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KOREAN PROVING GROUND

To the extent that anything so grim as war can be, Korea has been the proving ground of United States military concepts. It was the first trial by fire for the military services unified by the National Security Act of 1947. How well the principles of that act had been carried out and how much the reorganization had affected fighting efficiency of the forces was put to the test.

To the services intent on adjusting themselves to the new organization by seeking a proper balance of force under a reduced budget, the Korean War was a serious and unexpected interruption. To services also undergoing a transition of operating forces as a result of what was learned in World War II, rapid advances in technology and the introduction of new weapons, the outbreak of war was more than an interruption; it was a rude shock. Its suddenness was a severe test of the combat readiness of all the services and its character a test of their plans. As the campaign developed, lack of opposition by naval and air forces and the offensive-defensive fluctuations of ground operations tested both the adaptability of the fighting forces and the flexibility of their tactical doctrine.

Although in these respects the Korean conflict might be called unique, certain of its aspects have some significance for the future. Should the situation never repeat, these aspects may be worthless, but in these days of international tension, a series of Koreas is not beyond possibility.

That the attack by North Korean forces and the subsequent responsibility for supporting United Nations action was neither expected nor provided for in strategic plans is quite apparent. The relatively untrained ground force, the small air force, and the puny naval force stationed in the area are proof enough. The total naval air force in the Far East on that day of 25 June 1950 consisted of two PBM's at the small Naval Air Facility, Yokosuka, Japan. One carrier, the *Valley Forge,* with Air Group 5 aboard, and one squadron of medium seaplanes were in the Philippines. The next nearest naval air force—and only a small one at that—was at Guam, 1,500 miles away. The requirements of the suddenly changed situation were indeed a test of the war readiness of naval aviation as well as its prided mobility.

Once responsibility was assigned, the arrival of units in the combat area was not long delayed. Carrier air, moving up from the Philippines, struck North Korean forces on 3 July, eight days after the outbreak of hostilities, four days after the President had directed the naval blockade of the entire Korean Peninsula. Other examples of the speed with which naval aviation forces could be brought to bear were in the making.

The *Badoeng Strait* (CVE), for example, was on 26 June at sea out of San Francisco en route Pearl Harbor. After completing her voyage she returned to San Diego, loaded, and sailed for Japan on 14 July. Delivering her cargo at Yokosuka, she launched planes of her Marine fighter squadron, VMF–323, in combat on 6 August—24 days after leaving the coast. Another CVE, the *Sicily,* was ordered to combat on 2 July, sortied San Diego on the 4th, put in at Guam for minor repairs, took aboard VMF–214 at Yokosuka, and launched them in combat on 3 August—31 days and 6,000 miles after receiving orders. The *Philippine Sea* sailed from the West Coast on 5 July and into combat on 5 August—31 days. The *Boxer,* moored at San Diego after completing a tour of duty in the Far East, sailed under emergency orders from Alameda on 14 July and returned to San Francisco on 4 August after completing the fastest Pacific crossings on record, and having delivered in Japan an urgently needed load of 145 F–51s, 1,000 airmen, and 2,000 tons of vital cargo for the U. S. Air Force. Most remarkable of all was the *Leyte.* Operating in the Mediterranean and at anchor at Beirut on 12 August, she was ordered to Korea by way of the Panama Canal. After 60 days, including 10 for repairs at Norfolk, a stop for cargo on the West Coast, and a week of replenishment in Japan, she launched her air group in combat on 10 October. In sailing almost three-quarters of the way around the globe, specifically 18,500 miles, she made an average speed of 23 knots.

Rapid Build Up.—A rapid buildup of aviation forces in Korea took place in the first three months. By October the force attained about its maximum size and although units continued to move into the area after that time, the release of others left the total force about the same. Patrol squadrons were moved forward from Guam, Pearl Harbor, and the West Coast to cover the seas around Korea and down the China

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coast past Formosa. The entire area assigned was being patrolled by the end of July.

Close air support specialists of naval aviation—the Marines—also met the test. Two squadrons aboard CVEs went into combat the first week of August. Others, organized as a basic part of Marine Corps ground forces, arrived in Korea, ready to support the operations of the First Marine Division when it went into action in the same month.

Requirements in Korea were quite different from those of the island-hopping campaign of World War II. Initially the situation was desperately critical and the margin by which disaster in the form of violent ejection from South Korea was averted was slim indeed. There was little time for a planned campaign of attrition by air. Emergency measures by all services and a heroic stand at the Pusan perimeter were necessary to stop the enemy drive. Plans for a breakout were in the making, however, and when the landing at Inchon, with a success reminiscent of World War II was carried out on 15 September, a familiar pattern of war seemed about to develop. But as it developed the pattern was different, air and naval opposition were lacking. While supremacy on the sea and in the air are necessary for the successful conduct of a land campaign and action to achieve it is now the initial stage of any campaign, in Korea it was gained by default and all the efforts of naval and air forces could be diverted to the offensive destruction of enemy forces and their capability to make battle. In effect, the naval and air forces began the war under a situation normally met at the end.

Differences.—Other conditions imposed by the United Nations' attempt to confine the battle to the peninsula, tended to limit the operations of both these forces and their method of waging attrition. Targets outside of Korea were not to be attacked and as the campaign developed and these outside areas became the main source of supply for materials, equipment, and men, this limitation was a serious handicap to the successful prosecution of the war. It was nevertheless continued and as a result air action became primarily a matter of supporting ground forces. For naval air this meant no basic change in tactics; it followed its normal pattern of action. There was a new condition, however, and that was to provide this support over a land mass which compared to World War II experience was large. The area involved was greater than all the islands together over which naval air had operated with the exception of the Philippines.

See-saw.—The see-saw action on the ground required a great flexibility of force in the variety of demands it placed on naval aviation. These ranged from the support of ground forces engaged in a holding operation to coordinated bombing attacks on the Korean half of bridges spanning the Yalu River and included attacks with aerial torpedoes on the dams of the Hwachon Reservoir. That the tactical doctrine of naval aviation and the training of the pilots and flight crews were flexible enough and adaptable to the requirements is evident. In one period fast carrier forces provided close support for hard pressed ground troops; in another they were striking deep into enemy territory, and on others they were doing both on the same day. During the year, carrier aircraft have attacked targets all over the peninsula and have launched strikes against targets on the opposite side from which the carriers were operating with regularity.

The rapidity with which the ground situation changed also was responsible for interrupting any systematic plan designed to destroy the enemy's war capabilities. One such effort made by the fast carrier force indicates what might have been achieved had similar campaigns been possible with any frequency.

During the period 25 February to 4 April, the fast carrier force devoted its principal effort to rail and highway transport lines along the east coast above the 38th parallel with attacks reaching inland to 100 miles. In spite of this primary emphasis and weather which left something to be desired, the force also gave close support to front line operations except on those days when distance to target did not allow planes sufficient time over the lines. The operating force generally consisted of two carriers, one cruiser, and from nine to 16 destroyers; an additional carrier in the area permitting two to remain available for air operations while the third refuelled.

This was one of the first ventures in systematic interdiction in depth of the vital transport routes of a major land area. The campaign was planned after extensive reconnaissance and careful study of how the most effective disruption of movement could be accomplished per sortie.

In addition to 500 defensive sorties, about 2,500 offensive sorties were flown on which 3,500 tons of bombs were dropped and 3,800 rockets and 1,500,000 rounds of aircraft ammunition were fired. The offensive sorties included over 1,200 low-level fighter and attack plane sorties on 91 bridge strikes, 27 track breaking missions, and five special strikes against tunnels.

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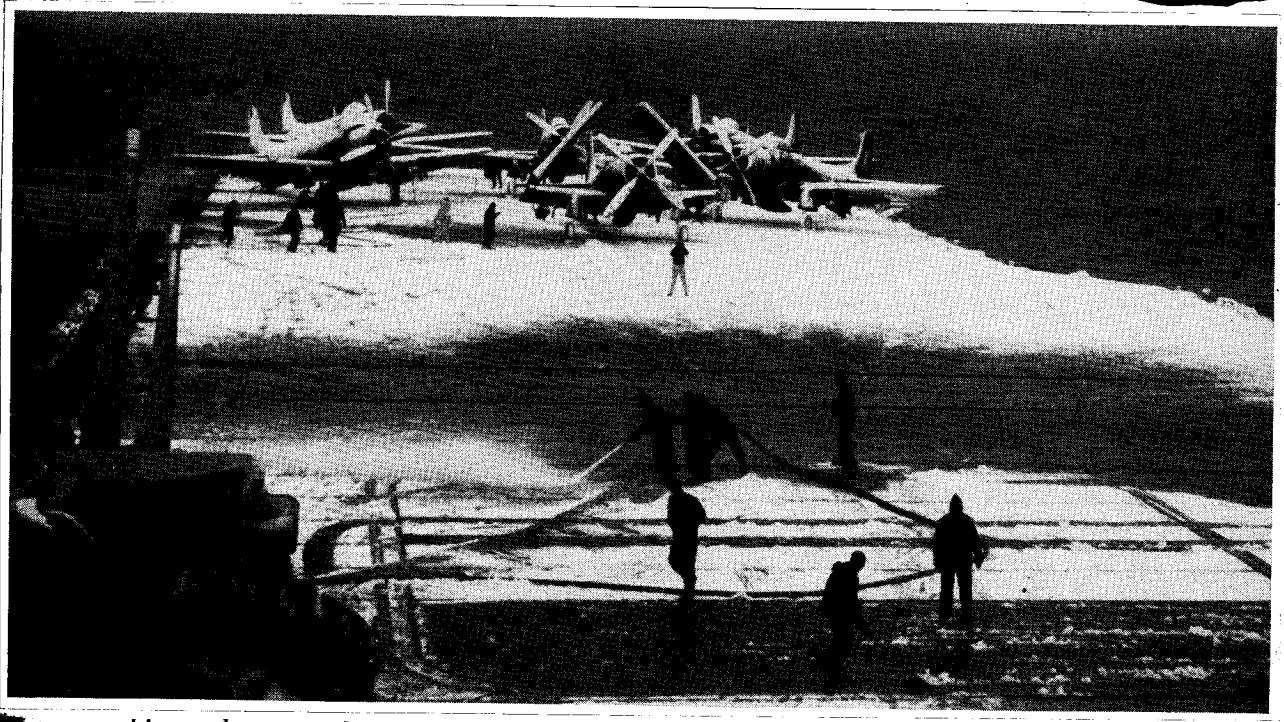

Korean cold weather proved a problem and a test for Navy men and equipment. Carriers, such as the "Leyte" shown here, found it necessary at times to keep 'round-the-clock snow and ice removal crews on duty. Jet blasts were used in some instances to remove snow and ice, but the real secret of continual air operations was "keeping ahead of the weather." Experience gained proved this problem can be handled.

Photography of the results showed 90 bridges and 14 bridge bypasses rendered inoperable, 44 bridges damaged, track broken at 240 places, 31 tunnels damaged, and 5 trains destroyed. This effort also inflicted destruction and damage on 800 buildings, 200 railroad cars, 10 tanks, 200 trucks and other vehicles, 30 supply dumps, 80 gun emplacements and troop shelters, and at least 1,500 troop casualties.

Combat Units.—Four basic types of naval aviation combat units have operated in Korea: fast carriers with jet and propeller fighters and propeller attack planes, light and escort carriers with Marine propeller fighters, shore-based Marine fighter and night fighter squadrons with jet and propeller aircraft, and patrol squadrons of twin engine sea and land types and large four engine land plane types. Each of these has performed a specific mission not always the same as that normally considered typical. The fast carrier force, supporting ground troops and striking deep into vital supply lines, has operated almost continually since August off the east coast but has on occasion moved all around the peninsula to reach an advantageous point from which to attack. Equipped and trained to overcome enemy air power and to destroy his war and merchant vessels, this force has instead worked in close support when the situation demanded and generally assisted in isolating the battle area with strikes against enemy transportation and supply facilities. The escort carriers, later joined by a light carrier, provided the base for Marine fighter squadrons expert in close air support. Operating independently from the fast carriers, these units also shifted up and down the coast matching the movement of the ground forces they were supporting.

Marine squadrons based ashore were also assigned to close air support over their own division and in addition supported other ground units operating in their assigned area. All Marine units were engaged in the work for which they had been specifically trained but, except for some World War II experience in the Philippines supporting General MacArthur and his forces, this was their first experience with an extended ground campaign on a large land mass. Patrol of the coasts of Korea and China was the responsibility of sea and land type patrol squadrons, a task for which pilots and crews were well trained. To avoid any possibility of creating an international situation, these planes were generally unarmed except for machine gun ammunition to protect themselves in case

of attack. When the amphibious operation began at Inchon and was repeated on the east coast at Wonsan, these planes were also assigned to mine search, a mission not provided for in the training program.

In terms of World War II experience, all these forces were small. For example, the well-known Task Force 58 of World War II was generally composed of three or four carrier task groups each containing three or four carriers. In Korea, it was not until October 1950 that four carriers operated together, and this was the largest carrier force during the first year of war. In that same month the number of carrier aircraft in combat was only a little more than 300 as compared to well over 900 in the force during World War II.

Operations.—A greater change was in operational command. United Nations forces, organized under a single commander, were divided into three basic commands according to the natural operating elements: land, sea, and air. The Navy being composed of units operating in all three commands was unique among the services. Naval aviation units were assigned to two. Carrier forces of all types and patrol squadrons both shore and tender based were a part of the sea command operating under Commander Naval Forces, Far East. Shore-based Marine aviation squadrons and their control and service units were assigned to the air command, operating under Commanding General, Far East Air Forces. Although such a breakdown of naval aviation forces seems logical, in operation it was not simple.

The basic policy for operational control was a matter of service agreement early in July 1950. Under it the sea command had control of its carrier aircraft whenever they were on missions assigned by Commander Naval Forces, Far East, and over its shore-based aircraft when they were on naval missions. On all other missions naval aircraft were under the control of the air command. Since shore-based Marine squadrons were a part of the United Nations Far East Air Force, such control was direct, but over carrier aircraft the control was of the coordination type. Thus the target selection, their priorities established by the joint service target analysis group, was insured and the air campaign coordinated with the objectives of general headquarters.

The direct control of the air command over Marine squadrons ashore, exercised through the U. S. Fifth Air Force, was complicated by interservice differences in tactical concept, operating procedures, and terminology. For one thing, the fundamental question of whether the air command, the ground command, or both together should decide the targets to be attacked at what time and in what strength was involved. For another, operating procedures were diametrically opposed. The Marine Corps-Navy system is based on the assumption that the ground unit is the best target selector and provides aircraft to attack at the request and under the direction of the ground unit being supported. There is no need for the ground command to request the air command for assistance since supporting units are placed at his disposal and are directed by specially trained control units operating with the troops. This was the exact opposite of the USAF concept which considers that the air commander is best fitted to decide what air attacks are to be made and what targets are to be hit. Aircraft are directed to the attack by airborne air controllers.

Such differences created problems in the early weeks of the war. Although attempts to reconcile the differences made some progress, the problem created remained and was temporarily set aside by assigning general operating areas to each of the services. In December, the First Marine Air Wing was given greater freedom when the Fifth Air Force system of assigning it daily missions was discarded by assigning the Wing the over-all mission of providing air support for the X Corps. While these measures did not solve the basic problem, they did prevent any interference with daily operations. The need for agreement on basic concepts and a standard system of operating procedure for the successful conduct of future joint or unified operations is obvious.

Tactics.—The tactics employed to support a ground advance are fundamentally the same as those used for ground defense, but a difference lies in the extent of air support required and the possibility of planning for the advance and the need to act in an emergency for the other. The major part of naval aviation offensive action was in support of ground operations either at the battle line or behind the line against enemy supply concentrations and lines of communication. In Navy and Marine Corps terminology, the first is considered close support; the latter deep support. No one naval unit in Korea dealt specifically in one or the other type of support; carrier and shore-based units were trained and equipped for both, and on occasion did both. Generally, however, Marine Corps squadrons ashore and on light and escort carriers concentrated on close support work while planes from fast carriers worked over the rear areas. In terms of coordination with

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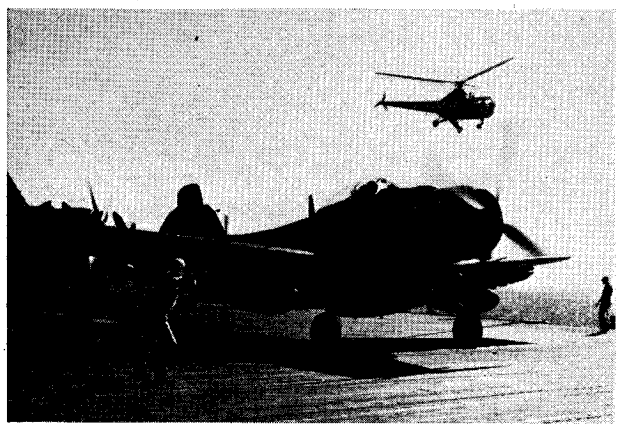


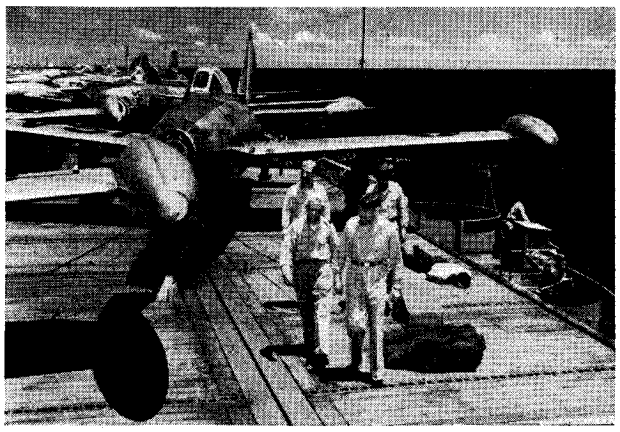
The scourge *of the Reds is the AD Skyraider which has been the Navy's favorite attacker. As welcome to the sight of UN forces as the AD is unwelcome to the Reds is the helicopter which has come of age*

ground units, close support was concerned with the immediate needs of specific ground units while deep support was concerned with the immediate and, sometimes long-range, objectives of the ground commander. For a ground advance, fast carrier aircraft cleared the way by reducing enemy strong points and defensive positions; for ground defense, they reduced enemy strength by cutting off reinforcements and supplies and by attacking enemy concentrations at the battle line. Without constant coordination with ground force aims, effort behind the lines would be of limited assistance to the ground commander.

Versatile Carrier.—The mobility of operating base exemplified by the carrier force and the versatility of its squadrons caused the force to be used freely as the situation demanded. It was not uncommon for some carrier aircraft to be supporting troops in the battle line while other planes from the same group were hitting targets one or two hundred miles behind the lines. Marine Corps squadrons also operated in this dual capacity but since they were operating from fields behind the lines, the area which they could reach was more limited than that available to carrier planes.

The advantages obtained from this mobility were never better illustrated than at Hungnam in that eventful month of December 1950. Marine close support squadrons moving forward behind the advancing United Nations line had completed a transfer of base from Wonsan to Yonpo near Hamhung without any interruption of their support activity. The move was completed on 5 December just as the ground situation was forcing withdrawal of X Corps troops from the north and northeast for their eventual evacuation at Hungnam. Before Yonpo was in full operation, its abandonment began. Marine squadrons moved out by air and ship and by 9 December a sharp reduction in the number of land-based sorties began. It was fortunate for the hard-pressed troops, at this time when air cover was more urgently needed than at any other period, that carrier air was available to provide it.

The accompanying graph of the relative effort from ship and shore bases during this period shows percent rather than actual numbers of combat sorties. It should be noted that sorties in each of the months totalled roughly 5,600, 5,700, and 4,500, respectively. It should also be noted that neither the totals nor the percentages were accomplished by forces of constant size. Without going into details, three fast carriers were present at the beginning and four at the end of the period. One of the original three was absent from 21 November to 19 December and the fourth arrived on 5 December. In the CVE force, two were present initially, one left on 16 November, two were present after 7 December, and a third—a CVL—began operations on 16 December. Of the shore-based squadrons evacuated during December, two transferred to Japan, one to Pusan, and two went aboard carriers. In spite of these force changes, the experience demonstrates quite clearly that in this situation carriers proved a more suitable base for air operations. This fact is significant and worthy of consideration—the day of carrier aviation is not past.



Magic carpet *in reverse—that's one way of describing the ferry service furnished Air Force personnel and equipment to the Korean area. CV's and CVE's, as the Sitkoh Bay above, moved swiftly to bolster small Air Force based in Far East at outbreak of war*

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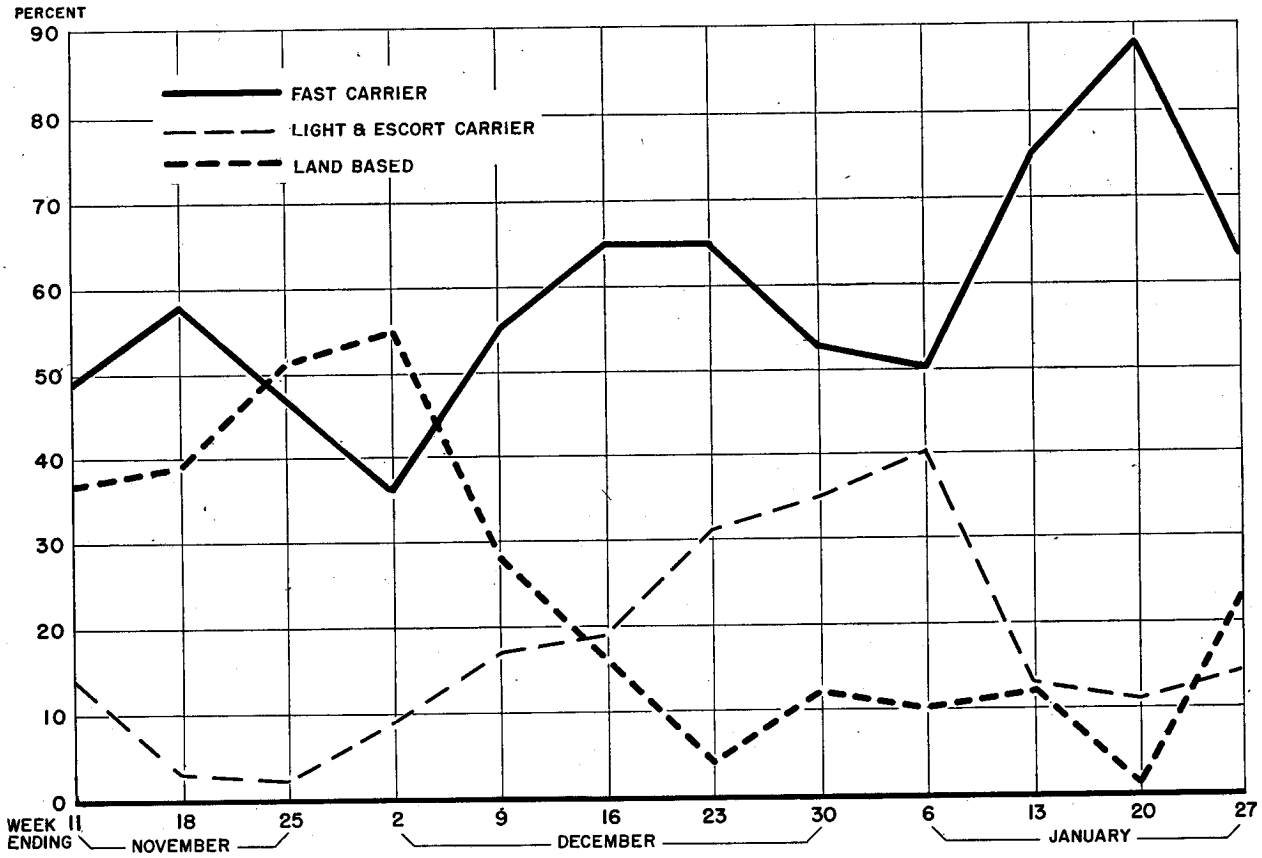
COMBAT SORTIES IN KOREA
5 Nov. 1950 – 27 Jan. 1951

PERCENTAGE OF TOTAL COMBAT SORTIES FLOWN BY U.S. NAVY AND MARINE AIRCRAFT



Night Operations.—Experience in Korea has also underscored the need for developing all-weather tactics and equipment, particularly for night operations. The interdiction of supply lines to the battle area in daylight strikes and sweeps was so successful that enemy movements were limited to the hours of darkness. During these hours, such flights as were made had happy hunting but limitations of training, lack of adequate equipment, and hazards introduced by rugged terrain all tended to hold down the number of sorties that could be flown.

Air support operations at night were also carried out only with difficulty. Two Marine night fighter squadrons and small detachments aboard the fast carriers were too small a force to meet requirements. In the early months of the war, pilots had extreme difficulty in locating targets and in many instances were unable to locate their ground control units. Many of these problems were solved by the introduction of new equipment, changes in operating procedure, and by the ingenuity of pilots and controllers, but the extent to which the enemy made use of the cover of darkness indicates the need for extensive study and development in the techniques of night operations.

Included in all-weather flight is the conduct of combat carrier operations in cold weather. This is an old problem and one which has been under constant study since the first test on the old *Langley* in the winter of 1930–31. Snow and freezing weather were encountered on several days during the winter months, but, in general, did not hamper shipboard operations any more than similar conditions interfered with air operations from land bases. The actual number of days lost was small.

Jets.—Korea has been the first combat test for our jet aircraft. The advantages of this plane over pro-

peller-driven types for various missions have not yet been established, although enough evidence is being compiled to provide a partial answer. Its well-known advantage of speed is for some tasks partially offset by its disadvantages in carrying capacity and range. Its adaptability for close support work, questioned in the early months of the war, was looked at more favorably in the latter months but further study is necessary in this field as in others.

The employment of helicopters from ship and shore was also an innovation in Korean operations. They not only performed numerous utility services but demonstrated their adaptability to assault purposes. By evacuating wounded and rescuing aviators down behind the lines, they both saved valuable lives and boosted morale. Their success in spotting mines was enough to suggest that this function become a part of their regular mission. Experience indicates, however, the need for developing more rugged craft with greater load capacity and simpler maintenance requirements.

Many lessons are to be learned from Korea. Experience with air transport, helicopters in assault, support of an extended land campaign, all weather operations, replenishment at sea, and many other phases of naval air operations, both old and new, has provided additional data for development and study. The need for new types of equipment, new means of adapting the old, new training requirements, and a realistic inter-service program for standardizing operating procedures has been indicated. These, and others, are fields for further study which cannot be overlooked in the constant push toward building a more effective Naval Aviation Force.

HELICOPTER vs. SUBMARINE

IT IS MORE than a coincidence that one of the Navy's foremost antisubmarine programs centers around the helicopter as the first truly operational rotary wing aircraft was developed to provide antisubmarine air coverage for convoys. That was not long after the first operational helicopter flight, a little more than 10 years ago.

This first machine has been the backbone of helicopter operations in the Fleet and in Korea and only now is being replaced with later designs. This fact dramatically emphasizes the relatively short time that helicopters have been under active development.

The original concept of the helicopter as an ASW aircraft employed it only as a mobile observation platform capable of operating from merchant ships. But because of its unique ability to hover motionless in respect to the surface the idea soon developed to establish contact with the surface. This provided a means for a physical link between air and water and opened the door to application of a known detection system; namely, sonar. It provided a means, for the first time, of penetrating the surface of the sea, from airborne aircraft.

As tests and development continue the helicopter-sonar combination appears more and more attractive, if one may speak of seeking out his fellow man with intent to destroy, attractive. High mobility, with resulting high search rates, no self-generated noise in the water resulting in improved probability of detection, ability to operate from a wide variety of ships appear to be among the most important aspects of this system. Invulnerability to undersea attack appears to be an outstanding advantage of the helicopter over the submarine, but if the helicopter-sonar system becomes as effective as believed possible by its champions, it is not beyond reason to expect the enemy to develop anti-helicopter submarines.

Much To Be Done.—All this is on the positive side of the ledger. Actually, a vast amount of research and development lies between the inception of such a concept and its ultimate effective application. This is just the beginning in a pursuit along this one-of-many lines of attack. Many unique problems have to be met before even a truly operational evaluation is possible.

One of the most difficult problems has been to attain satisfactory performance of the helicopter, when loaded down with electronic gear, personnel and fuel necessary for the mission. The method of employment of the helicopter-sonar system in screening requires that the helicopter hover approximately 60 percent of its flight time and spend 40 percent of its airborne time in

This article is based on a paper presented to the National Research Council by Lt. Comdr. W. G. Knapp of BuAer's Rotary Wing Branch