable and provocative article. It is his thesis that Americans have always embraced the idea that "God or Providence or Fate occasionally singles out a nation for some higher destiny" and that America has been so chosen to "fulfill an historic mission."

The article traces the different forms this mission has taken in our history from the time of the Puritans to the present. Through all the variations of interpretation and implementation this mission has been founded on the concept of the model republic or the laboratory of democracy which Americans have deemed this country to be. At times the mission has led us into strange aberrations, but usually we have come back to the main track. However, since World War II, says Rossiter, "the American mission seems to have lost its popular appeal—perhaps because there are now so many other 'testaments to freedom' " abroad in the world. In terms of Professor Rossiter's argument, "If we are no longer the only testament to freedom we can still be the most notable. . . ." How this may be accomplished the article only hints, but it does set forth the high points of the American mission as it has been voiced and used through the more than three hundred years of our history.—*H. P. G.*

**Sumner H. Slichter, "Business and Armament," *The Atlantic Monthly*, November 1950, pp. 38-41.**

THE conflict with Russia is not merely a competition in arms; it is fundamentally a contest in production—and a long-run contest. Consequently it is of vital importance that the additional goods and services needed for defense and foreign aid come out of an accelerated increase in the output of the country. The outlays on defense should not retard the replacement and increase of our industrial plant and equipment. To win the contest with Russia, the United States should continue to use at least 10 per cent of its output to improve and enlarge its private industrial plant. This percentage is the amount used in this way between 1946 and 1950, as compared with 3.8 per cent between 1942 and 1945 and with 8 per cent during the years 1939, 1940, and 1941. Professor Slichter of Harvard University analyzes the principal ways in which industry may accelerate this necessary growth of output and the unfavorable factors which the government and the military forces must avoid. It is possible that this stepping up of production can be achieved in the midst of the war effort. If certain dangers are avoided in the United States, the contest between the countries can give this country a relatively stronger, not weaker, productive position

each successive year, and America can win the production contest with Russia.—*C. M. T.*

**Jacob J. Kaplan, "United States Foreign Aid Programs: Past Perspectives and Future Needs," *World Politics*, October 1950, pp. 55-71.**

ONE-TIME research associate in the Yale Institute of International Studies and formerly chief of the Division of Economic Research on Europe, United States Department of State, Mr. Kaplan seems well qualified to discuss foreign aid programs of the United States, past, present, and future. After stating here that "our economic strength is one of the most effective tools we have" either for promoting peace or preparing defenses, he touches briefly upon the scope of the assistance the United States has rendered other powers following World War II. Then, exhibiting a familiarity with the innumerable ramifications of international finance, he discusses various conditions which have impeded our efforts to revive a world economy and caused the Administration repeatedly to ask Congress for "just one more" foreign aid program. These include such factors as the unexpected necessity of sustained investment to repair the capital plant of Europe, undermaintained not only between 1939 and 1945 but also in the depression years preceding; competition between that area and other sections of the globe; political considerations in the recipient countries; demands for industrialization in backward areas; and the ever-present threat of further war.

By mid-summer of 1950 it appeared that many of these transition problems had solved themselves and that the dollar gap was closing. Yet the end was not in sight, especially in view of the Korean crisis. The author feels that for a considerable period now the United States must continue making its resources available to the rest of the world, but just where and to what extent at any given time it would be impossible to say in advance. This suggests the need for flexible instrumentalities, which nevertheless would provide full assurance to non-Soviet countries that substantial assistance will be forthcoming. The author believes that there should be an amalgamation of our foreign aid program under a single administrative agency. Subject to the stipulation that Congress ultimately control the purse strings, this organization should be given considerable freedom of operation and an initial outlay of capital sufficient for several years. The only political condition required of countries receiving assistance should be "a willingness to resist the forcible imposition of Communist regimes on unwilling populations."—*R. E. Mc.*

**Henry C. Wolfe, "A Calculated Risk in Yugoslavia," *Harper's Magazine*, December 1950, pp. 47-53.**

PREPARATION of this article followed the author's visit to Yugoslavia during the summer of 1950. In Tito-land the populace was generally unperurbed though the country stood in great danger of an attack motivated by Soviet Russia. Subsequent developments in such event would be of vital significance to the East-West struggle; for Yugoslavia figures prominently in any plans Russia may have for world domination. Mr. Wolfe presents a brief but comprehensive account of the break between Marshal Tito and Premier Stalin; comments upon the propaganda war carried on by the

Kremlin and Yugoslavia; and discusses the mutual exchange of "terrorist" activities between these two groups of Communists.

The Yugoslavs face serious economic problems, involving the necessary curtailment of a mammoth construction program, a restriction on the importation of vital machinery, and the effects of a disastrous drought. In the realm of the military the Yugoslav armed forces are far outnumbered by those of their potential enemies. Also they lack some of the most modern weapons of war. In case of attack Tito probably would be forced eventually to take to the mountains. There, as judged by past experiences, he could turn in an excellent performance. Yet even with moderate success on the part of his attackers the situation could quickly turn into a veritable siege. Then the West, particularly the United States, would be faced with a major policy decision, beyond bringing moral and political support against Soviet aggression.

Even now we are faced with a most important question. Should we furnish Tito with economic and military aid? There are arguments pro and con. Tito is a Communist and his is a police state. If perchance he should switch sides or meet death at the hands of assassins, our aid might well turn out to be America's gift to Stalin. Then, too, aid to Tito might goad Russia into action. Yet our choice cannot be between Tito on the one hand and a democratic Yugoslav government on the other. The alternatives are Tito and Stalin. It may be either the rebellious Tito dictator or an additional Iron Curtain country. Aid to Yugoslavia now certainly would be a calculated risk. Yet the author's position is clear when he adds that to allow the Soviets to smash this buffer country may "well be a risk whose catastrophic scope defies calculation."—*R. E. Mc.*

**John J. Livingston, "Defence of an Airfield," *The Military Engineer*, November, December 1950, pp. 438-441.**

In this article Lieutenant Colonel Livingston, Corps of Engineers outlines the responsibilities and procedures for defending airfields with ground troops in areas of combat. He points out that aviation engineers are called upon to defend airfields when construction is carried on between armored and infantry thrusts in areas not yet cleared of enemy forces, in isolated areas, or on islands not yet occupied by ground-combat troops. Since aviation engineers are the only ground-combat troops serving with the Air Force this duty of defense falls upon them.

The burden of this article is that the aviation-engineers must have a coordinated and well-conceived plan to meet all contingencies involved in defending airfields. The weapons, their location and use, their limitations and capabilities are reviewed at length. Then the general principles of airfield defense are explained in detail. The article concludes with a consideration of plans for withdrawal if such action is necessary, giving the duties of each category of officers, priorities for moving equipment, and methods of destroying or immobilizing equipment which cannot be withdrawn.

Colonel Livingston's article purports to tell briefly what an aviation-engineer officer must know in order to carry out his task of protecting an airfield during construction, attack, and advance or withdrawal. It is illustrated with several photographs of World War II actions.—*H. P. G.*

## The Quarterly Review Contributors

**Col. Richard C. Weller** (B.S., Fordham), commanded Losey Field, Puerto Rico, and served as Air Officer, Caribbean Defense Command, and Chief of Staff of the Sixth Air Force during the war and later as air member of Bilateral Staff Conversations with Chili in establishing Air Force requirements of that nation in the hemispheric Defense Pact. He is a graduate of the Armed Forces Industrial College (1950) and currently is a member of the Air War College faculty.

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MANCHURIA

CHONGJIN  
(Seishin)

JAPAN  
SEA

YELLOW  
SEA

# KOREA

*A map displaying  
the place names men-  
tioned in this issue of  
the Quarterly Review*

Kilchu

Songjin

Kanggye

Sakchu

Sinuiju

Taegwan

Chosin Reservoir

Chonchon

River

Hamhung

YONPO

HUNGNAM

Pukchang-ni

Konan

Sinanju

Sunchon

Yonghung

Munchon

WONSAN

Hanchon

Songchon

PYONGYANG  
(Heijo)

Nan River

Singosan

Chinnampo

Kyomipo

Imjin River

Kosong

Sariwon

Sinmak

Changdo-ri

Haeju

Kaesong

Yangyang

Munsan

Chunchon

Chumunjin

Kimpo

SEOUL

Han River

INCHON

Samchok

Suwon

Wonju

Pyongtaek

Utchin

Chockiwon

Naktong

Kum River

TAEJON

Pohang

Chonju

Waegwan

TAEJU

Nakdong River

Yongsan

Nam River

Masan

Sachon

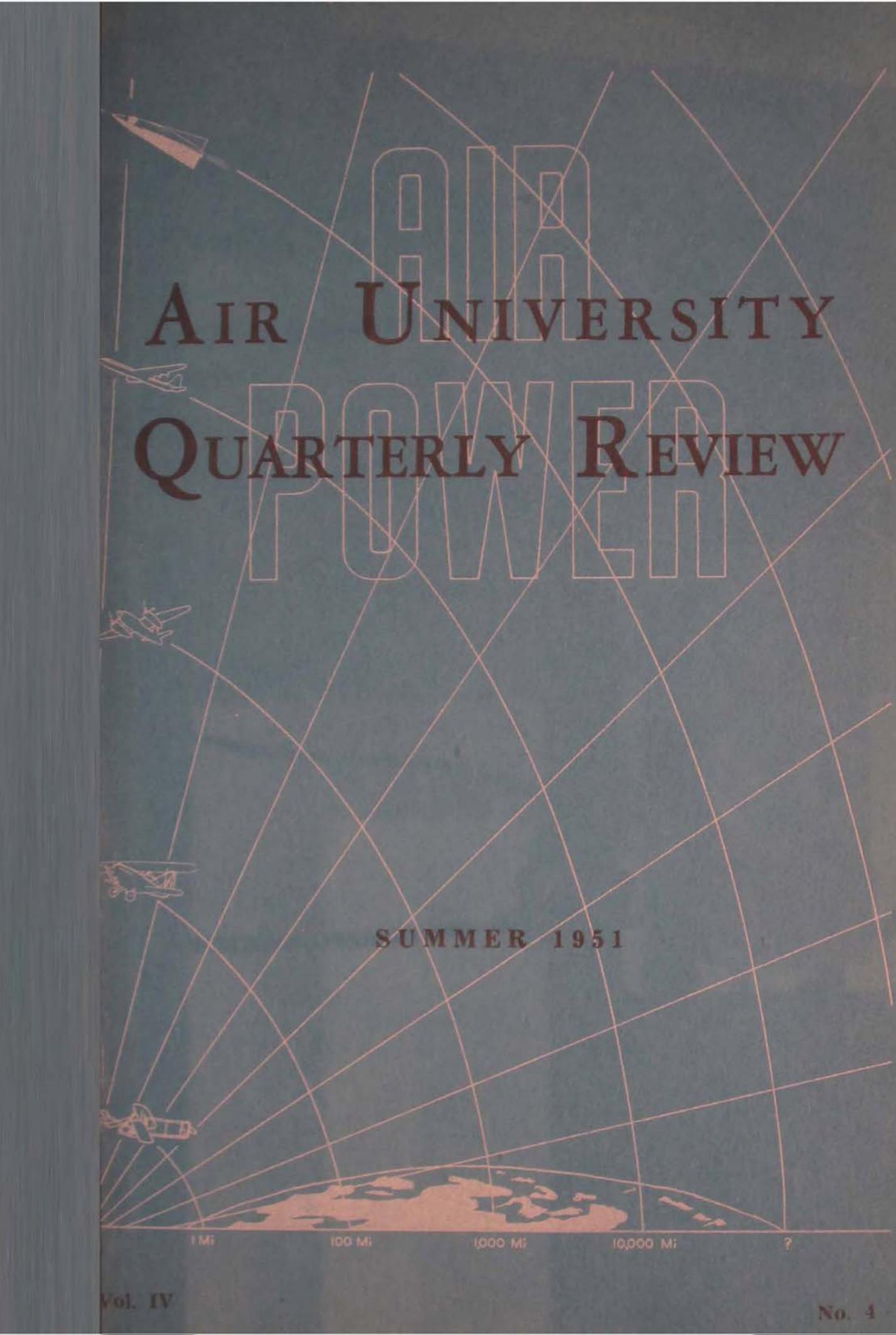
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