13. *MIG's Seek Air Superiority*

1. Red Air Forces Dwarfed FEAF

"Unless our relative air strength here is maintained equal to or better than the Chinese Communist Air Force," General Weyland stated, when the truce talks were beginning at Kaesong, "I feel that our expenditures of men and money in the Korean war have been in vain." If the armistice talks failed and the war continued, General Weyland predicted that "the success of the United Nations campaign will be determined by a struggle between the Chinese Communist Air Force and the Far East Air Forces."[1] This and other references to the "Chinese Communist Air Force" were euphemistic, for FEAF intelligence had well-substantiated evidence that powers other than China had begun to crew many of the MIG-15 fighters and probably to direct the Red side of the air war in Korea. In Mukden a "Supreme Joint Headquarters" of Chinese and North Korean forces apparently served policy-making and administrative functions for the Communist air forces, but an "Allied Joint Headquarters" at Antung exercised day-by-day control of Red air activities over North Korea. The Antung center appeared to be managed by Chinese Communist officers, but an intelligence informant reported that it was actually run by Russian advisers who were present in the control room at all times.[2] Some of the MIG's were also flown by Soviet or Soviet-satellite pilots. Such was reported by covert intelligence, and on occasion Sabre pilots saw blond Caucasians parachute from stricken MIG's. A Polish air force pilot who defected in Europe stated that many Russian flight instructors in his country had previously fought in Korea.[3]

In the spring of 1951 the men of the Far East Air Forces had fought the Chinese Communist Air Force to a standstill, but the Red Chinese air aggregation was nonetheless formidable. In June 1951 the Chinese Communists possessed a total of 1,050 combat planes, of which some 690 fighters, ground-attack, and light bombers were based in Manchuria.[4] Thwarted in their initial efforts to develop airfields within North Korea, the Chinese Reds began to construct new airfields just beyond the Yalu River in the Antung complex. The first of these new airfields were at Ta-tung-kou and Ta-ku-shan. Antung continued to be the main base, but these three airfields were soon able to support the operations of more than 300 MIG fighters.[5] Already the Red Chinese air force had been lavishly supplied with Soviet-built MIG's, and the construction of still more new airfields indicated that Red China expected to obtain still more of the jet interceptors, with which it could seek a decision in Korea.

Apprehensive about the continuing augmentation of Communist air forces in the Far East on 10 June 1951, General Weyland looked to the air defenses of Japan and requested two additional jet fighter wings to be stationed there.[6] But General Weyland's apprehension was not completely accepted either in Washington or in Tokyo. From Washington, General Nathan F. Twining, USAF vice chief of staff, explained that the USAF believed that the Sino-Soviet air force augmentation was mainly defensive. Prudence nevertheless dictated that General Weyland receive some reinforcement, and USAF looked at its resources.

Nine months earlier the 116th Fighter-Bomber Wing had been mobilized from the Air National Guard, and in early July 1951 it was preparing to deploy to Europe. With approval from the Joint Chiefs of Staff, USAF ordered the 116th Wing to proceed instead to the Far East.[7] At this point General Ridgway suggested to the Joint Chiefs that the movement of the 116th Wing to the Far East might be "ill advised," since the Reds might claim that the United States was preparing for war while discussing an armistice. In fact, Ridgway was willing to postpone the deployment until the "course armistice negotiations may take shall have become clear."[8] The Joint Chiefs nevertheless ordered the 116th Wing to deploy as scheduled and publicized its transfer as an augmentation of Japan air defense.[9] In view of earlier corrosion troubles during trans-Pacific crossings, the 116th Wing's Thunderjets received a heavy coating of cosmoline at Alameda, California. When the two escort carriers put to sea on 10 and 12 July, accompanying service crews inspected and refurbished the deck-loaded planes' waterproofing each day. Despite these precautions, nearly half of the 75 F-84's suffered either structural damage or sea-spray corrosion during the ocean crossing. Had the 116th been slated for immediate combat, such damages would have been costly, but the 116th was designed for defense and would have time to repair its planes. Arriving in Japan on 24 July, the 116th Wing and two of its squadrons took station at Misawa Air Base, while the third squadron settled at Chitose Air Base.[10]

Commitment of the 116th Fighter-Bomber Wing to the Far East only partially satisfied General Weyland, who, on 12 July 1951, was even more concerned about the Communist air order of battle than he had been only a month before. At this time General Weyland informed USAF that he needed another wing for station in Japan and two more jet fighter wings for deployment to Korea.[11] In Washington this request fell on deaf ears of USAF leaders who had no more air units to spare. Beginning in July USAF had already undertaken to replace FEAF's old F-86A aircraft with more-modern F-86E models on a one-for-one exchange which would continue for many months,[12] but USAF professed its utter inability to furnish Weyland another wing of air-superiority fighters. The only source of Sabre aircraft was the USAF Air Defense Command, which was not up to strength and which could not safely be denuded of another of its fighter-interceptor wings. "The conditions under which an additional three F-86 squadrons would be greatly needed in FEAF," stated General Vandenberg, "might well be the same conditions under which these same three F-86 squadrons could make a greater contribution to the over-all USAF mission in the air defense of the United States."[13]

What was happening in the Far East in the summer of 1951 was one more indication of the truth in the observation that in the years since World War II the United States had become fat and complacent and had dropped its guard. America's superior technology was not yet able to match the totalitarian economy of Soviet Russia in the quantity production of swept-wing air-superiority fighters. The contrast in numbers of the fighting air forces in the Far East was little short of shameful. In June 1951 Communist China possessed some 445 modern MIG-15 fighters, while FEAF possessed 89 F-86's in theater inventory, including 44 assigned to the 4th Fighter-Interceptor

Wing's two committed squadrons in Korea.[14] There was little doubt that the Reds recognized that they had a numerical superiority in swept-wing fighters, for Communist agents apprehended in South Korea as early as April had begun to display a predominant interest in air order of battle intelligence.[15] By June 1951, moreover, the Red pilots were displaying a growing familiarity with the planes they flew. Using wing tanks, the MIG pilots penetrated as far southward as Pyongyang. The Red pilots had also learned that at altitudes above 35,000 feet their MIG's possessed flight-performance advantages over the heavier Sabres.[16] When flown by experienced pilots, the MIG's were excellent aircraft. After returning from aerial combat on 8 July, Colonel Francis S. ("Gabby") Gabreski, America's leading ace who became deputy commander of the 4th Wing in June, credited the MIG-15 with "excellent performance."[17]

Evaluation of the patterns of Communist air activities clearly indicated that the Reds began to implement a new air campaign designed to establish air superiority over MIG Alley in the latter part of July 1951.[18] At first the Reds were evidently testing new tactics. Exploiting their numerical and altitude superiority, the Red airmen evaded Sabre patrols at the Yalu and then continued southward at altitudes above 35,000 feet as far as Pyongyang, where they turned back and let down to attack the fighter-bombers they sighted while en route homeward to Antung.[19] Effective on 1 June, FEAF had already placed MIG Alley off limits for all Bomber Command aircraft not accompanied by fighter escort.[20] Now the new Red tactics hazarded unescorted jet-reconnaissance planes and

Col. Francis S. Gabreski (left) and Lt. Gen. Frank F. Everest.

fighter-bombers. On 29 July and 9 August, for example, the MIG's evaded Sabre patrols and attacked lower-performance jets. In both instances the fighter-bombers evaded and escaped damage, but on the latter date four MIG's intercepted and badly damaged an RF-80.[21] In other battles fought on 18, 19, and 24 August, the Sabre patrols held firm and, despite unfavorable odds of two to one, destroyed four MIG's.[22]

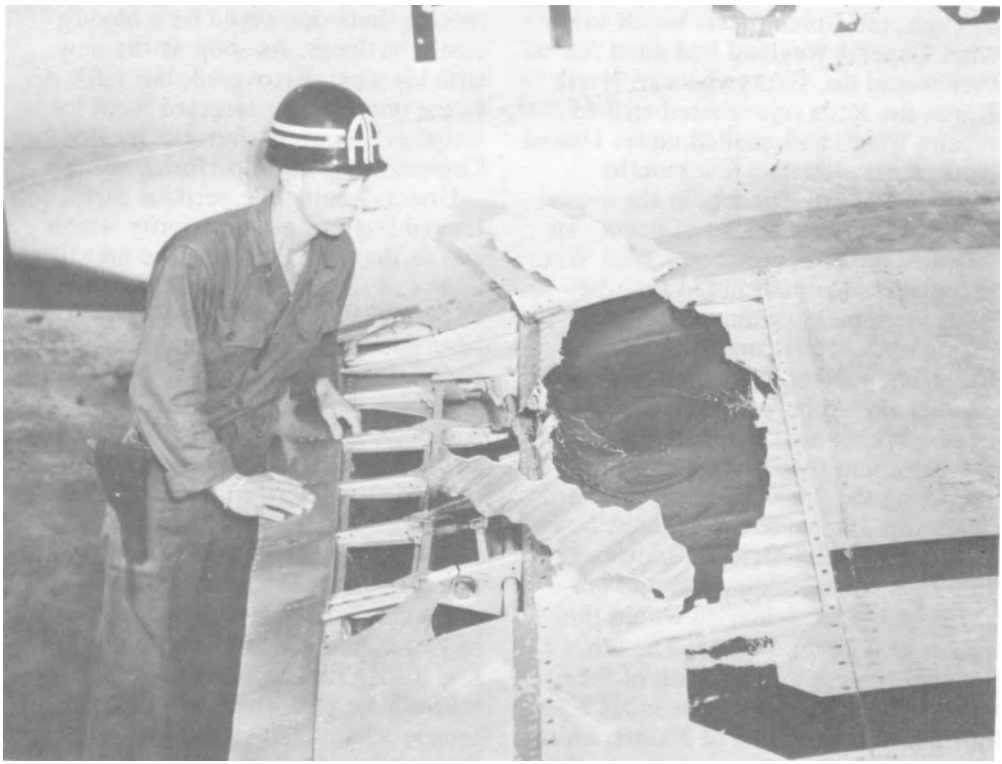
Employing what they had learned in the past two months and an order of battle which had grown to 525 MIG's, the Communist air forces launched into a bitter and all-out air campaign on 1 September 1951. Why the Reds selected this date for mounting their air offensive was easily surmised. On 23 August truce talks had broken down at Kaesong, and since 18 August FEAF fighter-bombers had been hammering North Korea's railway lines of communications.* As many as 90 MIG's now

*See Chapter 14, p. 455.

entered North Korea at one time, and with so many aircraft in the skies the Reds employed practically any formation they desired. In aerial fights on 8 and 9 September the MIG pilots showed tactics never before seen in Korea. Some MIG's attacked in trail formation, others used the lufbery circle, while in one instance four flights of MIG's flew line-abreast head-on passes in which all 16 planes blazed at a single Sabre. The latter tactic puzzled the Sabre pilots, but Colonel Gabreski, an expert on Luftwaffe tactics, recognized that the Reds were employing a technique which the Germans had used against B-17 formations in World War II.[23] All hostile air formations were tighter and better organized. One formation was particularly hard to combat. Pools of MIG's orbited at superior altitudes waiting to make passes downward at United Nations aircraft which came within range. After diving down and making firing passes, the MIG's zoomed back upstairs.[24]

During September 1951 4th Fighter-Interceptor Wing pilots sighted 1,177 MIG sorties over North Korea and engaged 911 of the MIG's in combat. Considering that they commonly fought at odds of three or four to one against them, the Sabre pilots gave good account of themselves. Shortly after noon on 2 September, for example, 22 Sabres tangled with 40 MIG's in a thirty-minute air battle which raged between Sinuiju and Pyongyang and resulted in the destruction of four MIG's. Again, on the afternoon of 9 September, 28 Sabres opposed 70 MIG's, and in this air battle Captains Richard S. Becker and Ralph D. Gibson each destroyed one of the jet fighters, thus becoming the second and third jet air aces of the Korean conflict.[25] In the course of September's all-out air battles the Sabres destroyed 14 Red MIG's, and on 19 September a 49th Group Thunderjet pilot, Captain Kenneth L. Skeen, jettisoned his bombs and shot down an intercepting MIG. In air-to-air engagements the Fifth Air Force lost three F-86's, one F-51, one F-80, and one F-84.[26] While losses to Communist interceptors were moderate, the MIG's were seriously impeding the progress of the United Nations railway interdiction campaign. On many days the MIG's evaded Sabre patrols and pounced on the fighter-bombers, who had no recourse except to jettison their bombs, to scatter, and to run for their lives.

Alarmed by the developments in Korea on 15 September, General Weyland frankly warned General Vandenberg that the Communist air force was rapidly getting out of control. The Red MIG's were hampering United Nations air-to-ground attacks as far southward as Pyongyang. General Weyland stated that FEAF had a "vital and immediate" requirement for another wing of Sabrejets. If USAF could not provide the wing, Weyland recommended that one of FEAF's F-80 wings should be converted to F-86's. "If the present trend continues," Weyland warned, "there is a definite possibility that the enemy will be able to establish bases in Korea and threaten our supremacy over the front lines."[27] In Washington General Vandenberg knew serious concern over the increasing Communist air strength in Manchuria, but his operations officer informed him that USAF could not provide FEAF with any more F-86's without seriously impairing the effectiveness of the Air Defense Command. "Our present capability of supporting one F-86 unit in FEAF is questionable," Vandenberg was told, "and the ability to support two does not exist." Aside from its inability to



Despite a ruptured fuel tank and wing laceration caused by enemy .50-caliber and 37-mm fire, this RF-80 returned safely to base.

provide and support more Sabres in combat, USAF operations felt that no number of additional fighter units could assure air superiority in Korea unless the source of the enemy's air supplies could be attacked. On the basis of this précis, General Vandenberg informed Weyland on 20 September that USAF could neither provide nor support additional Sabre squadrons in Korea.[28]

2. Communist Air Forces Come of Age

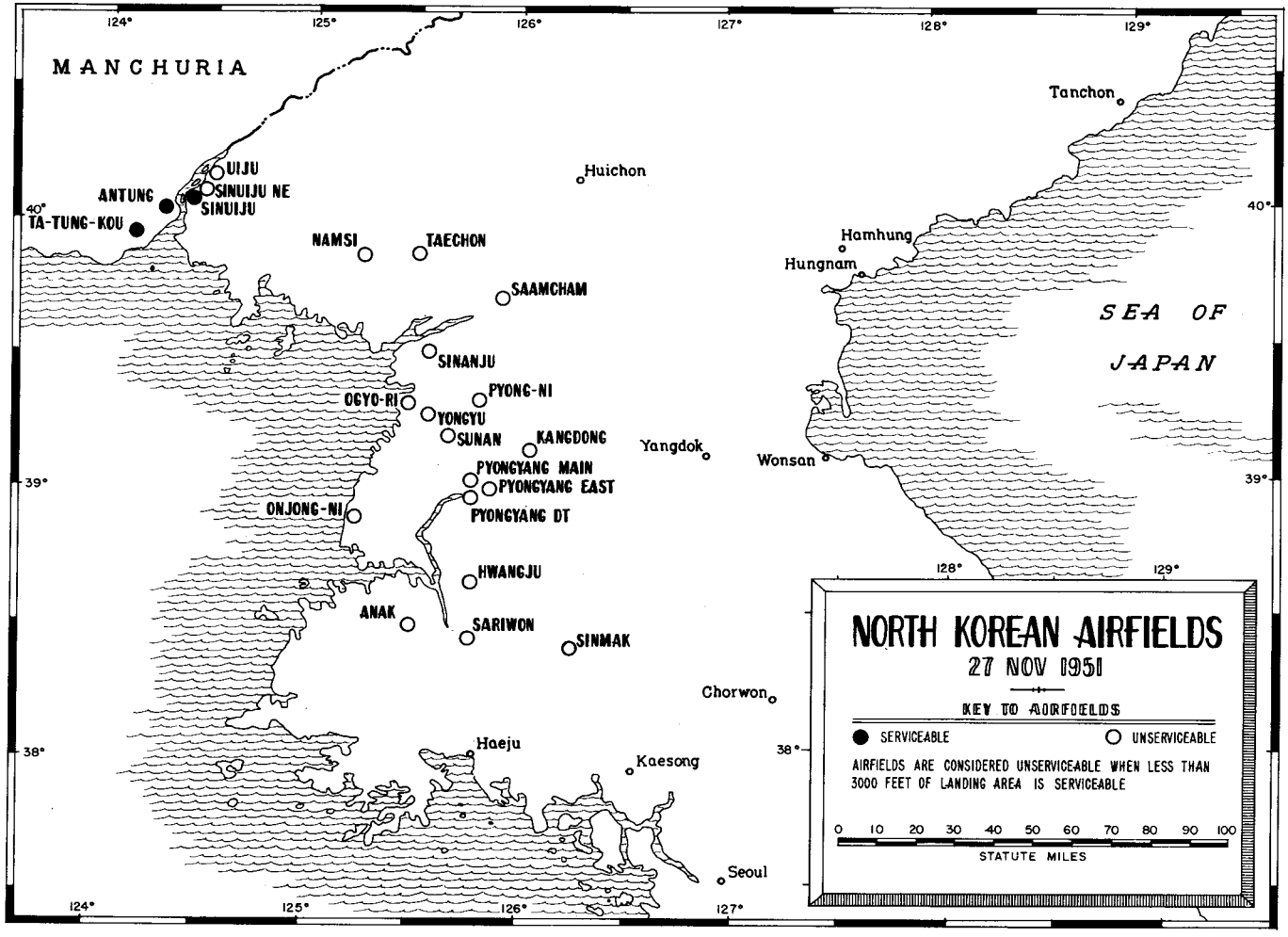
When the Fifth Air received the news that it could expect no additional air-superiority fighters, General Everest had no choice but to pull his fighter-bomber interdiction attacks back out of MIG Alley. The fighter-bombers now attacked the railway lines in the zone between Pyongyang and the Chongchon River. The change in rail-target areas narrowed the choice of rail targets, but it intensified air attacks against the middle reaches of the enemy's rail network.[29] Evidently sensing that their air forces were about to score a break-

through, the Communists began to do what General Weyland had most feared they would do. Everywhere in North Korea the Reds rejuvenated airfield repairs which had quailed under United Nations air attacks a few months before. Quite by chance, in the course of a routine surveillance of enemy air facilities on 25 September, a 67th Wing reconnaissance pilot noted that the Reds were building an entirely new major airfield just north of the Chongchon River, near the town of Saamcham. Apparently the Reds had been working here unnoticed for nearly a month, and they were already preparing the 7,000-foot strip for hard surfacing. Intensive air searches flown in the area on 14 October showed that the Reds were building not one but three jet fighter fields, all within the radius of a 20-mile circle. The other two fields were a mile south of the town of Taechon and three miles northeast of the town of Namsi. More than a thousand laborers were working at each location, and construction was proceeding rapidly, not only on runways but on aircraft revetments and other installations. Each airfield was already defended by antiaircraft guns and automatic weapons.[30]

The significance of the three MIG Alley airfields to the United Nations cause in Korea was obvious and ominous. The Reds evidently intended to fight strongly to protect their investment, for the fields were located close enough together so that one force of airborne MIG's could easily defend any one of them. If the Reds managed to complete the airfields and deploy MIG's to them, they could extend the no-man's air of MIG Alley all the way south to Pyongyang. And if MIG's were dispersed within the revetments being built at the airfields in the Saamcham-Taechon-Namsi triangle, rooting them out would be a bloody, costly business. As soon as the new airfields were discovered, the Fifth Air Force immediately targeted them for visual or electronics attacks by Bomber Command's B-29 Superfortresses.[31]

Understanding the perilous threat to United Nations air superiority which was in the making during the first three weeks of October 1951, the Sabre pilots of the 4th Fighter-Interceptor Wing intensified their patrols and fought some of the greatest air battles of history over northwestern Korea. Although the odds against them steadily increased, the Sabres destroyed two MIG's on 1 October, six MIG's on 2 October, one MIG on 5 October, one MIG on 12 October, and nine MIG's on 16 October. The latter day's combat score was the biggest yet in Korea, and General Weyland messaged FEAF's admiration for the magnificent performance.[32] Operating mostly against rail targets between Pyongyang and Sinuiju or eastward of MIG Alley on the railroad to Kunu-ri, Fifth Air Force fighter-bombers were generally but not always free from MIG attack. On 3 October, for example, 12 F-80's of the 8th Fighter-Bomber Wing, led by Colonel James B. Tipton, responded to a call for help from another fighter-bomber formation received while they were en route homeward from a rail-cutting strike north of Kunu-ri. The old Shooting Stars evidently caught the MIG's by surprise and were able to claim two of the Red interceptors as probably destroyed.[33]

As the Sabres battled to bring the MIG's under control, Brig. Gen. Joe W. Kelly, who had taken command of the FEAF Bomber Command on 30 September 1951, was studying the knotty problem of how best his old Superforts would be able to neutralize


MANCHURIA
SEA OF JAPAN
124°
125°
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127°
128°
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UIJU
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NAMSI
TAECHON
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SINANJU
PYONG-NI
OGYO-RI
YONGYU
SUNAN
KANGDONG
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HWANGJU
ANAK
SARIWON
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Hungnam
Hamhung
Tanchon
NORTH KOREAN AIRFIELDS
27 NOV 1951
KEY TO AIRFIELDS
SERVICEABLE
UNSERVICEABLE
AIRFIELDS ARE CONSIDERED UNSERVICEABLE WHEN LESS THAN 3000 FEET OF LANDING AREA IS SERVICEABLE
0 10 20 30 40 50 60 70 80 90 100
STATUTE MILES

(left to right) Brig. Gen. Joe Kelly, commanding general, FEAF Bomber Command, Gen. Hoyt S. Vandenberg, Col. William H. Hanson, 307th Bomb Wing commander, and Col. Adam K. Brackenridge, 19th Bomb Group commander.

airfield construction at Saamcham, Namsi, and Taechon. The problem concerned probabilities as well as capabilities. Not for several months had MIG's bothered the Superfortresses, but the Reds would most probably react with all their strength to protect the Chongchon airfields, which were nearer to Antung than most targets the B-29's had been attacking. As for capabilities Bomber Command had been flying some 16 combat sorties a day, comprising three flights of three aircraft against airfields or two flights of four aircraft against bridge targets, plus three aircraft for MPQ ground support, one aircraft for evaluation of APN-60 radar beacons, one aircraft for the distribution of psychological warfare leaflets, and two aircraft for shoran-directed bombing attacks against hostile marshaling yards at night.[34] The shoran-bombing capability, which paired two AN/APN-2 radar ground beacon stations of the 1st Shoran Beacon Unit with an AN/APN-3 transceiver in an aircraft, was relatively new to Bomber Command. The 1st Shoran Beacon Unit belonged to the Fifth Air Force, which had obtained it in order to guide its night-flying B-26's and RB-26's. In the autumn of 1950 the shoran beacon unit had proven ineffective, but by February 1951 the organization had again deployed to Korea and was working successfully with B-26 crews. Observing these favorable results and anticipating that summer cloud cover wold hamper its daytime bombing effort, Bomber Command had equipped a 98th Wing plane with airborne shoran

B-29 of the 19th Bomb Wing.

components and had flown an experimental shoran-bombing mission on 1 June. When the tests were successful, each medium-bomber wing equipped a couple of B-29's with APN-3 transceivers. In bad weather these shoran bombers frequently served as lead ships for daytime formation attacks, and, beginning in August Bomber Command customarily dispatched two B-29's each night to attack enemy marshaling yards with shoran-bombing techniques. Studying shoran-bombing results between 1 June and 30 September, operations analysts figured the average shoran circular probable error* to be 485 feet.[35] Although its reliability and accuracy were good, the shoran system demanded extremely accurate mapping data. Moreover, each aircraft employing shoran had to be equipped with the airborne system components. In a first venture against Saamcham Airfield, made by two 30th Wing B-29's on 13 October, Bomber Command employed a night shoran attack, and on following nights single shoran-bombing B-29's continued the Saamcham attack.[36] This means of attack, however, was progressing too slowly. Of 278 bombs dropped on the night of 13 October, for example, only 24 cratered the extreme northeast end of Saamcham's runway.[37]

Desiring to speed the airfield neutralization, General Kelly knew no alterna-

*Circular error probable (CEP) is the probable bombing error, expressed in terms of the radius of a circle centered on the desired mean point of impact of a bomb fall and containing half of the expected bomb fall, excluding gross errors.

tive but to lay on formation attacks by daylight, shoran runs of three flights of three aircraft with visual bombing assists as practicable. The bombers would take advantage of the Sabre screen and would be given heavy fighter escort. These mission planning factors seriously limited operational flexibility. To take advantage of the Sabre screen, the Superforts would have to schedule their strikes between first light for bombing and 1000 hours, or else in the afternoon between 1500 hours and last light for bombing. In order to attain maximum effectiveness, the 4th Wing had to have five hours turnaround time for its Sabre screen. Only four shoran arcs or approaches were available to any target, and flak considerations and the lower limits at which shoran beams could be received dictated the bombing altitudes which would have to be used. Northwestern Korea was too small a geographic area to permit the Superforts to employ diversionary tactics.[38]

Although the missions were fraught with potential hazard, Bomber Command sent nine B-29's of the 19th Group to bomb Saamcham and scheduled nine B-29's of the 98th Wing to attack Taechon on 18 October. The 98th Wing formations missed their rendezvous with fighter escort and diverted to a secondary target, but the 19th Group's Superforts plowed ahead to Saamcham where they placed 306 x 100-pound bombs on the runway. The attack evidently surprised the Reds, for no MIG's showed up to challenge the bombers.[39] On 21 October the 98th Wing again attempted to attack Taechon but again diverted when its bombers failed to meet friendly fighters. Picking up 24 escorting Thunderjets as scheduled, nine 19th Group B-29's successfully bombed Taechon on the afternoon of 22 October. Shortly after bombs-away the Thunderjets were drawn off by some 40 MIG's. Within a moment three other MIG's dropped down out of a cloud bank and attacked so suddenly that the B-29 gunners were too startled to return the fire. Already crippled by flak hits, one Superfort was further damaged by the MIG's. The crew managed to hold the stricken bomber aloft long enough to reach the Korean coast, where all members parachuted and were subsequently rescued.[40] The Red jets had scored a kill, but the interception did not seem to have been planned in advance.

But the morning of 23 October found the Communist air force obviously briefed and prepared to engage the medium bombers in what would be one of the most savage and bloody air battles of the Korean war. South of the Yalu some hundred MIG's engaged and boxed in the 34 Sabres of the screening force. The Sabres dropped two MIG's, but the American swept-wing pilots were effectively out of action for the combat taking place to the south.[41] On this morning three flights comprising eight Superforts (one had aborted) of the 307th Bombardment Wing made rendezvous with 55 Thunderjets of the 49th and 136th Wings and headed for Namsi Airfield. As the leading "Charlie" flight turned on course to the target, some 50 MIG's circled the formation like Indians around a covered-wagon train. When the Thunderjets would not let themselves be decoyed away, the MIG's bored in with determined attacks. Red jets raked the lead ship of "Charlie" flight, but Captain Thomas L. Shields nevertheless held his burning bomber on course long enough to drop his bombs, thus fulfilling his duties as a leader. Between their initial point and the target all of the ships in "Charlie" flight were under attack, and as the bombers dropped

their loads and broke left, some confusion on the part of escorting Thunderjets left them inadequately protected. Actually, however, the Thunderjets were so badly outclassed that they could not offer too much protection. Most of the attacking MIG's flew normal pursuit curves, but some of them dived downward through the bomber formation so as to deny the Thunderjet pilots or the Superfortress gunners much opportunity to fire. One flight of MIG's came straight up under the B-29's with all guns blazing. In the lead flight, Captain Shields coaxed his bomber back to the coast, where his crew bailed out, but Shields did not get free from the stricken ship in time to save his own life. While rallying to the left after bombs-away, "Able" and "Baker" flights each lost a bomber to the MIG's. In twenty minutes it was all over. Superfortress gunners claimed three MIG's destroyed, and Thunderjet pilots also claimed a MIG as shot down. All but one of the bombers which survived the attacks received major damage, and most of them had dead and wounded men aboard when they made emergency landings in Korea and Japan. One F-84 was also lost in the air battle.[42] Describing the holocaust in its mission report, the 307th Wing praised the efforts of the Thunderjets, but it wryly observed that nothing less than 150 F-86's would have been an adequate escort for the bombers.[43]

On the day following the bloody battle over Namsi, General Kelly sent eight B-29's of the 98th Wing to attack a bypass railway bridge at Sunchon, a target south of MIG Alley. Despite the escort provided by 16 RAAF Meteors and ten F-84's, the Superfortress formation was systematically attacked by some 40 to 70 MIG's, some of whom pursued the medium bombers almost all the way to Wonsan. In the running fight B-29 gunners claimed a MIG destroyed, but one of the B-29's went down in Wonsan harbor, where eight crewmen were rescued. For two days after 24 October General Weyland canceled all main effort daylight B-29 attacks while operations officers assessed the situation. On 27 October, however, Bomber Command sent eight 19th Group B-29's to attack a railway bypass bridge at Sinanju. Since the Sabre pilots had reported that the MIG's would not fight over water, the 19th Group routed its bombers to remain over the Yellow Sea as long as possible. But in the short time while the bombers turned inland to the Sinanju bridge, some 95 MIG's overwhelmed the 16 Meteors and 32 Thunderjets flying escort. Superfort crews did not think that the MIG pilots were particularly aggressive, and they claimed three of the Red jets destroyed in a ten-minute fight. One Superfort was severely damaged, and three other planes received lesser damages. In the swan song of Superfortress daytime operations over Korea the 98th Wing sent eight B-29's to bomb a bypass bridge at Songchon on 28 October. MIG's were aloft in the area, but the B-29's met no hostile interceptions.[44]

All through the month of October 1951 the Communist air forces were operating at high tide over North Korea. United Nations air superiority was in jeopardy. During the month United Nations pilots had sighted 2,573 airborne MIG's, and 2,166 of these MIG sorties had been willing to engage in combat with United Nations aircraft. According to evaluated combat claims, 32 MIG's were destroyed—24 by Sabres, 7 by B-29 gunners, and 1 by a Thunderjet—but FEAF had lost seven Sabres, five B-29's, two F-84's, and one RF-80 in aerial combat.[45] The old

Superforts of Bomber Command had taken their worst losses of the Korean war. Up until October Bomber Command had lost only six aircraft in combat, yet in one week at the end of this month Bomber Command lost five planes to flak or fighters and suffered major damages to eight other planes. In the week 55 B-29 crewmen were dead or missing and 12 others had been wounded.[46] Many pessimists were saying that the old Superforts were through in Korea. Made bold by their success, the Communists moved aircraft across the Yalu to Sinuiju and Uiju airfields. For the first time some 26 MIG's were dispersed at Uiju, and some 64 conventional aircraft were now parked at Sinuiju. So far, moreover, the FEAF attacks had not neutralized the new airfields at Saamcham, Namsi, and Taechon. Thousands of laborers were rapidly refilling such bomb craters as had been made and were building other facilities.[47] After a flying trip to the Far East, General Vandenberg returned to Washington with a gloomy report. "Almost overnight," he told the press, "Communist China has become one of the major air powers of the world."[48]

3. Sabres and Superforts Battle the Communist Air Threat

With the beginning of winter in 1951 the growing Communist air order of battle in Manchuria and China forced the United Nations to make some recalculations of its emergency plans. Movement of a new Chinese air regiment to Ta-ku-shan brought the aircraft complement at the Antung bases to 290 MIG-15 fighters. Other MIG's based at such rearward bases as Anshan, Liaoyang, and Mukden swelled the number of airborne sorties counted over northwestern Korea by staging forward through Antung.[49] In the skies over North Korea Sabre pilots began to encounter large numbers of new and improved MIG's. These planes would prove to be of a type designated as the MIG-15 BIS ("BIS" meant "encore")—aircraft powered by a more-powerful 6,000-pound-thrust VK-1 engine, designed by Russia's Vladimir Klimov.[50] Employing their superior numbers of aircraft at a respectable operations rate, the Communists sent 2,326 observed sorties over North Korea in November and 3,997 observed sorties in December 1951. On 3 and 8 December flights of high-flying MIG's were sighted south of Seoul.[51]

The growing Communist air capabilities gravely concerned Air Force leaders in Washington and Tokyo. "In my opinion," stated General Weyland on 2 December, "the main reason the enemy has not yet attacked in force from north of the Yalu is that he operates under restrictive directives to reduce the likelihood of retaliation." In view of the growing Red air order of battle, general Weyland had to credit the enemy with a "capability of eventually attacking our forces." Up until now United States policy had assumed that the United Nations air forces would be allowed to retaliate against China's Manchurian air bases if the Red air forces attacked South Korean installations. Now, however, Weyland warned that FEAF was certainly not strong enough to attack

all major airfields in Manchuria and China. In the event of expanded air hostilities FEAF would expect to attack only those Red airfields offering direct and positive threats to United Nations forces.[52] In Washington General Vandenberg's planners advised him that the old proposals of "hot pursuit" had been overtaken by events. In case of Communist air attacks from north of the Yalu, the USAF planners recommended that FEAF should be cleared to obliterate the Antung bases. This course of action was accepted by the Joint Chiefs and approved by the National Security Council in December 1951.[53] Pending overt Communist air attacks made against United Nations installations from the Antung bases, or a change in United Nations policies accompanied by a marked augmentation of FEAF, General Weyland knew no course of action except to continue to battle the Red jets over North Korea and to give the highest priority to the neutralization of airfields in North Korea which could support Red jet air operations against United Nations installations.[54]

Following the Communist air victories over Bomber Command's Superfortresses in late October, USAF no longer questioned whether it could provide FEAF with more air-superiority Sabres but instead figured how soon these planes could be delivered in the Far East. News of the blood bath over Namsi overtook USAF planning looking toward the conversion of a Fifth Air Force F-80 wing to Sabres sometime in the late spring of 1952, and on 22 October General Vandenberg ordered the Air Defense Command to dispatch 75 F-86's with pilots and crew chiefs immediately to Alameda, California, for a deck-loaded, escort-carrier ocean voyage to Japan.[55] General Weyland readily agreed to return equal numbers of F-80 pilots and crew chiefs to the Air Defense Command, but in accordance with General Everest's wishes Weyland proposed to use the 75 Sabres to equip the two-squadron 51st Fighter-Interceptor Wing. Staff officers at USAF were inclined to argue about this action, for General Weyland had earlier proposed to take three F-80 squadrons out of action by equipping them with Sabres, thus lowering demands for scarce Shooting Star replacements as well as increasing air-superiority potentials. In a conference with General Weyland in Tokyo, however, General Vandenberg agreed to the Everest plan.[56]

Shipment of deck-loaded aircraft to Japan through angry winter seas involved a calculated risk, for green water could be expected to spray across the decks of the escort carriers. At Alameda, however, the Sabres were given the best waterproofing possible in the time available, and the *Cape Esperance* and the *Sitkoh Bay* departed for Japan on 1 and 9 November.[57] While the new Sabres were en route to the Far East, General Everest decided to concentrate the whole of the 4th Fighter-Interceptor Group in Korea. Because of shortages of operating facilities at Kimpo Airfield and of logistical support for F-86 aircraft, the 4th Wing had kept one fighter squadron in rotation at Johnson Air Base in Japan. On 2 November the 335th Squadron joined the group at Kimpo. At first the commitment of the three squadrons to combat did not markedly increase the 4th Group's capabilities, for the 335th Squadron merely shared the planes already held by the other two squadrons in Korea.[58]

As the Fifth Air Force awaited Sabre reinforcements, Colonel Harrison R. Thyng's 4th Fighter-Interceptor Wing

was hard pressed to handle the many Communist MIG's which appeared over North Korea almost every day in November. After long experimentation, the Communists had begun to exploit a fully-developed "pincer-and-envelopment" technique. Coordinated "trains" of 60 to 80 MIG's crossed the Yalu over Antung and over the Sui-ho reservoir at altitudes above 35,000 feet. Both the "west coast train" and the "central train" dropped off flights or small sections to engage the Sabre patrols, but the main bodies traveled on southward to converge over Pyongyang and begin a return trip to the Yalu. While en route homeward a part of the MIG's dropped down to 15,000-foot altitudes to attack United Nations fighter-bombers, homeward-bound Sabres, or straggler aircraft. To cover the mass withdrawal of Red planes, a fresh section of MIG's usually penetrated at least as far south as Sinanju.[59] The Red "pincer-and-envelopment" tactics were formidable, but many of the pilots who flew in the "trains" were evidently untrained and quite unwilling to engage in combat. In fact, only about half of the Red air sorties sighted over Korea in November engaged in combat.[60]

Because of their superior numbers, the Communist MIG's possessed the initiative everywhere north of Pyongyang during November, and all United Nations pilots could do little more than to counter such actions as the Red airmen initiated. The 4th Wing Sabre patrols could not prevent MIG's from entering Korea, but the 4th Wing made efforts to devise tactical changes which would work against the "trains." In the summer of 1951 the 4th Wing had experimented with six-ship flights, but with the appearance of larger numbers of MIG's the wing dropped the larger flights as too unhandy in aerial combat. The MIG's, moreover, now understood their climbing advantages and almost never tried the old tactic whereby flights split up into elements, one of which dived and the other climbed when jumped by Sabres. Once again the Sabres employed jet-stream patrol formations of fluid-four flights staggered to arrive in patrol areas either at separate intervals or different altitudes generally ranging downward from 35,000 feet. Because of limited visual acuity at high altitudes, which restricted the number of planes one air commander could control, the 4th Wing usually employed not more than 32 Sabres on a patrol, and these usually flew in two 16-ship supporting sections.[61] Although customarily escorted by 12 to 16 F-86's, 15th Tactical Reconnaissance Squadron RF-80's were bounced by MIG's 11 times during November. Some photo missions had to be flown five or six times in order to procure requisite photographic coverage.[62] Fighter-bomber pilots got accustomed to MIG interceptions, especially on missions north of Pyongyang. Some pilots noted that the MIG's were more of a psychological threat than anything else, since on numerous occasions the Red airmen appeared content if they could make the fighters jettison their bombs. On occasion, however, both adversaries drew blood. On 9 November 80th Fighter-Bomber Squadron F-80's tangled with three times their number of MIG's south of Kunu-ri and handled themselves well enough to shoot down two of the Reds. On the other hand, the MIG's downed one F-80 and three F-84's during the month.[63]

On a few days of profitable aerial combat in November, the 4th Wing's Sabres downed a total of 14 MIG's, but the more spectacular Sabre achievements represented far from routine

combat. On 18 November, while on a regular sweep to the Yalu, one Sabre flight spotted 12 MIG's parked at the south end of the runway at Uiju Airfield. While their two comrades covered, Captain Kenneth D. Chandler and Lt. Dayton W. Ragland made a large circle downward and swept in ten feet high down Uiju's runway. In the strafing pass, Captain Chandler triggered off bursts which destroyed four of the Red planes and damaged several others.* Heading southward on the deck, the two Sabre pilots escaped without harm.[64] In a major air action on 27 November 4th Group pilots shot down four MIG's. Maj. Richard D. Creighton scored one of the victories and became the fourth jet ace of the Korean war.[65] But the big day for the Sabres was 30 November. Since early in the month Communist landing parties had been battling South Korean troops for control of offshore islands in the Yellow Sea, and on 6 November a force of twin-engine TU-2 conventional light bombers had successfully attacked Taehwa-do.[66] Late on the afternoon of 30 November 31 Sabres led by Colonel Benjamin S. Preston, the 4th Group's commander, sighted a force of 12 TU-2 bombers, escorted by 16 LA-9 fighters, and covered by 16 MIG's, heading for Taehwa-do. Fighting in elements of two in a battle which raged all over the sky, the Sabres slaughtered eight of the TU-2 bombers, three LA-9 fighters, and one MIG-15. Major George A. Davis, who had already begun to make his mark in Korea, shot down three TU-2's and the single MIG to become the fifth jet ace of the Korean conflict. Major Winton W. Marshall destroyed one TU-2 and one LA-9 and was recognized as the sixth jet ace. General Weyland called this mission "highly gratifying" and believed that it might "teach the Commie a lesson."[67]

While the 4th Wing was holding the line, the 51st Fighter-Interceptor Wing had been preparing to convert its two squadrons to Sabres. In preparation for the change, Colonel Gabreski took command of the 51st Wing at Suwon on 6 November. Lt. Col. George L. Jones, another 4th Wing veteran, took command of the 51st Group. On 19 November the 51st Wing transferred its F-80's to the 8th Fighter-Bomber Wing, and after a short period of transition with its new planes, the 51st Wing flew its first Sabre combat missions on 1 December.[68] Effective with the receipt of the additional Sabres, FEAF possessed 165 F-86 aircraft in December. Since some of the additional planes were assigned to the 4th Wing, FEAF could count a total of 127 Sabres committed to battle in Korea.[69] The additional planes proved worthwhile, for early in December the Communist pilots continued to display the same aggressive streak which had shown itself late in November. On 1 December, for example, more than 40 MIG's launched vicious attacks against 14 Australian Meteor jets. The RAAF pilots destroyed two MIG's but lost three of their number to the enemy. In almost daily attacks during the next several days the MIG's destroyed two F-80's and an F-84. To achieve these victories, however, the Red aircraft had to come down to lower altitudes where they furnished a mark to the Sabres. On 2 and 4 December the Sabres scored five victories on each day, and the neophyte pilots of the 51st Wing

*In aerial combat on 13 December 1951 Captain Chandler destroyed another MIG-15. In terms of numbers, Captain Chandler could have been recognized as an "ace," but FEAF counted only aerial destructions as the criteria for recognition as an "ace."

accounted for one of the kills on both days. The big victory came on 13 December, and it belonged to the 4th Wing. In morning and afternoon sweeps over Sinanju, the 4th Wing met 145 MIG's and destroyed 13 of them. The indefatigable Major George A. Davis, commander of the 334th Squadron, had chalked up two additional victories on 5 December, and he claimed four of the Red kills on 13 December. General Vandenberg cabled his congratulations to the 4th Wing and especially to Major Davis for the fine day's work.[70] After this smashing victory the Reds still appeared over Korea in great numbers, but they flew high and had little inclination to fight. On 14 December the 4th Wing achieved a single victory, and on 15 and 28 December 51st Wing pilots destroyed two MIG's but these were the only combat results in the latter half of December 1951.[71]

Magnificent though it was, the Sabre victory represented only a part of the story of United Nations air superiority in Korea during the early winter months of 1951. In these months Bomber Command's old Superfortresses had made an amazing comeback. At a commander's conference held at Itazuke Air Base on 28 October Fifth Air Force and Bomber Command officers had agreed that virtually no amount of fighter escort could keep MIG's off the medium bombers. The straight-wing Meteors and Thunderjets, when attempting to escort the B-29's at bombing altitudes above 20,000 feet, had to operate so close to their mach limits that they could not maneuver to fend off attacking MIG's without losing control. The only real defense for the B-29's was an impenetrable Sabre screen, but the Fifth Air Force did not have enough F-86's to fly such a screen.[72] Facing up to the problem, General Kelly came through with a somewhat remarkable proposal. Bomber Command would operate only at night. Using its immediate capabilities, Bomber Command would fly each night five to seven individual shoran sorties, three to four MPQ-2 ground-support sorties, two leaflet-dropping sorties, one APN-60 beacon-evaluation sortie, and one MSQ-1 ground radar-evaluation sortie, together with reconnaissance effort based on weather and requirements. As soon as possible, General Kelly wanted to develop shoran bombing as Bomber Command's principal attack capability.[73]

When General Weyland had approved the proposal, Bomber Command commenced to build up its shoran capabilities. The Fifth Air Force obligingly surrendered most of its shoran transceivers, and, with the assistance of Far East Air Materiel Command technicians, Bomber Command undertook to install the shoran equipment in each of its standard bombardment aircraft.[74] Safe in the dark from MIG interceptors, B-29 crews launched intensive shoran bombing attacks against Saamcham, Taechon, Namsi, and Uiju airfields on 4 November. Begun by a few planes, the attacks swelled in volume as more medium bombers got their shoran equipment. In November 26 B-29 sorties dropped 170 tons of bombs at Namsi, 23 sorties dropped 160 tons at Taechon, 12 sorties dropped 85 tons at Saamcham, and 12 sorties dropped 80 tons at Uiju. Flying singly along the shoran arcs, the medium bombers employed the cratering effect of 100- and 500-pound bombs against the runways at Namsi, Taechon, and Saamcham. At Uiju the night-flying bombers blanketed dispersal areas with air-bursting 500-pound bombs in an effort to destroy the MIG's based there.[75]

Saamchan airfield after the "B-29 treatment."

As the bomb tonnages indicated, Bomber Command's shoran bombing was not too accurate at first. Most medium-bomber crews had never before employed shoran, and they had to get their training in combat. Because of the exigencies of the situation, Bomber Command could give its crews only eight practice drops before putting them on combat missions, whereas a crew needed as many as 35 practice drops before it became really proficient in shoran bombing. Almost immediately Bomber Command was impressed with another shoran problem which was caused by inaccurate maps. The airfields at Namsi, Taechon, and Saamcham were not exactly where existing maps showed them to be. As a result of both factors the shoran-bombing circular probable error against the three airfields was 1,220 feet.[76] The large error factor required additional tons of bombs, but the medium bombers nevertheless scored damages at Namsi, Taechon, and Saamcham faster than Red laborers could effect repairs. By the end of November the bombing effort had progressed so well that the medium bombers could return to attacks against transportation objectives. Of all the Communist airfields in Korea, only those at Sinuiju and Uiju could be counted as operational.[77]

By guise and by guile the Communists attempted to counter the night-flying bomber attacks. Evidently hoping to confuse the B-29 crews, the Reds

piled circular rings of dirt on the runways at their MIG Alley airfields to simulate bomb craters. A sharp-eyed FEAF photo interpreter almost immediately noted that the dummy bomb craters were not the right size, and low-level reconnaissance verified that the craters were piles of loose earth, banked up on unharmed sections of the runways. Especially along the Yalu, the Reds threw up increasingly large amounts of flak. On the evening of 8 November Red ground fire scored against a B-29 which was flying a leaflet mission—or "paper route," as the crews called these missions—along the Yalu. The bomber limped to the coast, where the crew parachuted to safety. At Namsi, Taechon, and Saamcham the Reds soon gauged the shoran arc approaches and sited heavy guns along these corridors, but only five B-29's sustained battle damage. Only at the Yalu were the Reds able to effect a semblance of organized defense against night air attack. Uiju Airfield, for example, was defended by radar-controlled flak, more than 50 searchlights, and by fighter aircraft. Over this target on the night of 4 December searchlights coned a B-29 while two MIG's attacked and damaged it. On the night of 23 December, when the B-29's returned to Uiju, they employed several shoran arcs, staggered attack times and altitudes, and, before the B-29's arrived, a cooperating 3d Wing B-26, piloted by Capt. William Jessup, knocked out eight searchlights. The remaining searchlights nevertheless kept the Superforts illuminated, permitting cooperating Red fighters to attack and damage one B-29. Another B-29 was damaged by flak, but both planes returned safely to their base.[78]

4. Sabres Stalk Elusive Red Airmen

In the autumn of 1951 the Communist air forces had made strenuous and not entirely ineffectual efforts to wrest air superiority over northwestern Korea away from the United Nations Command. Despite their utmost efforts, however, the Reds had failed to gain air superiority, and sometime in the middle of December 1951 the Communist air command evidently implemented a new operations plan. During the latter part of December United Nations Command intelligence reported that the Chinese Reds moved several air divisions from the Antung bases to other airfields in China proper and replaced the older air divisions with new organizations.[79] The Communist airmen abruptly abandoned their "pincer-and-envelopment" tactics. Large numbers of Red aircraft continued to fly in "trains," but these formations came into Korea over the Sui-ho reservoir, patrolled unaggressively at altitudes between 35,000 and 42,000 feet, came as far south as the Chongchon River, and then returned northward to Antung.[80] Except for routine efforts to maintain the airfields at Uiju, Sinuiju, Pyongyang, and Sariwon, the Reds abandoned seriously sustained efforts to build or rehabilitate airfields in North Korea.[81]

The United Nations Command was unable to offer any satisfactory reason for the sudden change in Communist air war objectives. Quite probably, however, the Red air commanders perceived the hopelessness of their

efforts to attain air superiority and resolved to begin to use Korea as a training and testing ground which would prepare Red airmen for combat in some future air war. After December 1951 the Sabre pilots noticed that the Reds followed a definitely cyclical pattern of air operations over northwestern Korea which indicated that combat training was their primary concern. Each "class" of Communist pilots followed a clearly distinguishable training cycle. At first the new "class" flew high and fast, in large formations, was neither aggressive nor proficient, and usually declined to engage in combat. As they gained proficiency, the "class" flew at lower altitudes, became more aggressive, and engaged the Sabres in fairly well-planned tactics. In its final period the "class" reached its peak proficiency and aggressiveness, flew at altitudes permitting combat, and engaged the Sabres more frequently. Then the "class" evidently graduated, and a new "class" came in, once more flying high and in large formations. In the airspace over MIG Alley the Communists were now seeking to train a maximum number of pilots and to test their equipment and organization against the United States Air Force.[82]

To the men of the 4th and 51st Fighter-Interceptor Wings the early months of 1952 were times of bitter frustration. Possibly it was just as well that the MIG's did not want to fight, for the unprogrammed conversion of the 51st Wing to Sabre aircraft placed a severe strain on logistical support which USAF had earlier described as inadequate to support a single Sabre group in combat. Although FEAF obtained more Sabres, the aircraft-out-of-commission rate spiraled rapidly upward. An average of 45 percent of the Sabres had to be carried as out of commission in January 1952, 16.6 percent for want of parts, and 25.9 percent for want of maintenance.[83] With two Sabre wings flying combat, requirements for external fuel tanks jumped approximately 500 percent in four months, so that theater supply levels of these tanks were nearly exhausted in January 1952. Throughout January Sabre pilots flew combat patrols with only one wing tank. They reduced their patrol time to compensate for the reduced fuel, but many pilots barely managed to make it home for dead-stick landings.[84] To make up this deficiency, USAF C-124 transports shuttled tanks from the contractors' plants in the United States to the combat area, where the tanks were unloaded and installed on Sabres waiting to take off. Even with this emergency supply, the Sabre wings had to cut back their combat sorties to a minimum in February.[85] The problem of providing replacement parts for the Sabres was more difficult to alleviate, for USAF had contracted to buy parts in terms of peacetime consumption factors. Early in February 1952 an inquiry from a congressional committee concerning Sabre supply support brought a USAF Air Materiel Command team headed by Maj. Gen. George W. Mundy to the Far East. General Mundy's team found a few evidences of a lack of supply control within the Fifth Air Force, but it laid most blame for the Sabre parts shortages on deficient initial provisioning, based upon peacetime rates of consumption rather than combat rates. The Mundy team made a list of critically short Sabre parts, and the Air Materiel Command initiated a project called "Peter Rabbit" to buy on a crash basis a one-year level of all the deficient items. Deliveries of these parts slipped a little, but by April 1952 the rate of F-86's out of commission

for parts was down to 2.4 percent.[86]

The unprogrammed conversion of the 51st Wing to Sabres also contributed to a serious deficiency of replacement pilots. When it had arrived in the Far East, the 4th Wing had been manned by highly qualified regular and reservist career pilots, not a few of whom were conventional air aces. By usual standards for fighter pilots, most of the pilots were "old" men, but most of them had started out in fighters and were still extremely able in combat. By the late summer of 1951, however, most of the original cast of pilots were rotating as 100-mission veterans.[87] Since the unprogrammed conversion of the 51st Wing occurred at about this same time, USAF was strapped to supply adequately qualified replacement pilots for service in Korea.[88] As a result, the 4th and 51st Wings received a large number of pilots in the winter of 1951–52 whose previous combat experience had been attained in multi-engine transports and bombers. Transitioning these men to Sabres in the Far East not only imposed an unwarranted task upon combat units but the training was often impossible to accomplish.[89] In February, when the Sabres had to cut back their rate of operations because of logistical shortages, replacement pilots continued to arrive in undiminished numbers. As a result, Sabre pilots were able to fly an average of only ten combat missions a month, too few to permit a flier to maintain his combat proficiency. To get temporary relief, the Fifth Air Force rotated some Sabre pilots on an "available-replacement" basis rather than the rigid 100-mission standard.[90] An increased rate of Sabre operations in March further relieved the pilot overage, and in this same month the 4th and 51st Wings began to receive increasingly large numbers of young fighter pilots from replacement training centers in the United States. These young pilots required additional training, but the results were encouraging. "The training of a young jet fighter pilot," noted the 335th Squadron, "is easier than the conversion of an older transport pilot.... As long as we continue to receive qualified jet pilots, the training program will not be impossible, merely difficult."[91]

If the Sabre wings knew discouragement because of logistical concerns, the men who flew the sleek air-superiority fighters were equally vexed at the elusiveness of MIG pilots who appeared high over Korea in large "gaggles" or strung-out formations almost every day yet virtually refused to fight. Day after day the MIG's followed the same pattern. Forces of MIG's numbering anywhere from 100 to 200 planes formed over Manchuria and swept into Korea at speeds of about .99 mach. Within a formation, one section generally flew just below the contrail level, a second section would be in the contrails, and a third section would fly above the contrails—sometimes as high as 50,000 feet.[92] When the MIG's began to fly high and fast, the Sabre pilots varied their tactics and began to enter their patrol areas at altitudes up to 40,000 feet. Possessing newer F-86E's, the 51st Wing patrolled a few thousand feet higher than this. Even at these altitudes the MIG's were almost always higher, and, in such event, the Sabres tried to maneuver and pace below the MIG formation in the same direction of travel, hoping that some of the Red pilots might be tempted to come down and fight.[93] Flying a mixed complement of F-86A's and F-86E's, the 4th Fighter Wing was not at its best at high altitudes and could claim only five MIG's destroyed during January 1952.[94] Flying newer, low-time, and better-

tuned F-86E's, the 51st Wing scored 25 kills during the month, many of them on 6 January and 25 January. On these days 51st Wing patrols entered the combat area at 45,000 feet and were able to make high astern attacks against MIG's whom they sighted at lower altitudes.[95] At about this time the Sabres began to call the high-flying Red formations, "jackpot flights," meaning that such planes could be easily destroyed if the Sabres could just manage to get up there where the enemy was flying.

Probably mindful of their losses in the few instances that the Sabres got on top of them, the Communist airmen were discreetly circumspect and flew even higher as they trained for combat over North Korea during February 1952. According to United Nations intelligence, 540 Red MIG's were now based at the Antung airfields and still other Red air units flew combat missions from bases farther within Manchuria. As a general rule, the Red formations flew at 40,000 feet and above. In fact, on 4 February MIG flights were sighted at 53,000 feet.[96] Held to a reduced combat rate because of logistical deficiencies and forced to stalk an enemy who did not wish to fight, the 4th Wing claimed only six MIG's and the 51st Wing claimed only 11 MIG's destroyed during February.[97] If air combat during February was not very spectacular it was nevertheless marked by moments of pathos and elation. On 10 February Maj. George A. Davis, Jr. led eighteen 4th Wing Sabres to a patrol station to shield fighter-bombers attacking rail targets near Kunu-ri. Far to the west Major Davis saw hostile contrails to the northwest of the Yalu River, and, desiring to nip the hostile threat in the bud, Major Davis and his wingman left the main flight of Sabres and went to the Yalu. At the scene of action the Sabre flight evidently surprised the MIG's, for Major Davis descended to 32,000 feet and shot down two Red airmen within a matter of a few seconds. But as Davis pulled in behind a third MIG, a fourth Red pilot came in from seven o'clock and scored with a burst of cannon fire which sent Davis earthward. At the time that Major Davis went down he was the leading jet ace of the Korean conflict with a victory record of 11 MIG's and 3 TU-2 bombers to his credit.* For his conspicuous gallantry and intrepidity in combat, Major Davis was posthumously awarded the Congressional Medal of Honor.[98] An aerial fight between MIG's and 51st Wing Sabres on 23 February had happier results for Maj. William T. Whisner, commander of the 25th Squadron, who destroyed his fifth MIG to become the seventh jet air ace of Korea and the 51st Wing's first jet air ace.[99]

After two months of training the Red airmen must have received instructions to fight early in March 1952. During March and April some new MIG "classes" continued to avoid action by flying at high altitudes, but many Red airmen were willing to fight in two-, four-, and six-ship formations at lower altitudes. Far from being "Tigers" even yet, the Red pilots came out of Manchuria at high mach and at above 40,000 feet, made turning sweeps to lower levels in MIG Alley to search for United Nations fighter-bombers, and then scooted for home at low altitudes.

*On 1 June 1951 USAF had stated a policy that required jet fighter aces to be returned to the United States. Many of the jet aces, however, wanted to remain in combat, and the FEAF commander was accordingly authorized to return or retain jet aces who volunteered to remain in the theater. (Hist. Dep. CofS Pers. USAF, July–Dec. 1951, p. 14.)

Capt. Robert J. Love, the 11th USAF jet ace.

The tactics were reminiscent of the "hit-and-run" passes employed by Red China's pilots in their first winter of combat in Korea.[100] With more aircraft in commission and ample supplies of fuel tanks, Fifth Air Force Sabre pilots were not sorry to see the Red airmen turn aggressive. The Sabres continued to employ their old tactics and they also entered the combat area stacked down from 40,000 feet. Since the active MIG's also kept below the contrail level, the Sabre pilots had trouble spotting the enemy or catching them before they escaped across the Yalu.[101]

Even though the Communist pilots were not mean adversaries, the American airmen could not be denied some smashing victories. At a cost of six of their own number lost in the two months, the Sabres destroyed 39 MIG's in March and 44 in April, the latter total comprising a record which would hold good for several months to come.[102] Both Sabre wings shared the new jet fighter aces who emerged from April's aerial fights: Colonel Francis S. Gabreski on 1 April, Captain Robert H. Moore on 3 April, Captain Iven C. Kincheloe on 6 April, Captain Robert J. Love on 21 April, and Major William H. Wescott on 26 April.[103] At the same time as they paid so dearly for their operations at lower altitudes, the Red airmen were not notably successful in their efforts to attack United Nations fighter-bombers. Two Thunderjets in March and a single Shooting Star in April were lost in air-to-air combat.[104]

The increased Communist air activities bespoke a superiority of numbers and was probably designed to cover activity on the ground. On 13 April amazed Fifth Air Force pilots saw some 400 to 500 MIG's parked at Ta-tung-kou Airfield. This was the highest number of enemy aircraft ever observed on a single Manchurian airfield, and it indicated the capacity of these border bases for serving Red fighters.[105] The Reds also moved conventional planes into North Korea. While leading a flight of 51st Wing Sabres late on the afternoon of 22 April, Captain Kincheloe spotted partially concealed planes near the runway at Sinuiju Airfield. Captain Kincheloe initiated a strafing run and destroyed a Yak-9. Moments later Major Elmer W. Harris strafed and destroyed another Yak-9. In a follow-up strafing assault against the 24 dispersed planes at Sinuiju on 4 May, Kincheloe left ablaze three Yak-9's and Harris destroyed two Yak-9's which were parked in revetments on the west end of the runway.* In a pioneer

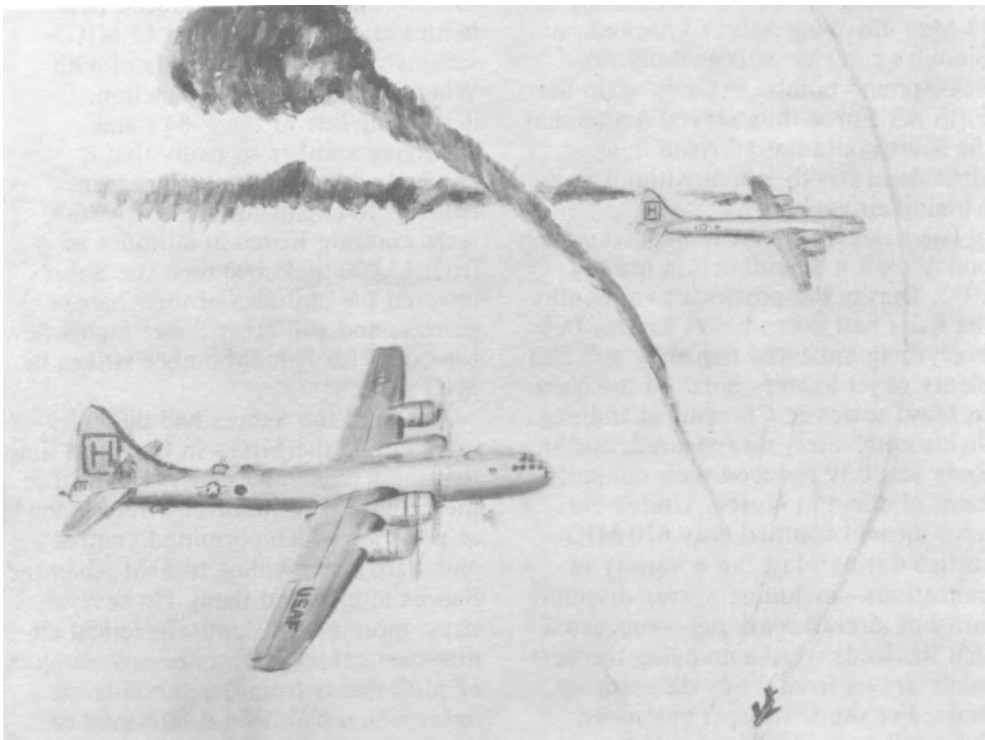
*In addition to these three Yak-9's destroyed on the ground at Sinuiju, Major Harris shot down three MIG-15's in aerial combat during his tour in Korea. Like Captain Chandler, Major Harris had destroyed enough enemy planes to be counted as an "ace," but FEAF recognized only air-to-air victories for naming "aces."

divebombing attack on the morning of 13 May 4th Wing Sabres knocked out Sinuiju's runway with well-placed 1,000-pound bombs.[106] Once again the Fifth Air Force thus served notice that the Reds could not garrison their airfields in North Korea without first winning air superiority.

The kaleidoscopic Communist air policy took a new direction in May 1952. During the previous two months the Reds had taken heavy losses, but everything indicated that they still had plenty of jet fighters north of the Yalu. In May, however, Communist training flights completely disappeared, and the Reds severely reduced their commitment of effort in Korea. United Nations airmen counted only 620 MIG sorties during May, but a variety of indications—including a wide dissimilarity of aircraft markings—suggested that the Reds were employing the best pilots drawn from many different air units. For the first time, moreover, Sabre pilots gained unmistaken evidence that the Communists had begun to employ ground-controlled radar interceptions over MIG Alley. On numerous occasions during May MIG flights dropped down through cloud ceilings precisely upon United Nations aircraft. Evidently profiting from the electronics assistance, the MIG fliers avoided the Sabres as much as possible and launched attacks against United Nations fighter-bombers, especially when these planes were attacking targets within 40 miles of the Yalu River.[107]

Buoyed in spirit by the best logistical support they had ever been able to obtain in Korea and determined to check the depredations against slower-flying United Nations airmen, the Fifth Air Force's two Sabre wings flew the Korean war's peak monthly total of 5,190 F-86 combat sorties during May 1952.[108] The Sabres introduced new tactics after 17 May, when 12 MIG's viciously attacked six flights of 49th Wing Thunderjets near Sonchon, destroying one of the F-84's and damaging another so badly that it crashed while making an emergency landing. Recognizing that the MIG's were entering Korea at altitudes of from 15,000 to 35,000 feet, the Sabres lowered the altitudes of their barrier patrols, and still other Sabre flights flew top-cover for fighter-bomber strikes in MIG Alley.[109]

Although the Sabres had difficulty intercepting the MIG's in the short time that the Communist pilots remained in the combat area, the Reds were flying at altitudes which permitted combat and were often willing to fight when the Sabres intercepted them. On several days, moreover, "Dentist" tactical air-direction center at Kimpo secured plots of MIG flights from the surveillance radar which had been established on the Yellow Sea island of Cho-do and scrambled 4th Wing Sabres to make interceptions. As yet the Cho-do installation was not a full-scale tactical air-direction center, but the electronics assistance helped Sabre pilots intercept and destroy six MIG's during the month.[110] In the course of aerial combat during May, the MIG's shot down an F-51, three F-84's, and five F-86's, but the Sabres destroyed 27 MIG's and five other Red aircraft.[111] Four Sabre pilots scored their fifth kills and became jet air aces: Captain Robert T. Latshaw, Jr., and Maj. Donald E. Adams on 3 May, Lieutenant James H. Kasler on 15 May, and Col. Harrison R. Thyng on 20 May.[112] More proficient Communist pilots, enjoying electronics guidance, made May a costly month for the Fifth Air Force, but the Reds nevertheless suffered more damage than they inflicted.



Aerial Battle (Art By Arthur W. Rodriguez, *Courtesy Air Force Art Collection)*

During the spring of 1952 the Communists were unable to find a solution for the air superiority which United Nations airmen maintained during daylight hours over northwestern Korea. In these same months the vulnerable old B-29's of the FEAF Bomber Command flew by night and were able to escape damage from hostile causes. Even though its forces were escaping damage, Bomber Command nevertheless realized that the Communists would sooner or later devise countermeasures to night bombardment. After 23 December 1951, when a Communist fighter-searchlight team damaged several B-29's over Uiju Airfield, Bomber Command freely acknowledged its potential vulnerability to Communist night defenses, particularly the radar-controlled searchlights. Directed to strike the well-defended Sinuiju Airfield, Bomber Command waited until the night of 26 January 1952, when a solid bank of low-lying clouds masked the Red searchlights and allowed the 98th Wing to bomb the target by shoran with impunity.[113] By February 1952, however, the Reds began to build up bands of searchlights and flak well south of the older defended areas along the Yalu. At Sinanju, for example, the Reds covered the shoran-arc approaches to the Chongchon River bridges with radar-controlled searchlights and with flak batteries. As soon as they established ground-controlled-

interception radar capabilities over northwestern Korea, the Reds stepped up their nightly air action. Sightings of airborne Communist night fighters increased from 17 in April to 50 in May 1952.[114]

On the moonlit night of 10 June, when four B-29's of the 19th Bombardment Group were sent on a shoran-bombing mission against a railroad bridge at Kwaksan, Communist night defenses suddenly came alive. As the bomber stream followed the only satisfactory shoran-arc to this target at the south end of MIG Alley, some 24 searchlights locked on them and kept them constantly illuminated. The Superfortress crews soon noted an unidentified aircraft flying above and evidently pacing them. This was evidently an airborne Red commander, for when the bombers were illuminated they were almost immediately taken under attack by some 12 jet fighters. One of the B-29's exploded over the target, a second went down somewhere over North Korea, and a third was so badly damaged that it barely made an emergency landing at Kimpo. The last bomber over the target broke the grip of the hostile searchlights with electronics countermeasures and escaped the attacking fighters.[115] Over Kwaksan, on the night of 10 June 1952, the Communists thus served notice that darkness would no longer shield the old B-29's against interception. Once again Bomber Command's old planes were facing a grim battle for survival in the skies over North Korea.

5. Building an Air Defense for South Korea

Charged with the air defense of the whole Far East Command, the Far East Air Forces had vested authority for the air defense of Korea and its adjacent sea frontiers in the Fifth Air Force. During the first year of the Korean war, the Fifth Air Force had been unable to establish much semblance of a formal air-defense system in war-torn Korea, but it had kept the Communist air forces at bay by threats of reprisal attacks against the enemy's Manchurian bases and by an active neutralization of all airfields in North Korea. When he took command in Korea in June 1951, General Everest recognized that informal defenses would no longer be adequate. The Communist air forces in Manchuria were getting so strong that they might be tempted to risk reprisals and attempt all-out air attacks against United Nations installations in South Korea. By the autumn of 1951, moreover, the Fifth Air Force was scheduled to be fully deployed to South Korean airfields. Because of a shortage of airfields, many tactical air units would be located at the same bases—thus presenting lucrative air targets for possible Red air attacks. In recognition of these factors, General Everest gave considered attention to the construction of a formal air-defense system in South Korea.[116]

As he began to implement a formal air-defense system for South Korea, General Everest appreciated that the narrow, mountainous Korean peninsula offered a difficult defensive problem,

especially with the limited amounts of electronics equipment, antiaircraft artillery, and all-weather fighters that were available. Up until this time, moreover, the Fifth Air Force had been more interested in securing electronics control for its own fighters than for search and warning of enemy aircraft. As a result, the deployment of the 502d Tactical Control Group's tactical air-direction centers was better suited for friendly control than for warning of enemy air attack. Despite these defects, the Fifth Air Force sought to make use of the existing deployments when it ordered the establishment of a formal air-defense system on 25 July 1951. According to this order, the tactical air-direction center manned by the 605th Tactical Control Squadron at Seoul would continue to exercise overall air-defense responsibilities for South Korea. However, local control in four air-defense sectors would be exercised by tactical air-direction centers manned by the 606th Aircraft Control and Warning Squadron at Kimpo Airfield, the 607th Aircraft Control and Warning Squadron at Yoju Airfield, the 6132d Aircraft Control and Warning Squadron at Taegu Airfield, and the 1st Marine Air Wing's ground-control intercept squadron at Pusan Airfield. Each tactical air-direction center was made responsible for controlling night fighters and antiaircraft artillery batteries within its sector.[117]

As initially established on 25 July, the Korean air-defense system was unrealistic on several counts. Since the pick-up range of the ground-control-intercept radars possessed by the tactical air-direction centers was only about 75 miles, the locations of the tactical air-direction centers did not provide proper electronics coverage of the northwestern and northeastern sectors of the ground battleline nor of the southwestern part of Korea where the new airfield was being built at Kunsan. Their microwave radar equipment, moreover, was not too effective for the initial detection of jet aircraft which did not show identification beacons.[118] During the first year in Korea FEAF had authorized the use of Mark III identification friend or foe airborne radar beacons for the identification of friendly aircraft over Korea. Many sets of this equipment had been provided to the Russians during World War II, and on 3 May 1951 FEAF ruled that a plane showing Mark III IFF could not be assumed to be friendly. Thereafter the tactical air-direction centers were expected to identify aircraft by air-traffic control, position reports, flight plans, movement control, or voice authentication.[119] In an effort to simplify identification of friendly aircraft, the Fifth Air Force designated two air corridors for the use of planes reporting in and out of enemy territory. Under this arrangement, the 607th Squadron's tactical air-direction center at Yoju handled most identification and MPQ-positioning and the other two tactical air-direction centers devoted their efforts to surveillance and ground-control interception work.[120]

In August 1951 Fifth Air Force air-defense planners knew where they wanted to locate tactical air-direction centers in order to provide a rounded coverage of South Korea's air frontiers, but they faced the problem that the tactical control group's equipment was mobile for road movements but was too bulky and heavy to transit Korean trails. The narrow and mountainous Korean peninsula presented few radar sites which were both operationally suitable and logistically feasible. To provide ground-control intercept capabilities at the northwestern extremity of the ground battleline, the Fifth

Air Force deputy for communications wanted to relocate the 607th Squadron's tactical air-direction center on Paengnyong-do, an island off the western coast of Korea where the squadron already operated a lightweight search radar. To cover the northeastern extremity of the battleline, he wanted to relocate the 6132d Squadron's tactical air-direction center on Hyangbyong-san, a mountain near Kangnung. The 502d Tactical Control Group stoutly maintained that it was unable to support a full-scale tactical air-direction center on an offshore island such as Paengnyong-do. When no other suitable island site could be found, the Fifth Air Force finally moved the 607th Squadron's tactical air-direction center to a site atop Kuksa-bong, a mountain north of Seoul. From this site the 607th Squadron handled long-range surveillance and guarded the air space over Kaesong, while the 606th Squadron's center at Kimpo controlled local air defense and directed tactical air strikes. In this manner the two centers avoided duplication. Movement of the 608th Aircraft Control and Warning Squadron (the 6132d Squadron was discontinued and the 608th activated on 2 November 1951) to Hyangbyong-san was delayed until South Korean engineers could build a road up the 4,000-foot-high mountain. At this same time 1st Marine Air Wing electronics organizations relocated at sites where they could provide better control and warning services. At separate sites near Pohang, Marine Tactical Air Control Squadron No. 2 opened a tactical air-control center and Marine Ground Control Intercept Squadron No. 3 operated a tactical air-direction center. Marine Ground Control Intercept Squadron No. 1 moved to Kunsan Airfield and opened another tactical air-direction center. In the following months the Fifth Air Force filled out its radar surveillance coverage with

Base Operations and control tower, Kimpo AB.

lightweight and early-warning radars. Thus, in February 1952, the 606th Squadron established a search radar at Cho-do, the island off the northwestern coast of Korea. From this vantage point the Cho-do search radar could "see" Communist aircraft over the airfields at Antung.[121]

The relocation of its surveillance radars permitted the Fifth Air Force to establish a more logical Korean air-defense system effective on 15 November 1951. At this time General Everest divided Korea into northern and southern air-defense sectors. Through the tactical air-control center at Seoul, General Everest commanded the northern sector. The commander of the 1st Marine Air Wing, acting through the Marine tactical air-control center at Pohang, commanded the southern sector. Everest divided the northern air-defense sector into two air-defense subsectors, the northwest under the 606th Aircraft Control and Warning Squadron and the northeast under the 608th Aircraft Control and Warning Squadron. The southern air-defense sector was similarly subdivided into southwest and southeast air-defense subsectors. The subsector tactical air-direction centers performed surveillance, plotting, and identification functions and cross-told information on aircraft entering adjacent air-defense subsectors. They passed plots on all unidentified air targets to their parent tactical air-control centers, scrambled allocated interceptors to intercept and identify "bogie" aircraft, and controlled the firing status of local antiaircraft artillery.[122]

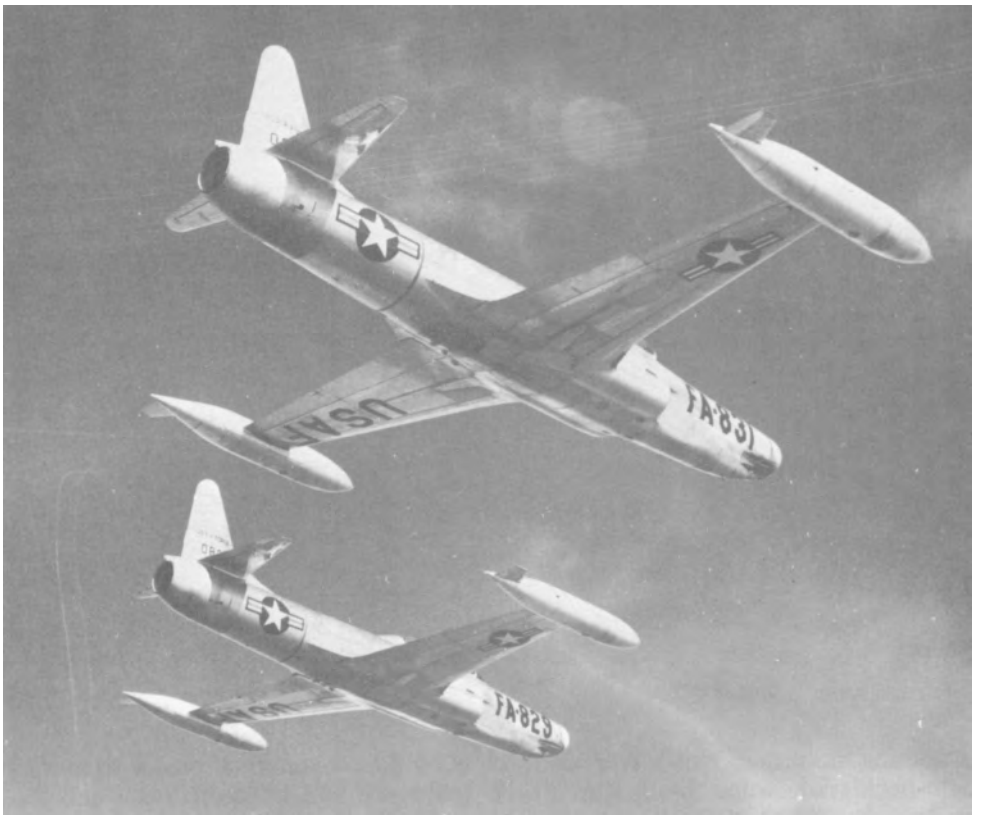
In the same period during which the Fifth Air Force was reshuffling its radars General Weyland was conducting negotiations with USAF concerning identification radar. In preparation for a war emergency, the United States armed services possessed new Mark X identification radar, but there was some question whether this system and its equipment should be subjected to possible compromise in Korea. Through some circumstance, however, two Navy planes with Mark X transponders aboard crashed in enemy territory in Korea, and the U.S. Joint Communications-Electronics Committee had to assume that the classified equipment was physically compromised. The committee therefore ruled that Mark X could be used in Korea.[123] FEAF began to install Mark X interrogators at its radar stations and Mark X transponders in its aircraft, and, pending the availability of the Mark X system, FEAF allowed the Korean air-defense system to employ Mark III equipment, this effective on 15 November 1951. The employment of electronic identification greatly aided the tactical air-direction centers both in tracking and identifying friendly aircraft over Korea.[124]

At any time in Korea the Fifth Air Force could have diverted its tactical fighters from offensive missions to air defense, but the increasing Communist air-attack potential and the deployment of United Nations tactical air units to crowded Korean bases demanded additional all-weather fighters and antiaircraft artillery defenses. As a matter of routine, the Itazuke-based 68th Fighter-Interceptor Squadron kept several Twin-Mustang F-82 fighters on strip alert at the Seoul area airfields during the hours of darkness and bad weather. Marine Squadron VMF(N)-513 also used a part of its F4U Corsairs and F7F Tigercats for air defense. In an effort to deal with the slow-flying "Bedcheck Charlies," the Fifth Air Force equipped four T-6 trainer aircraft with .30-caliber machine guns and held them on strip alert at Kimpo.[125] As long

Control tower, Suwon AB.

as nothing more than North Korean night-hecklers bearded South Korea's air defenses, these slight all-weather capabilities seemed adequate, but the appearance of high-flying MIG's over Seoul early in December disturbed General Weyland and General Everest profoundly. "Present night fighters in Korea limited to six F-82's and depleted squadron Marine F7F's," General Weyland reminded Washington.[126] General Everest began to keep an average of 45 combat fighters on dawn readiness alert and 30 more on evening alert at the main Korean airfields. He also warned all his wing commanders to emphasize passive defense measures.[127]

Recognizing the incipiently dangerous air-defense situation, USAF accelerated the conversion of FEAF's all-weather fighter squadrons from the old F-82 conventional planes to more modern F-94B jet interceptors and committed an additional F-94 squadron for deployment to Korea. When it secured its new planes, the 68th Fighter-Interceptor Squadron began to post two F-94's on strip alert at Suwon Airfield in December 1951. Back at McChord Air Force Base, Tacoma, Washington, the 319th Fighter-Interceptor Squadron was alerted for movement to Korea, and on 22 March 1952 it got its F-94's into operation at Suwon Air Base. Once again a gimmick of security hampered the employment of these new jet fighters. In view of the fact that the F-94B's carried the latest airborne interception radars, USAF directed that they should be used only for local air-defense scrambles under positive ground-radar control. The F-94's could not be employed for mis-



All-weather F-94 Interceptors

sions over enemy territory where their secret electronic equipment would be unusually susceptible to loss or compromise.[128]

Unlike the radars and fighter-interceptors, which belonged to the Air Force, the third member of the air-defense team—antiaircraft artillery—was manned and equipped by the Army. How much control the Air Force was to exercise over Army antiaircraft artillery had been a question in the years after World War II, but on 1 August 1950 Generals Vandenberg and Collins formally agreed that an Air Force air-defense commander would exercise operational control over antiaircraft artillery "insofar as engagement and disengagement of fire is concerned."[129] In the Far East antiaircraft artillery battalions deployed to Korea were assigned to the Eighth Army, but Far East Command operations instructions vested the air-defense commander with "operational control" over all separate (nondivisional) antiaircraft artillery units. In coordination with the Eighth Army and subject to approval of the Far East Command, the Fifth Air Force attempted to secure a maximum defense of the most vital installations in Korea with too few

antiaircraft artillery battalions.[130] Exclusive of antiaircraft artillery units organic to ground divisions, Eighth Army antiaircraft strength in Korea in June 1951 numbered ten automatic-weapons batteries and two gun battalions. The 90-millimeter gun batteries provided defense against high-level air attacks and were sited at Pusan, Inchon, and Seoul. Providing defense against low-flying aircraft, the 40-mm. automatic-weapons batteries covered airfields and port installations. In June 1951 the Fifth Air Force stated a requirement for a minimum of three gun battalions and 20 automatic weapons batteries, and in October 1951 the Fifth Air Force increased the requirement to five gun battalions and 36 automatic-weapons batteries. The Department of Army professed its inability to provide all the antiaircraft artillery units that were needed in Korea, but in July 1951 General Weyland secured permission to move five automatic-weapons batteries from Japan to Korea. In September 1951 the arrival of a Marine gun battalion at Pusan permitted three gun batteries to move to the higher-priority Inchon-Kimpo defense area. Arrival of another Army gun battalion, which was split between Inchon and Pusan, and the activation of an additional automatic-weapons battery in the field brought the effective antiaircraft artillery strength in Korea to four gun battalions and four automatic-weapons battalions (16 batteries) at the end of 1951.[131]

As the Fifth Air Force built up the air defense of South Korea, the Communists periodically tested the system with low-level, moonlight-flying PO-2 hecklers. The air-defense system was designed to handle attacks by high-performance aircraft, but it measured a fair defense against the low- and slow-flying Red planes. The tactical air-direction center at Seoul was able to pick up and plot the course of many of the hecklers, but the chief difficulty in shooting them down was the speed differential between the Red aircraft and American interceptors. After a lull during the summer months, the Red night hecklers again began to visit the Seoul area in mid-September 1951, and on the night of 23 September tactical air-direction center "Dentist" followed the course of a PO-2 as it dropped two small bombs at Kimpo to cause minor damage to a couple of Sabres. When the automatic-weapons batteries failed to score against this heckler, "Dentist" control scrambled Marine Major E. A. Van Grundy in an F7F, and Major Van Grundy downed the Red raider north of Seoul.[132] Alerted by "Dentist," antiaircraft artillery automatic-weapons shot down another Communist light plane over Inchon on the night of 2 October.[133] On other occasions, however, Communist hecklers got through the Fifth Air Force's defenses to bomb and then to escape unscathed. In the early morning hours of 1 January 1952 three Communist raiders dropped several small bombs at Kimpo and Inchon.[134] Such experiences made the Fifth Air Force pessimistic on the subject of air defense. The Fifth Air Force director of operations well summed up the matter as he said: "Shortages in antiaircraft artillery weapons, deficiencies in available radar equipment, limitations in the number of aircraft and air-crews detailed to air-defense duties, lack of sufficient dispersal space at our overcrowded air bases, the incompleteness of the Mark X IFF program, and the normal passive resistance to defensive measures after prolonged freedom from enemy attack, find both Air Force and other installations vulnerable to enemy air attack."[135]


MIG ALLEY 200 MILES

14. *Ten Months of Comprehensive Railway Interdiction*

1. General Weyland Seeks an Acceptable Air Strategy

"Of the many opinions formulated during the course of current hostilities," General Weyland informed General Vandenberg on 10 June 1951, "few have had less foundation than that which envisages the current United Nations military position in Korea as being in the nature of a stalemate." "To accept the theory which envisages the current United Nations military position in Korea as ...a stalemate," Weyland explained, "is to completely ignore the innumerable advantages of air power as a predominant weapon for destroying the enemy fighting machine and to acquiesce to the dangerous 'rule of thumb' whereby military success, regardless of cost, is measured solely in terms of geographical gain." As Weyland saw the situation on 10 June, the United States Air Force had "its first real opportunity to prove the efficacy of air power in more than a supporting role."[1] Unfortunately, however, General Weyland would not be permitted to exercise the decisive attributes of airpower for nearly a year.

When the armistice discussions at Kaesong were only two days old, General Ridgway had seen enough of Red intransigency and ordered intensified air operations. "Desire action during this period of negotiations to exploit full capabilities of airpower to reap maximum benefit of our ability to punish enemy wherever he may be in Korea," Ridgway ordered Weyland on 13 July 1951. General Weyland passed the message to the Naval Forces Far East for their information and ordered the Fifth Air Force to "step up the tempo of fighter and light-bomber activities...with emphasis on vehicular movements and pre-planned targets of known enemy troops, supplies, or installations."[2] Within a week FEAF planned a massive air attack against military targets in the North Korean capital city of Pyongyang, an attack which was designed both to eradicate build-ups of enemy troops and supplies and to impress the North Korean government. Preparatory to the attack, FEAF proposed to drop leaflets at Pyongyang, Chinnampo, Kanggye, and Wonsan warning citizens to leave these cities where the Communists had arms depots and war installations.[3] The Joint Chiefs of Staff, however, disapproved of such an attack in the manner suggested because, they said, "to single out Pyongyang as the target for an all-out strike during the time we are holding conferences might in the eyes of the world appear as an attempt to break off negotiations."[4] General Ridgway nevertheless insisted that the many legitimate military targets in Pyongyang ought to be attacked by massed aircraft, and the Joint Chiefs approved of the mission but added that no publicity was to be given to the "mass" nature of the attack.[5] On 30 July the Fifth Air Force sent 91 F-80's to suppress flak at Pyongyang while 354 Marine and Air Force fighter-bombers attacked specified military targets. The FEAF press release observed that its warplanes "continued to batter the enemy's supply and communications facilities." Any mention of Pyongyang was studiously ignored.[6]

Alertly seeking significant air targets, FEAF immediately shifted its attention to the city of Rashin, a port city far up the northeastern coast of Korea, only

Rashin—2 weeks after the bombing raid on 25 August.

17 miles from the Siberian border. Fearful of border violations, the Joint Chiefs of Staff had put Rashin off limits to air attack on 1 September 1950,* and in July 1951 FEAF aerial reconnaissance indicated that the Communists were extensively stockpiling supplies in the city. On 1 August General Ridgway requested permission to bomb the city, and, when the Joint Chiefs asked for more details, he indicated that the most valuable targets were Rashin's marshaling yards, including the rail facilities and a large collection of rolling stock. Following President Truman's approval, the Joint Chiefs permitted the attack, provided it was conducted in visual bombing conditions and received "no unusual publicity."[7] After waiting two weeks for favorable target weather predictions, Colonel Harris E. Rogner, vice-commander of the FEAF Bomber Command, led 35 B-29's of the 19th, 98th, and 307th Wings to Rashin on 25 August. Flying from the *Essex*, 23 F9F and F2H jet fighters provided the bombers with a half-hour of excellent escort in the target area, but no enemy aircraft appeared. Of more than 300 tons of bombs dropped, 97 percent hit in the marshaling yards. "We had good weather over the target, good formation, and an excellent bomb pattern. We clobbered them," said Colonel Rogner.[8]

Although the Joint Chiefs of Staff authorized these maximum-effort missions against military targets in Pyongyang and Rashin, they were fearful of an overly aggressive air

*See Chapter 6, p. 192-193.

employment. Taking into consideration the climate of world opinion and the viewpoints of nations which were furnishing troops to the United Nations cause, the Joint Chiefs stated the rule on 11 August that "If Armistice discussions fail, it is of the greatest importance that clear responsibility for failure rest upon the Communists."[9] Under the operation of this rule, United Nations forces were denied any really effective employment which might bring pressure upon the Communists. Brig. Gen. Don Z. Zimmerman, then FEAF director of plans, later described the official policy as "Don't employ airpower so the enemy will get mad and won't sign the armistice."[10] In retrospect, Admiral Joy observed: "The armistice negotiations were profoundly affected by the restraints imposed on the United Nations Command forces in Korea.... The armistice effort in Korea taught this: never weaken your pressure when the enemy sues for armistice. Increase it."[11]

Instead of being allowed to exercise a decisive role designed to speed armistice negotiations, United Nations airpower was once again cast into a supporting role for the Eighth Army, which was itself limited to an active defense of its fortified positions along the 38th parallel. Even before the peace negotiators met at Kaesong, General Ridgway was gravely concerned by intelligence reports which stated that the Reds were increasing their offensive capabilities.[12] On 6 July he informed the Joint Chiefs that numerous reports "indicate a planned large-scale [enemy] offensive effort to be launched in the event...peace overtures fail."[13] According to an Eighth Army estimate, the Reds were stockpiling a minimum of 800 tons of supplies each day behind their front lines.[14] In August Ridgway further reported that the enemy was "capable of launching limited attacks to gain local advantages and of expanding such piecemeal efforts rapidly into a general offensive at a time suiting his purpose."[15] These estimates that the Communists had not recognized their defeat but were instead utilizing the truce negotiations as a respite in which to prepare for another offensive were completely accepted by the United Nations Command and "deeply concerned" the Joint Chiefs of Staff.[16] In Kaesong the armistice negotiations made no headway since the United Nations insisted that the military demarcation line must conform to the military realities of the ground front and the Reds demanded that United Nations troops must withdraw to the 38th parallel. As the negotiations dragged on, the Reds occupied the no-man's land around Kaesong and on 4 August marched armed troops through the Kaesong neutral zone. Although a few errant planes admittedly crossed over Kaesong, the Reds on 22 August manufactured an incident and claimed that an airplane had bombed the city. In view of this perfidy, the United Nations suspended negotiations. At this juncture, relatively high-ranking prisoners of war stated that a Communist "Sixth-Phase" ground offensive was going to take place at the end of August.[17]

Presented with the United Nations intelligence evaluations that the Communists were building up their strength preparatory to a ground attack, noting the Red obstructionist tactics at Kaesong, and lacking any better employment for FEAF, General Weyland thought that it would be sheer folly not to concentrate the bulk of his air effort against interdiction targets in the enemy's rear areas. Otherwise, available airpower would be frittered away against relatively invulnerable targets along the front lines, while the

enemy remained free to build up his resources to launch and sustain a general offensive.[18] From the outset, however, both General Weyland and General Vandenberg had misgivings regarding the possible success of any air-interdiction campaign conducted under the circumstances prevailing during the Korean truce negotiations. In his earlier discussions of aerial interdiction General Weyland had been careful to point out that interdiction attacks worked best when opposing ground forces were locked in battle and the enemy was forced to use up his front-line supplies.[19] During World War II comprehensive interdiction had prevented the Germans from marshaling their strength during the Allied invasion of Normandy, but General Vandenberg emphasized that the situation in Korea was quite dissimilar to the situations which had lent themselves to successful air interdiction in World War II. In Europe aerial interdiction campaigns to the rear of the German armies had been in combination with surging Allied ground offensives. In Korea, in the autumn of 1951, the ground front was stabilized and interdiction could only hinder a major enemy offensive by delaying the movement of materiel and personnel to the front. General Vandenberg cautioned that it would be "scarcely possible to bring about a complete collapse of the Chinese army by such a process of delay."[20]

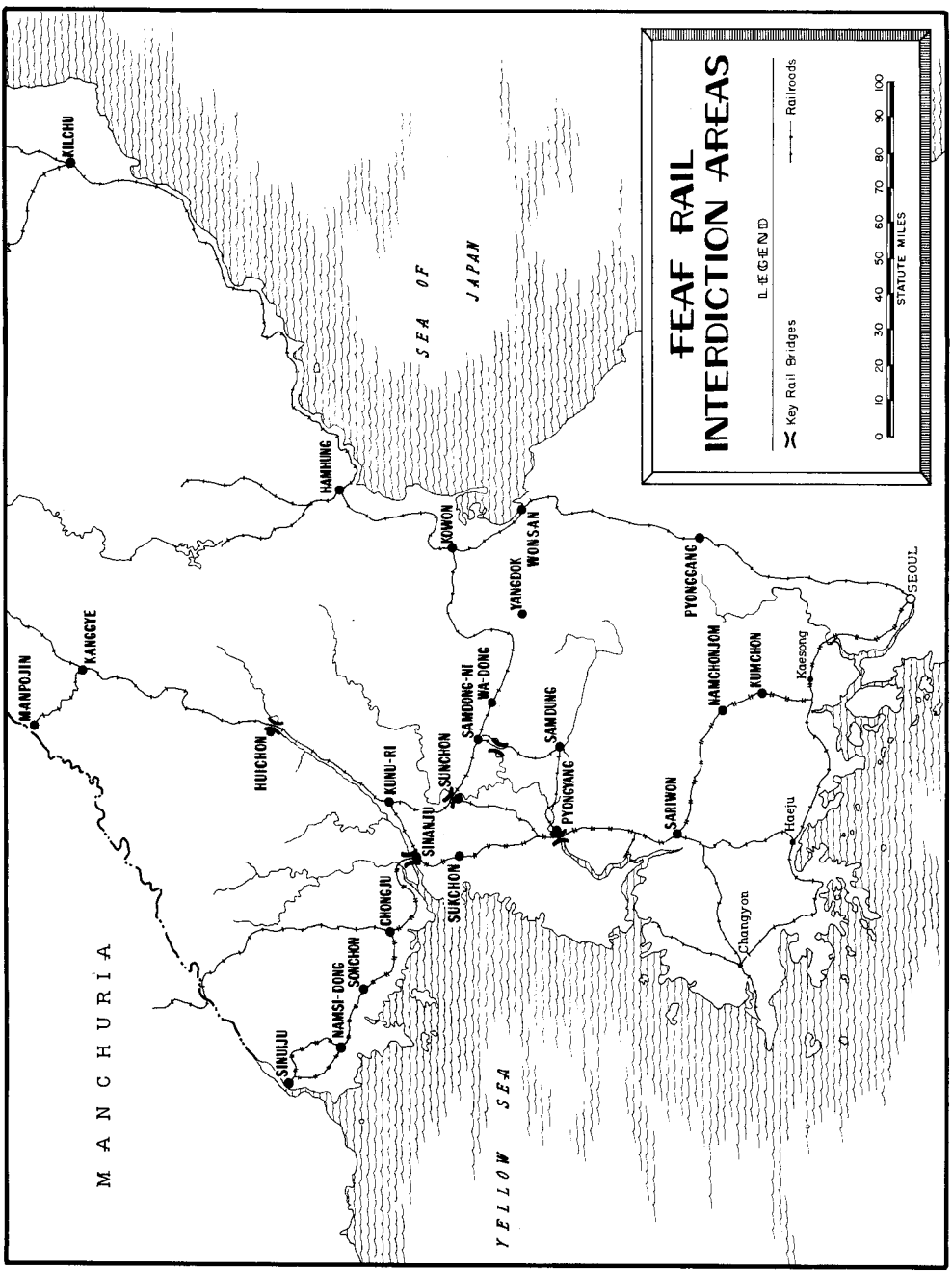
Incendiary and fragmentation bombs leveled this enemy supply build-up in North Korea.

2. North Korea's Railways as a Target System

Concurrently with the Eighth Army's attack northward late in May 1951 United Nations air forces had implemented "Operation Strangle," which sought to interdict the Communists' highway communications between railheads at the 39th parallel and the front lines.* In June and July 1951 the Fifth Air Force and Task Force 77 centered their aerial attacks against the seven main enemy supply routes coming into the battle area from the north. When the enemy began to divert traffic to secondary roads, these roads were added to the attack program. Initially successful while the Eighth Army was pressing northward, the attacks against the enemy's roads lost effectiveness as the Eighth Army attained its objectives and slackened its ground pressure. The attacks slowed Red motor transport, but they were never able completely to knock out a road because repair materials—rock, timber, and earth—and unlimited labor were readily accessible to the Communists.[21]

Eighth Army and Fifth Air Force intelligence officers in Seoul noted the declining effectiveness of the air attacks against the enemy's roads and studied the enemy's logistical system in search of more effective interdiction targets. The intelligence officers recognized that the Communists had no major industry in North Korea capable of supporting their war effort, and, except for a few arms factories at Pyongyang and Kunu-ri, the Reds were compelled to bring their war supplies from Manchuria or Siberia. According to Eighth Army intelligence, the Reds had 60 divisions of various types in the battle zone south of a line drawn through Sariwon. The Eighth Army conservatively estimated that each enemy division could maintain itself in limited combat with 40 tons of supplies each day. Therefore, the Red logistical system had to transport 2,400 tons of supplies to the battleline each day. Having determined the amount of supplies the Reds required, Fifth Air Force officers examined the Red transportation system and found that it comprised motor and rail transport. In the front lines the Reds used human and animal bearers, but they depended upon trucks and trains for long hauls. The Russian-built trucks that the Communists possessed each carried approximately two tons, which meant that 1,200 trucks were required to haul a day's supplies to the Communist armies. The Eighth Army estimated that the round-trip time of a truck from Antung to the front lines was ten days, and, to play safe, the Fifth Air Force figured the round-trip time at five days. According to the Fifth Air Force figure, the Reds would need 6,000 trucks to transport 2,400 tons of daily resupply from Antung to the battle zone south of Sariwon. Each Korean boxcar had a load capacity of 20 tons, and thus only 120 boxcars could transport the Red daily-supply requirement. The Reds had always attempted to use their railways to the maximum, and, in the period during which United Nations pilots were attacking the roads, the Communists had begun to move supplies by rail into such southern terminals as Sariwon and Pyongyang. Because of its greater load-hauling capacity, the North Korean railway

*See Chapter 10, pp. 324-325.


FEAF RAIL INTERDICTION AREAS
LEGEND
Key Rail Bridges
Railroads
0 10 20 30 40 50 60 70 80 90 100
STATUTE MILES
MANCHURIA
SEA OF JAPAN
YELLOW SEA
KILCHU
HAMHUNG
KOMON
WONSAN
YANGDOK
PYONGGANG
SEOUL
MANPOJIN
KANGGYE
HUICHON
KUNU-RI
SUNCHON
SAMDONG-NI
WA-DONG
SAMDUNG
PYONGYANG
SARIWON
NAMCHONJOM
KUMCHON
Kaesong
Haeju
Chaegyon
SINANJU
SUICHON
CHONGJU
NAMSI-DONG
SONCHON
SINUIJU

network was clearly the primary transportation capability of the Reds. Rail transport was also cheaper to the enemy. The Reds had to import motor gasoline from China or Russia, but coal was locally available from North Korean mines.[22]

On the basis of this evaluation of the Communist logistical support system, the Fifth Air Force determined that the North Korean rail-transportation system was of supreme importance to the Communists. From the airman's viewpoint, moreover, rail lines offered attractive targets. Rail lines could not be hidden, nor could rail traffic be diverted to secondary routes or detours as could motor vehicles. The Fifth Air Force saw three methods of rail attack. Air attack could blow out rail bridges, or destroy railway rolling stock, or destroy the tracks and roadbeds of the railways. Fifth Air Force planners believed that air attack could destroy rail bridges and keep them destroyed, but rail bridges were not the best targets for the new program. On the east coast, in the spring of 1951, Navy aircraft had done an excellent job of continuous bridge destruction, but the Reds had been willing to move a train 11 or 12 miles and then to reload its supplies on another train waiting beyond a blown-out bridge. If fighter-bombers repeatedly attacked the same bridges, moreover, the Reds would undoubtedly mount antiaircraft defenses at such objectives. Railway rolling stock was in short supply in the Far East, but Fifth Air Force planners did not believe that air attack could destroy enough of it to hinder the Communists. The last remaining method of rail attack was to bomb the enemy's railway track and roadbeds. In experimental attacks, late in July, the 8th and 49th Fighter-Bomber Groups got good results in skip-, dive-, and glide-bombing attacks against the enemy's railroad tracks. Glide-bombing attacks with 100-pound general-purpose bombs apparently gave the best results and accuracy against railway tracks. In making its rail attacks, moreover, the 8th Group was easily able to avoid areas defended by flak, and it lost no planes on its rail-cutting missions. The Fifth Air Force reasoned that replacement railway rails were too heavy to be transported by coolies with "A-frames" or even, as a usual thing, by trucks. In short, the Reds would require rail equipment to repair rail equipment. In order to prevent the Communists from bringing in heavy rail-repair equipment to patch breaks in their railway tracks, the Fifth Air Force planners decided that a few key rail bridges should be destroyed and kept out of use.[23]

By early August 1951 the Fifth Air Force had arrived at the concept of the interdiction plan against North Korea's railroads, and Fifth Air Force operations officers began to compute the aerial capabilities which would be required to do the job. Whether or not the Fifth Air Force planners drew upon operational experience of World War II in computing air capabilities against rail targets is not evident,* but the Fifth Air Force nevertheless computed that it would require six to eight months to destroy the enemy's rail system with its own aircraft. In order to shorten the time required to something on the order of 90 days, the Fifth Air Force re-

*In Europe, during World War II, the IX Tactical Air Command, using fighter-bombers, each carrying two 500-pound bombs and divebombing in deference to German flak defenses, had learned to expect no more than one rail cut for each eight or nine sorties flown. At this time the Germans had repaired ordinary rail-line cuts in as little as five hours. (Hq. IX Tac. Air Comd., Opns. Research Sect., Rpt. No. 67, 28 Nov. 1944.)

quested the Navy to assume responsibility for interdicting the lateral rail line across Korea between Samdong-ni and Kowon and the east-coast rail line from Kilchu through Hungnam and Wonsan to Pyonggang. The Fifth Air Force asked Bomber Command to assume responsibility for interdicting the key rail bridges at Pyongyang, Sonchon, Sunchon, Sinanju, and Huichon. The Seventh Fleet accepted its share of the rail routes, and Bomber Command agreed to neutralize all the bridges except the one at Huichon, which was too far north and endangered by MIG's. Four bridges were not quite as good as five, but the Fifth Air Force thought that four would suffice. For its own part, the Fifth Air Force undertook to interdict the predominantly double-tracked North Korean railway lines in northwestern Korea. In order to release the maximum Fifth Air Force capability for the execution of the interdiction program, General Van Fleet agreed to limit the Eighth Army's requirement for close support to 96 sorties per day, a number which averaged out at approximately eight sorties to each front-line division. All of the arrangements coordinating the employment of United Nations air forces in the comprehensive railway interdiction campaign were apparently worked out by the Fifth Air Force in Korea, but General Weyland later emphasized that the interdiction program was developed in detail by collaboration between Army, Navy, and Air Force staff officers and was approved by "responsible commanders of all services in the theater."[24]

Although the attack plan comprehended intensive attacks against the North Korean railway system, the Fifth Air Force expected to obtain important concomitant results. The official Fifth Air Force estimate of 14 August stated: "The Fifth Air Force and attached units in conjunction with the U.S. Naval Air Units and FEAF Bomber Command have the capability of destroying the enemy's rail system in North Korea." Colonel William P. McBride, the Fifth Air Force's director of combat operations, explained that "We decided to destroy the enemy's rail system to where its rail traffic was as near zero as we could make it." Even if the enemy's railways south of a line between Sinanju and Kilchu were destroyed, the Fifth Air Force recognized that the Reds could still supply their forces by employing 6,000 motor trucks. The Fifth Air Force believed, however, that motor transport would prove too costly for the Reds. Fifth Air Force light bombers would hunt trucks as a major endeavor, and natural attrition would take an additional toll of the Red vehicles. From such causes Communist vehicular attrition would range up to 7,500 a month, whereas Communist China and Russia were manufacturing only about 33,000 trucks a month. Thus the United Nations air force was not only capable of destroying the enemy's rail system but "of hindering his highway transportation system to such an extent that he will not be capable of opposing the U.S. Eighth Army effectively." "We are optimistic enough about it," said Colonel McBride, "to believe that with this program we can force the enemy to retire from a line generally from Pyongyang through Kowon, which is a line generally 100 miles from and parallel to the Yalu River."[25] In September 1951 General Everest reportedly explained to pilots at Taegu that Fifth Air Force planners believed that the comprehensive railway-interdiction attacks would so weaken the enemy

Five rail and highway bridges are knocked out at this rail complex near Sinanju, 4 September 1951.

that he could easily be routed by an Eighth Army ground offensive or he would be forced voluntarily to withdraw his troops closer to the Manchurian border in order to shorten his supply lines.[26] Enthusiastic concerning the prospects for the new operations plan, Fifth Air Force officers used the same name which they had given to the earlier road-interdiction program and called it "Operation Strangle." At a briefing for General Vandenberg Fifth Air Force officers referred to the rail-interdiction campaign as "Operations Strangle," and, subsequently in Washington, General Vandenberg used this same code name in a press conference. In a special press release of 18 February 1952, the Fifth Air Force public-information officer described the results of "Six Months of Operation Strangle."[27]

Within a few weeks both the Fifth Air Force and FEAF began to tone down the earlier exuberant expectations forecast for the railway-interdiction operations. In December 1951 General Ferguson, the Fifth's vice-commander, noted that the railway attacks were a "sort of prophylactic measure." "One wants to be sure," Ferguson said, "that the enemy has not got the means to launch a major offensive."[28] In an effort to clarify air policy in Korea, the FEAF intelligence journal explained that "The present objective of the isolation or interdiction program is to cripple the Communist logistic system to the extent that rapid redeployment of their forces and supplies in support of a sustained

offensive is impossible."[29] Ultimately, FEAF stated the official purpose of the railway-interdiction operations as being: "To interfere with and disrupt the enemy's lines of communications to such an extent that he will be unable to contain a determined offensive by friendly forces or be unable to mount a sustained offensive himself."[30] By the spring of 1952 FEAF officers would have gladly expunged the tricky code name "Strangle" from the record. General Everest made efforts to eliminate the use of the term "Strangle" when he explained to newsmen on 12 April 1952 that "Operation Strangle" had been the name for the short-lived highway-interdiction program and that the aerial interdiction campaign against North Korea's railroads was properly termed the "Rail Interdiction Program."[31]

3. Working on the Railroads: The "Strangle" Attacks

Launched suddenly and without warning, on 18 August 1951, the United Nations air campaign against North Korea's railroads soon gave evidences of its apparent success. Day after day, following 18 August, the Fifth Air Force scheduled its fighter-bomber wings for rail-cutting attacks in northwestern Korea. Recognizing that lateral rail routes on the "H"-shaped rail network would be useless if the main north-south routes were destroyed, the Fifth Air Force aimed its heaviest air attacks against the double-tracked rail lines between Sonchon and Sariwon. It also attacked the single-track rail lines which connected Huichon and Kunu-ri and Kunu-ri and Sunchon. Each day Fifth Air Force fragmentary operations orders specified a 15 to 30 mile stretch of rail line for attack by each fighter-bomber wing. Under cover of the Sabre screen the fighter-bomber wings ordinarily attacked their sections of rail line twice each day.[32] Most wing commanders employed "group gaggles" of 32 to 64 aircraft and varied their tactics according to enemy opposition and the weather. They used glide- and dive-bombing attacks, the former being more accurate and the latter offering the advantages of lower losses and damages from enemy ground fire.[33] Some fighter-bombers carried 1,000-pound bombs in August, but the standard ordnance for use against rail tracks soon became two 500-pound bombs. Track-breaking was not as simple as it appeared. The Communist railway track was only 56 inches wide, and only a direct hit on this narrow-line target was effective. Assessable bombing results for August and September nevertheless revealed that the Fifth Air Force was bettering bombing expectations of World War II. Some 12.9 percent of the bombs dropped cut the tracks, or one-fourth of the total sorties flown obtained rail cuts.[34]

Simultaneously with the fighter-bomber strikes, FEAF Bomber Command's Superfortresses attacked the key railway bridges at Pyongyang, Sinanju, Sunchon, and Sonchon as a second priority to a continued neutralization of Communist airfields in North Korea. As a matter of routine, Bomber Command attacked bridges when photographic reconnaissance showed they were serviceable. On a rail-cutting

Task Force 77 planes ranging the East Korean coast stop this supply train.

day, Bomber Command ordinarily sent out two flights of four aircraft against two bridges. Each flight utilized an axis of attack as close to 90 degrees to the axis of the bridge as possible, thus permitting the bombardiers to use the long axis of the bridge as an aiming point for rate adjustments.[35] Used initially to overcome the obstacle of cloudy summer skies, shoran proved adaptable to bridge busting. As an illustration, the 19th Bombardment Group utilized shoran bombing techniques to aim through nine-tenths cloud cover and knock the center span out of the Sunchon railway bypass bridge on 23 September.[36] The bypass bridges at the principal river crossings were easy for the Superfortresses to chop down, but the Reds also repaired them quickly. In August, however, nature gave Bomber Command an assist, for Chongchon River floods swept over the rail and road bridges at Sinanju.[37] On Korea's northeastern coast Task Force 77's three aircraft carriers—the *Bon Homme Richard, Essex,* and *Antietam*—altered their pattern of previous interdiction attacks in order to maintain the neutralization of 10 rail bridges and 17 highway bridges and to devote the remainder of their effort to attacks against railway lines in isolated areas where the enemy would have difficulty repairing cuts.[38] The Navy airmen performed excellently against the coastal rail routes, but they did not like the lateral rail route between Samdong-ni and Kowon. This route was said to be so well protected by Red ground fire that the Navy airmen called it "Death Valley." Although the Fifth Air Force considered the interdiction of this lateral rail route to be critically important, Task Force 77 devoted little effort to this section of track.[39]

The United Nations railway-interdic-

Rippled trackage, cratered railbeds, and damaged box and rail cars are evidence of the accuracy of B-29 attacks.

tion campaign bested the Communists in August and September 1951. Each night streams of Red vehicles moved southward to make up for the traffic which could not move by rail. Red rail traffic was evidently much reduced, for counts of railway cars in marshaling yards showed little change. Obviously in desperation, the Reds were cannibalizing their double-track railway line, their marshaling yards, and their spur lines to get undamaged rails. By mid-September Fifth Air Force attacks had reduced the main line from Sinuiju to Sinanju to 70 percent single track, from Sinanju to Pyongyang to 90 percent single track, and from Pyongyang to Sariwon to 40 percent single track. In order to keep a single crisscrossed rail line open, the Reds cannibalized 117 miles of track between Antung and Sariwon, and south of Sariwon they took up an additional 13 miles of track which had not been attacked, presumably to make repairs elsewhere.[40] The Fifth Air Force was not only meeting good success in efforts to block rail traffic, but it was enjoying a bonus effect of attacks against enemy vehicular traffic. The B-26 night-intruders reported large kills of night-moving trucks and trains,* and the fighter-bomber wings swept southward after making rail cuts looking for strafing. Such armed reconnaissance was often fruitful. Suddenly clearing weather on targets and also emphasized dawn and dusk armed-reconnaissance sweeps. 24 August allowed a 16th Fighter-Interceptor Squadron flight to catch the Reds ferrying a large convoy across a river, and this F-80 flight, plus two

**See* Chapter 14, pp. 455-456.

others speedily dispatched to the scene, accounted for more than 40 trucks, 20 railway cars, several supply-laden barges, and a large dump of goods on the riverbank.[41] On 30 September a notable last-light flight of two 80th Fighter-Bomber Squadron F-80's destroyed an estimated 40 trucks out of a large convoy caught moving southward.[42] Early-morning Thunderjet attacks found and destroyed Red locomotives which were tardy taking cover.[43]

The Fifth Air Force's fighter-bomber wings destroyed North Korea's railways faster than the Reds could repair them in October and November 1951, but the Communists were beginning to effect countermeasures to the railway attacks. Up north of the Chongchon River MIG's shot down some fighter-bombers and forced more of them to jettison their bombs harmlessly. Unable to oppose this menace, General Everest was compelled to abandon efforts to destroy the enemy's rail lines between Sonchon and Sinanju.[44] South of the Chongchon River the Reds concentrated automatic weapons along their rail lines and moved them to meet changes in Fifth Air Force objectives.[45] In October group gaggles gave way to five-minute-spaced squadron takeoffs, permitting lead flights more time to search out and neutralize hostile flak and preventing air jams over targets.[46] To counteract the growing flak, the Fifth Air Force allowed the fighter-bomber groups to arm up to 20 percent of their sorties with proximity-fuzed bombs.[47] Dive-bombing became the rule for all rail attacks, antiflak loadings reduced rail-cut potential, and bombing accuracy fell off.[48] In an effort to increase their hit probabilities by carrying more bombs, the 8th and 49th Fighter-Bomber Wings worked out devices which permitted their planes to carry additional small bombs on their unused rocket racks. The additional loading so markedly decreased speed and range, however, that the Fifth Air Force soon gave up efforts to increase the combat loadings of the fighter-bombers.[49]

Although the Reds were striking back with growing vigor, Fifth Air Force interdiction efforts were making substantial progress. After 2 October the Communists were unable to make any rail movements on the line between Sariwon and Pyongyang. After 25 October the stretch of rail line between Sukchon and Sinanju was completely unserviceable, but the Reds made herculean efforts to keep one rail line open from Sinuiju to Pyongyang and another from Huichon through Kunu-ri and Sunchon to the Yangdok area of central Korea. For a period of a week late in October the Fifth Air Force luckily blocked both of these lines by wrecking three locomotives along the stretch of track between Kunu-ri and Sunchon. At the end of October, however, a few days of bad weather allowed the Reds to clear away the derelict locomotives and reopen this key link in their rail net.[50] Early in November the United Nations victory in the air battle against North Korea's railroads seemed imminent. The Communists could still move trains over a circuitous route south from Sinuiju to Sinanju, then east to Kunu-ri, then south to Sunchon (a slow movement because of limited serviceability of the Sunchon bridge), and from there to Samdung and Yangdok. The Reds could also move from Kanggye to Kunu-ri, then to Sunchon, and thence into Pyongyang. On the east coast the Reds had no through traffic from Kilchu to Wonsan, but they still were shuttling trains between breaks in the tracks.[51] In order to sever the rail

routes in northwestern Korea, the Fifth Air Force needed only to destroy the short key link of railway between Kunu-ri and Sunchon, a task which appeared possible with a week of intensive attack.

Just when victory for the comprehensive rail attacks seemed to be in sight, Communist countermeasures to the rail campaign began to work against the United Nations cause. Communist fighters and flak had already substantially lessened FEAF's interdiction capabilities. After the bloodletting over the MIG Alley airfields late in October, Bomber Command was unable simultaneously to neutralize the airfields the Reds were building and the bridges they were repairing. Early in November, moreover, Bomber Command was surprised to learn that the clever Reds had actually been using a bypass bridge at Sunchon which was assumed to be out of service. Day photos showed the bridge with two spans out in its middle, but the Fifth Air Force was suspicious and sent an RB-26 there to take pictures on the night of 7 November. These night photos showed that the Reds were placing removable spans in the bridge and using it throughout the night.[52] With Bomber Command unable to hit the bridges, the Communists redoubled their efforts to repair those that had been cut. On 15 November the Reds completed reconstruction of the main highway bridge at Sinanju, and by 30 November they completed a rail bypass bridge at Pyongyang, thus permitting through rail traffic eastward to Samdung for the first time since August 1950. At the end of November Bomber Command's B-29's began to direct shoran attacks against the bridges at Sunchon and Sinanju, but the former bridges remained serviceable and the rail crossings at Sinanju were never made unserviceable for more than two days hand-running.[53]

Communist flak and fighters also reduced the Fifth Air Force's interdiction capabilities. Although the Misawa-based 116th Fighter-Bomber Wing began on 30 November to stage one squadron to Taegu for limited periods of fighter-bomber work with the 136th Wing, the conversion of the 51st Fighter-Interceptor Wing from F-80's to F-86's reduced the Fifth Air Force's interdiction capabilities.[54] Hostile ground fire was also taking a substantial toll of Fifth Air Force fighter-bombers. To such cause the Fifth Air Force lost 26 fighters and had 24 damaged in August, lost 32 and had 233 damaged in September, lost 33 and had 238 damaged in October, and lost 24 and had 255 damaged in November.[55] The damage rate was especially high and placed burdens upon maintenance crews at the same time a high operational rate was already giving them trouble. In-commission rates for the old Shooting Stars declined appreciably.[56] Flying from the dusty drome at Taegu, the 49th and 136th Wings experienced an unusually high number of engine failures. Shortages of spare engines and inadequately programmed supply support severely reduced the number of combat-ready Thunderjets at Taegu.[57] The swelling volume of Red gound fire also lowered the accuracy of the fighter-bombers. According to a Fifth Air Force operations analysis study made in December, only 7 percent of bombs dropped by Thunderjets were cutting the enemy's railway tracks.[58]

"With deadly monotony and a somewhat creeping paralysis of enthusiasm," 8th Fighter-Bomber Group Shooting Star pilots in November and December 1951, "returned again and again to hit a piece of terrain that

became as familiar as Main Street, USA." The 8th Group's rail target was the critically important, 25-mile-long stretch of winding, twisting railway between Kunu-ri and Sunchon.[59] Despite the almost undivided efforts of this peerless fighter-bomber group, Communist repair troops filled the bomb craters as fast as the Shooting Star pilots could make them. From the outset of the "Strangle" attacks the Reds had managed to repair rail cuts very quickly. No doubt assisted by frozen ground which caused some delayed-fuzed bombs to skip off the target and reduced the dimensions of bomb craters of those that hit the target, the Reds seldom left rail cuts unrepaired for more than twenty-four hours in November. When it appeared that the battered Kunu-ri to Sunchon track defied further repair, the Reds redoubled their efforts elsewhere in December. South of Sukchon on the Pyongyang-Sinanju line, Communist laborers laid a rail bypass around a badly mauled section of track. Within a few days they started work on a similar bypass on the Kunu-ri to Sunchon line. In December photo interpreters indicated that coolie laborers, beginning work at dusk, could repair a rail cut within eight hours, thus opening a railway track for traffic between midnight and sunrise.[60] Early in December Communist construction crews began to restore the badly damaged rail line between Pyongyang and Sariwon. Communist repairs progressed so rapidly that Fifth Air Force intelligence, on 23 December 1951, acknowledged that Red railway repairmen and bridge builders "have broken our railroad blockade of Pyongyang and ...won...the use of all key rail arteries."[61]

4. Operation "Saturate" Replaces "Strangle"

At the medical college in Seoul, where the Fifth Air Force made its headquarters, and in the Meiji and Dai Ichi buildings in Tokyo, where Generals Weyland and Ridgway had their command posts, United Nations commanders puzzled over the results of "Strangle" during December 1951. According to prisoner-of-war reports, Communist plans to mount a "Sixth-Phase" ground offensive in August had been called off because of the air attacks against North Korean railways. At a Fifth Air Force planning conference in Seoul on 12 December General Ferguson was completely candid in his interpretation of the enemy's actions. "Although the enemy has made no large-scale attack," he said, "we don't know whether it is the result of the interdiction or whether he never intended to attack." General Ferguson reported, however, that intelligence did not believe that the Reds had been able to accumulate the supplies they needed for a two-week ground offensive.[62]

To newsmen in Tokyo General Weyland announced on 26 December 1951 that the "Strangle" operations had shattered the North Korean rail-transportation net, had resulted in the destruction or damaging of some 40,000 Communist trucks, and had prevented the Reds from building up for a future

offensive.[63] After a thorough study and review of the results of the interdiction program, General Ridgway messaged his conclusions to the Joint Chiefs of Staff on 4 January 1952. General Ridgway noted that the air-interdiction campaign had slowed and seriously affected the enemy's supply operations and had increased the time required to move supplies to the front lines. It had forced the Reds to divert thousands of troops and much materiel in order to maintain and protect their lines of communications. It had destroyed thousands of vehicles and pieces of railway rolling stock and a significant quantity of supplies. On the opposite side of the ledger, Ridgway noted that the air-interdiction program had not prevented the enemy from moving the supplies he needed to support a static defense or from making troop movements into North Korea. Under conditions of static defense, Ridgway recognized that the Communists could eventually accumulate the supplies they needed to support a major offensive despite the aerial interdiction. If the program should be discontinued or reduced, however, Ridgway thought that the enemy could, in a relatively short period of time, accumulate sufficient supplies to permit him to launch and sustain a major offensive.[64]

As a result of the discussions during the Fifth Air Force planning conference on 12 December, General Ferguson announced that the "Strangle" operations ought to be continued for at least thirty more days, pending the development of more lucrative air targets. In his press conference on 26 December General Weyland stated that the air-interdiction campaign would be continued "until the tactical situation or cease-fire agreements dictate a change."[65] Both officers nevertheless recognized that the aerial interdiction problem in Korea had become much more difficult. Following the resumption of truce talks at Panmunjom on 25 October, the United Nations delegates had soon suggested a compromise whereby the existing battleline would become the effective demarcation line in any armistice settlement signed within thirty days after 27 November. Even before this *de facto* cease-fire went into effect, General Ridgway had, on 15 November, directed the Eighth Army to cease offensive operations and begin an active defense of its front. The Communists would not agree to an armistice during December 1951, but they took advantage of the respite on the ground to fortify their front lines. Having secured their battle positions, the Reds moved troops to rearward support positions, thus reducing the logistical support required at the front lines.[66]

Since both General Ridgway and General Weyland were in favor of continuing the North Korean railway interdiction campaign, the Fifth Air Force began to figure how rail attacks could be most effectively accomplished with declining air capabilties. On the operating level, Lt. Col. Levi R. Chase, commander of the 8th Fighter-Bomber Group, phrased the problem succinctly. "Our goal," Chase said, "has resolved itself into a simple equation—to achieve a maximum percentage of rail cuts in inverse proportion to personnel losses and battle damage to our aircraft."[67] Fifth Air Force fighter-bomber pilots were fairly unanimously agreed that the manner in which the Fifth Air Force had been scheduling the railway attacks had made them vulnerable to enemy flak. Each day, morning and afternoon, the 12 to 24 fighter-bombers had been hitting targets selected on 15- to 30-mile stretches of railroad. The pilots argued

Battered marshalling yard, 18 December 1951.

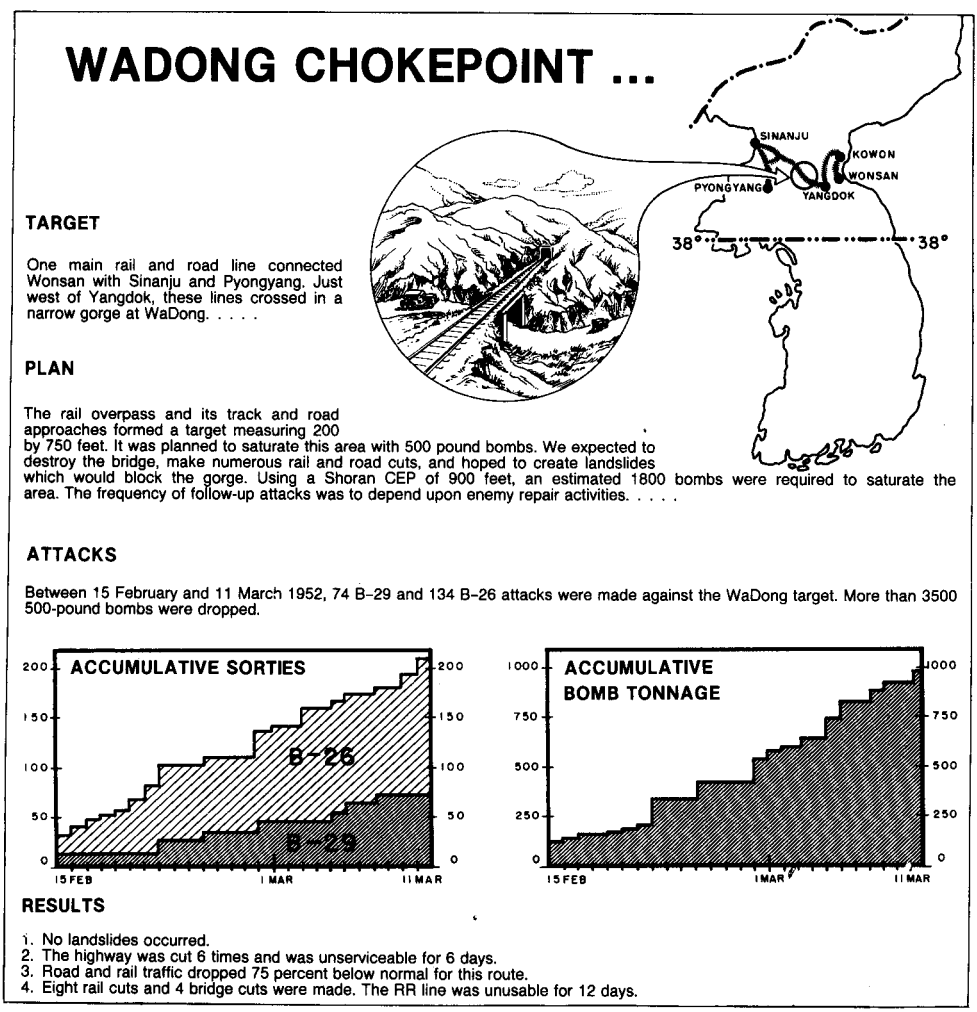
that enemy gunners knew exactly when and where to expect them. Fifth Air Force operations analysts disagreed with the contention that the Reds concentrated their flak against fighter-bomber strikes. Flak plots actually indicated that the Reds uniformly distributed their automatic weapons along their railroad lines south of the Chongchon. Along the six main stretches of track which the Fifth Air Force had been attacking the Reds had emplaced flak positions at four-mile intervals.[68]

Early in January 1952 Fifth Air Force operations officers acknowledged that Communist flak was getting too concentrated south of the Chongchon and directed changes in the rail-interdiction areas. A few months earlier MIG's had driven the fighter-bombers south of the Chongchon, but now the MIG's were not aggressive, and the Reds had not yet emplaced much flak along the rail lines between the Yalu and the Chongchon. The Fifth Air Force accordingly assigned the Thunderjet wings target areas on the main railway line northward from Sinanju to Sonchon and ordered the Shooting Star wing to attack the rail line between Kunu-ri and Huichon. After this change, the fighter-bombers encountered less flak and scored a larger percentage of rail cuts, but the ground was frozen so hard that bombs often skipped off the ground and exploded in the air. Other bomb-blasts in the frozen ground deflected debris upward. As a result of both phenomena, many planes were damaged by their own bomb-blasts as they made low-level attacks.[69] During February the fighter-bomber groups continued to attack rail targets north of the Chongchon, but they attempted to avoid the enemy's growing flak by moving around from one rail line to another.[70]

At the December planning conference in Seoul General Ferguson had expressed confidence that Bomber Command would be willing to help with rail-line interdiction provided intelligence could find some bottlenecks in the enemy's rail system which could be pulverized by the B-29's. Late in January 1952 Fifth Air Force intelligence came up with such a target. Near the village of Wadong, on the lateral railway running across central Korea, Fifth Air Force target men located a defile where a main highway crossed the railroad. The countryside was rugged and remote from populated areas, and the Fifth Air Force recommended that night-flying B-26's and B-29's should saturate the rail line and highway with 500-pound bombs.

Beginning on 26 January and continuing through 11 March, 77 B-29 and 125 B-26 sorties dropped 3,928 x 500-pound bombs into the "Wadong Choke Point." The results of these shoran-directed attacks were completely disappointing. The bombing effort scored only 18 rail cuts and 15 road cuts, and the remainder of the bombs merely churned up the countryside. During the forty-four days of the attack the rail line was blocked for only seven days and the highway for only four days. From an analysis of the "Wadong Choke Point" attacks, FEAF soon recognized that the B-29's ought to attack definite targets such as bridges. It ultimately noted that proper targets for interdiction strikes were road and rail lines, bridges, and rolling stock. "It is a fallacy," FEAF reported, "to assume there is an 'area target' for traffic interdiction."[71]

At the same time the shoran bombers



were hammering the Wadong crossroads the Fifth Air Force was making an analytical study of what was wrong with its fighter-bomber rail-interdiction efforts. Each day the fighter-bombers were cutting North Korea's railroads at many points, but the obstructions were not maintained at night, or in bad weather, or in many instances during the day. Enemy repair crews stationed at regular intervals along all major rail lines impressed local laborers and easily repaired small rail cuts in a few hours. Using large numbers of laborers, the Reds could repair several rail cuts in the same elapsed time as one rail cut. The scattered air attacks which resulted when wing commanders were permitted to select their own objectives on given stretches of railway worked detriment to good flak intelligence planning, with the result that each fighter-bomber formation used a part of its ordnance for flak suppression. The flak-suppression strikes usually drove enemy gunners under cover but seldom destroyed enemy weapons. Fifth Air Force intelligence had noted that the enemy repaired simple rail cuts with facility, but he had more trouble making repairs at those places where the fighter-bombers did sufficient damage to compel him to bring in heavy rail-repair equipment. The coming spring thaws, moreover, would probably complicate the enemy's rail-route maintenance and rehabilitation effort.[72]

Sections of enemy rail lines have been repaired repeatedly, only to be cut and cratered again.

After surveying these deficiencies of the "Strangle" attacks, Colonel Jean H. Daugherty, the Fifth Air Force director of intelligence, on 25 February 1952 strongly recommended the implementation of "Operation Saturate," or round-the-clock concentration of available railway-interdiction effort against short segments of railway track. The plan was to mutilate these segments of track by sustained day and night attacks. During the day the fighter-bombers would do the work; at night B-26 intruders would attack at periodic intervals under flare illumination with 500-pound bombs. Colonel Daugherty recommended four main railway lines for intensive railway interdiction: Kunu-ri to Huichon, Sunchon to Samdong-ni, Sinanju to Namsi-dong, and Pyongyang to Namchonjom. Believing that the B-29's had been given more bridges than they could handle in the old program, the Daugherty study recommended that the medium bombers should concentrate large-scale bombing attacks against principal river crossings such as the rail

bridge complexes at Sinanju and Sunchon.[73]

With General Everest's approval, the Fifth Air Force put Operation "Saturate" into effect on 3 March 1952. Unlike the earlier operational pattern, the Fifth Air Force Joint Operations Center now picked exact targets and closely controlled all flights of aircraft, directing routes of approach, initial points, withdrawal procedures, and altitudes to be flown to and from each target, the purpose being to compress the time interval of the attacks and to shift targets when weather or flak dictated.[74] Among other considerations, the Fifth Air Force attempted to select targets which were as free of flak as possible, but photo reconnaissance planes now not only reconnoitered planned target areas in advance but also slipped into take pictures between fighter-bomber strikes. Working with wet prints, 67th Tactical Reconnaissance Wing photo interpreters flashed mission-results and flak-movement reports to the Joint Operations Center in time to assist fighter-bomber attacks later in the day.[75] The fighter-bomber wings employed massed formations, but intensive study of flak positions prior to missions allowed the formations to neutralize the enemy's automatic weapons.[76] As a planning objective, the Fifth Air Force sought to expend an average of 300 fighter-bomber sorties and 600 bombs on each rail-track segment each day. On 15 March 3d Bombardment Wing B-26's began to unload internally carried 500-pound bombs over the rail cuts at periodic intervals during the hours of darkness.[77]

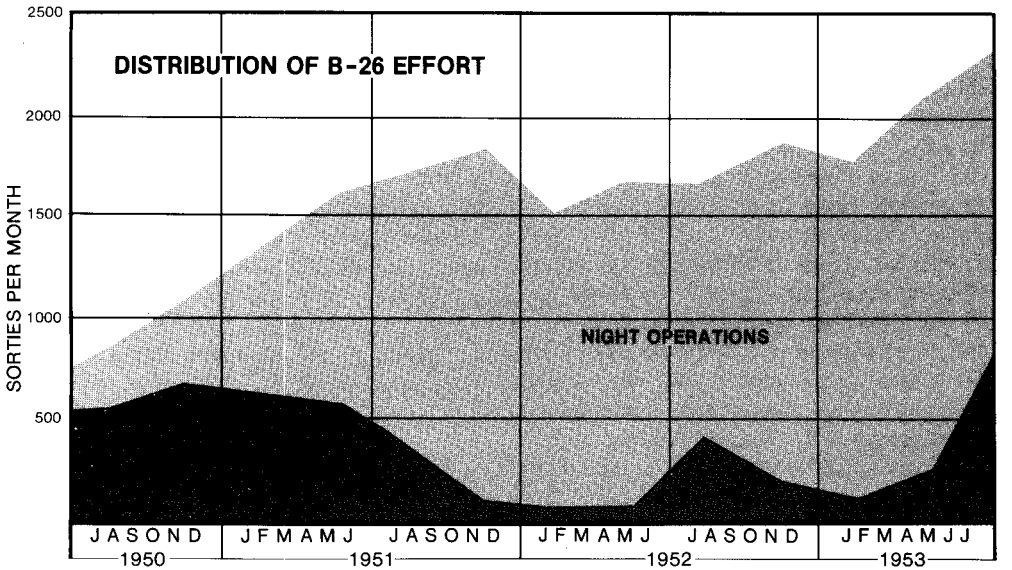
Adverse flying weather handicapped the sustained motive of the "Saturate" attacks, and the results of the new attack plan were inconclusive until 25 March. On this day the "Saturate" target was a segment of railway track between Chongju and Sinanju, especially selected because it included a long roadbed fill through swampy terrain, two bridges across small streams, and a minimum of flak. On 25 March 307 fighter-bombers dropped 530 x 1,000-pound bombs and 84 x 500-pound bombs; on the night of 25/26 March 8 B-26's covered the target with 42 x 500-pound bombs; and on 26 March 161 fighter-bombers expended 322 x 1,000-pound bombs. In the two-day attack, only one F-51 sustained minor flak damage. Photographic reconnaissance revealed that the Reds began to bring forward repair materials but attempted no repairs until the attacks were finished. By 30 March, five days after the initial strikes, the Reds had rebuilt their roadbed, and they replaced the tracks on the following day. The two-day maximum interdiction attack had put the rail line out of operation from 25 to 30 March and possibly for another day, but the success of the effort was partly attributable to thawing soil which caused bomb craters to fill with water and forced the Reds to haul in dry fill and ballast.[78] In this same last week of March the B-29's were also successful against bridge targets. At Pyongyang, on the 25th, 41 B-29's knocked down 225 feet of the bridges; at Sinanju, on the 28th, 47 B-29's took out 320 feet of bridges; and on the last day of the month 13 B-29's chopped spans from the Sinhung-ni railway bridge.[79]

Since the tactics had proven practicable, the Fifth Air Force continued the "Saturate" attacks during April and May, albeit with strikes of lesser magnitude than the initial efforts, but still concentrated against two-mile-long sections of track on the enemy's main rail lines. At first, when the Fifth Air Force was able to outguess the Reds

and strike where they had little flak, bombing accuracy was good and damages to aircraft were slight. But by the end of April the Reds had emplaced flak batteries along nearly all of their rail lines and there were virtually no flak-free targets to be found. During April "Saturate" attacks kept the enemy's rail line between Sinuiju and Sinanju continuously out of operation, illustrating the validity of the tactics, but the Fifth Air Force's rundown fighter-bomber strength was too small to permit it to effect a simultaneous interdiction of the enemy's other rail lines. In April the Fifth Air Force reached a nadir of fighter-bomber strength. Chiefly during railway interdiction strikes it had lost 243 fighter-bombers and had sustained major damages to 290 other tactical airplanes. In compensation for these losses, it had received only 131 replacement aircraft. The 49th and 136th Fighter-Bomber Wings were woefully deficient in aircraft. Instead of the 75 unit equipment aircraft authorized, the 49th possessed 41 aircraft and the 136th had only 39. As replacements for the F-84E Thunderjets, USAF was shipping outdated F-84D (Modified) aircraft, planes which General Everest had protested strongly but unsuccessfully against taking.[80] Employing all units, including the 1st Marine Air Wing, the Fifth Air Force could possibly have made and maintained six intensive cuts on the enemy's rail lines, but several times this number of continuous cuts would have been required to deny the enemy use of his 600 miles of railways in North Korea.[81] Despite a recognition that it lacked requisite strength needed fully to exploit the "Saturate" tactics, the Fifth Air Force continued to effect a partial blockade of North Korea's rail routes in the first half of May.[82] Already, however, air-operations planners were seeking an application of effort which would be more profitable than interdiction had been.

5. Night Intruders Hunted Moving Transport

"On the whole," wrote Colonel R. J. Clizbe, as he looked back at a tour of duty in Korea which had culminated in command of the 452d Bombardment Wing, "night interdiction in the USAF was born in 1944 in an atmosphere of crisis, nourished during emergency, and virtually abondoned when actual wartime need ceased to exist."[83] With no prior preparation in August 1950, the 3d Bombardment Wing and Marine Squadron VMF(N)-513 had begun to employ their B-26's and F4U-5N's as night intruders. Needing still more night effort, the Fifth Air Force had converted the 452d Bombardment Wing's B-26's to night intrusion. Since USAF had no other plane for the purpose, the 3d and 452d Wings were expected to do the best they could in Korea with a scarce number of obsolete B-26 bombers. The two wings were attempting to develop effective night-attack tactics, without possessing any effective means of assessing the results of their missions. Both wings regularly sought bomb-damage assessment photography, but little or no reconnaissance effort could be made available to them. Operating at night



against targets of opportunity, B-26 intruder crews were usually unable to pinpoint their exact target locations well enough to allow RB-26 crews to find the spot and take photographs. "We can go out night after night," said a Fifth Air Force officer, "and come home and not be too sure what we have done.... We are not able to measure our effectiveness."[84]

With the beginning of the "Strangle" railway-interdiction campaign, the 3d and 452d Wings' mission of night interdiction assumed added importance in August 1951. If the night intruders could make night vehicular movements too expensive for the enemy to continue, the Reds would find themselves in an impossible logistical situation. Looking toward more effective night operations, the Fifth Air Force divided Korea between the two B-26 wings. Based at Kunsan Airfield (K-8), the 3d Wing was made responsible for covering the main supply routes in western Korea. Flying from Pusan East Airfield (K-9), the 452d Wing drew the duty of covering the main supply routes in eastern Korea. Marine Squadron VMF(N)-513 continued to work with flare aircraft against enemy traffic on supply routes near the rear of the main lines of resistance. Fifth Air force operations assigned color designations and numbers to each main supply route within enemy territory, and its daily operations orders directed the particular routes over which the night-attack units would maintain surveillance and attack.[85] Ordinarily, the B-26 wings dispatched "lonewolf" intruder crews at periodic intervals throughout the night, and the four-hour flights were timed to cover assigned supply routes or railways from dusk to dawn. In the winter months the usual interval between takeoffs was thirty minutes, but on shorter summer nights the interval was reduced to fifteen minutes.[86]

Intruder crews of the 3d and 452d Wings varied their tactics according to the model of planes they flew, the terrain they flew over, and the availa-

bility of natural or artificial illumination. Even if an intruder crew had flare support, Korea's rugged terrain hazarded low-level operations. Since aerial charts were frequently inexact, B-26 crews usually pulled up from strafing attacks at altitudes not less than 1,000 feet higher than the highest published height of terrain features in the vicinity of a target. One pilot further added that the "safe" pull-out altitude was actually 1,000 feet higher than the published altitude of the highest obstacle, plus an additional 500 feet for each married man on the crew.[87] When night-intruder crews could secure flare support, they could work closer to the ground. Pointing out that the Marine squadron, which always worked with flare planes, claimed three times as much destruction as the 3d Wing in April, General Everest asked that the "Firefly" flight of the 67th Tactical Reconnaissance Wing be augmented by an additional 20 C-46's. When this request was made in September 1951, however, FEAF had to refuse it because its stocks of flares were already critically short and would remain so during the autumn of 1951.[88] Denoting an increased interest in bombing as the optimum intruder tactic, FEAF had requested USAF in May 1951 to send glass-nose B-26C's to the Far East as replacement aircraft. With a bombardier's position forward, the B-26C was much more suitable for bombing attacks than was the hard-nose B-26B strafer. Although it was unable to honor this request, USAF nevertheless undertook to secure British Mark IX fixed-angle bombsights for the Korean B-26 groups. For a trained bombardier the Norden M-9 reflex sight was more satisfactory, but the Mark IX was thought to be easier for lesser-skilled bombardiers to operate.[89]

When the daytime "Strangle" attacks successfully interdicted the Red rail lines in North Korea in late August 1951, 3d and 452d Wing night-intruder crews reported that they had never before seen so many enemy vehicles traveling the roads of North Korea. In view of the emergency, the Reds evidently threw caution to the wind and sent large convoys southward with headlamps blazing. "The traffic reminded me of the crowd leaving the Cotton Bowl football game," said Captain Clay C. Stephenson of Dallas, Texas. "The roads," he added, "were clogged everywhere."[90] With so many Red convoys on the roads, the night intruders turned in large claims of vehicles destroyed. On the night of 24/25 August B-26 crews claimed nearly 800 vehicles destroyed or damaged, meriting General Weyland's congratulations. During the month of August the intruder crews claimed 1,935 vehicles destroyed and 3,633 damaged.[91] The lighted convoys, moreover, were natural targets for bombing attacks. According to 452d Wing pilots reports, 71 percent of the vehicles destroyed during August were dispatched by aircraft with bombs.[92] The 3d Group reported that "tests" of an undescribed nature demonstrated the effectiveness of synchronous bombing attacks against Red convoys employing 500-pound proximity-fuzed bombs from altitudes up to 8,000 feet.[93]

With all available B-26's working at night interdiction, the 3d and 452d Wings claimed to have destroyed 2,362 enemy vehicles and to have damaged 4,959 others between 25 August and 15 September 1951.[94] Despite a tightened Fifth Air Force definition issued late in the month—a definition that allowed aircrews to claim vehicles "destroyed" only if they were seen to burn or explode—the Fifth Air Force claimed 5,318 vehicles destroyed in September.

In October the Fifth Air Force posted claims of 6,761 enemy vehicles destroyed, the highest monthly total for vehicles destroyed during the Korean war.[95] Both bombardment wings agreed that synchronous bombing attacks against hostile convoys offered the optimum means of destroying these targets of opportunity. Bombing tactics worked best on the darkest nights, but on at least 20 nights each month the enemy had to use headlamps. The 3d Group explained that its crews scouted for the lights of enemy convoys and located and analyzed the convoy's size and direction of movement. Once the analysis was completed, the bomber's crew took an attack heading, usually one which paralleled the road or intersected it at a slight angle. When the aircraft was committed to the attack, the bombardier synchronized on either the first available light or the portion of the road containing the largest number of vehicles. Bombing from 7,500 feet, a crew got success which varied with its successful analysis of the bombing problem. The thing to remember, noted the 3d Group, was to take the whole convoy under attack rather than a single light. The 3d Group positively asserted that synchronous bombing was highly effective and capable of greater results than strafing. Any effort to "turn night into day" with flares, the 3d Group reported, should be used only as a last resort. The 452d Wing concurred. "Irrefutable evidence," it reported, "indicates that bombing is much more effective than strafing over a period of time and under all conditions."[96]

In the autumn of 1951, the Fifth Air Force intruder wings also tested another one of their "wild ideas"—this time U.S. Navy searchlights mounted on the wings of B-26 intruders. In February 1951, while on a visit to the United States. Colonel Zoller of the 3d Wing had first inspected an 80-million-candlepower searchlight at Langley Air Force Base. Mounted on airships, the Navy had used the light to seek out enemy submarines during World War II, but it was a package unit which could be attached under a B-26's wing.[97] In July, when the lights began to arrive in Korea, Colonel Nils O. Ohman, who now commanded the 3d Wing, ruled that only two aircraft in each bomber squadron would be equipped with searchlights. Each of the lights was as big as a napalm tank, and its drag promised to reduce the range of the plane that carried it. Colonel Ohman also thought that the lights would increase the vulnerability of the plane to enemy ground fire. At the start both the 3d and 452d Wings had trouble getting the lights into action so that they would test them. Some snapped off the brackets which held them and others caught fire and had to be jettisoned. The first few searchlight missions flown by the 3d Group revealed the tactics which would be useful. The B-26 crew would first locate a convoy and mark its position with fire bombs. Then the crew would switch on the searchlight—which was limited to approximately fifty seconds' burning at a time—and prosecute low-level attacks.[98]

On the night of 12 September, north of Hwangju, Captain John S. Walmsley of the 8th Bombardment Squadron first revealed that the searchlight had utility. After halting a convoy with 500-pound fire bombs, Captain Walmsley used the searchlight on a part of ten passes which the crew made back and forth across the convoy. Fragmentation bombs and gunfire destroyed at least 16 trucks. Riding in the nose of the plane, Lt. William D. Mulkins got a bombardier's look at what happened. He

One-hundred-pound fragmentation bombs being prepared for delivery by Night Intruders.

reported that the Red truck drivers were literally scared out of their wits by the blazing searchlight and drove their vehicles into trees, off the road into ditches, or into one another.[99] On the night of 14 September Captain Walmsley located and disabled a train. When he ran out of ammunition, Captain Walmsley called another B-26 to the scene and then attempted to illuminate the train for the second bomber. In doing this, however, Walmsley's plane was exposed to heavy ground fire that shot it down. In recognition of the act of bravery, Captain John S. Walmsley was posthumously awarded the Congressional Medal of Honor.[100] Somehow, after this, neither light bomber wing had much success getting the searchlights to work, and after futile efforts in October FEAF finally reported that it was abandoning use of the lights, which were too fragile to stand the normal stress of combat.[101]

On 15 September, when the "Strangle" operations were nearly a month old and seemed eminently successful, General Weyland began to mature a relationship between the day fighter-bomber rail-cutting missions and the night-intruder operations. "As a

conservative estimate," Weyland informed General Twining, "we have damaged 5,621 and destroyed 2,559 vehicles during the past twenty-three days." No new techniques or revolutionary tactics of night attack had been devised. The increased results were attributable to the fact that all light bombers were devoting all their efforts to night interdiction. Although the intruders were claiming many vehicles destroyed, many others were doubtlessly getting through with Red supplies. The only known method of choking off the enemy's supplies, Weyland said, was to increase the scope of the night-interdiction effort with additional B-26's. If USAF still could not increase the aircraft authorizations of the 3d and 452d Wings, Weyland recommended that USAF should lend him the 126th Light Bombardment Wing, which was training for deployment to Europe. When the Korean war was over, Weyland promised to deploy to Europe a light bomber wing, fully trained, in combat trim. "The increased effort thus available," he said, "should raise our night claims proportionately and might well be the deciding factor in our effort to destroy the enemy's resupply capabilities."[102] On 20 September, however, General Vandenberg again reported that USAF could not provide or support additional B-26's in Korea.[103]

According to the mission reports of the night-intruder crews—purposefully kept conservative by more rigid criteria—the 3d and 452d Wings destroyed an average of 164 hostile vehicles per day during September and 181 per day during October 1951. Within the validity of the crew claims, Fifth Air Force operations analysts concluded that the principal result of the "Strangle" interdiction campaign was not the throttling of the flow of supplies to Communist front-line troops, but the attrition of at least 15 percent of the Soviet bloc's monthly truck production by less than a hundred old B-26 aircraft. If the crew reports were right, the Reds were facing difficult logistical days. They could continue to support their front-line troops only by expending 5,000 trucks a month.[104] No doubt influenced by the remarkable reported results of the light bomber wings, USAF continued to study the possibilities on increasing FEAF's B-26 strength. Early in October USAF determined that by cannibalizing some old B-26's for spare airframe parts and by sending non-standard B-26's to Korea it could possibly provide General Weyland with six squadrons each with 24 B-26's plus 50 percent theater reserves, or a total of 216 B-26's. In order to attain the war strength he had so long requested, General Weyland agreed to accept B-26's which would not possess shoran and various other items of equipment suiting them to a night-attack configuration. On 27 October General Vandenberg ordered that FEAF's B-26 unit equipment authorization be increased from 96 to 144 aircraft and specified 1 May 1952 as the target date for the completion of the augmentation.[105]

Both FEAF and USAF apparently gave credence to the report that less than a hundred old B-26's were destroying up to 15 percent of the Soviet bloc's monthly truck production. Especially in the Fifth Air Force, the report engendered optimistic predictions that aerial interdiction would force the Red gound forces to retire northward. Although the night intruders were undoubtedly more effective than usual against the streams of Communist vehicles which jammed the roads in the autumn months of 1951, it was all too evident later on that the

claims of the night-intruder crews were exaggerated.* Flying alone at night, unable to secure photographic verification of their claims, the night-intruder crews were understandably unable to determine the exact results of their missions. Apparently several factors determined the extent of claims turned in by the night-intruder crews. As early as September 1951 some Fifth Air Force operations analysts noted that night-intruder crews did not indicate that any one type of bomb was better than another for destroying hostile vehicles and suggested that crews were claiming vehicles destroyed in proportion to the number of vehicles sighted and the number of B-26 sorties flown.[106] General Weyland also attributed the increased night-intruder claims of August and September to the fact that the B-26 wings were flying more night-intruder sorties than ever before.[107] The number of Communist vehicles sighted showing headlamps had some correlation with night-intruder claims, for the B-26 crews to some extent measure the success of their missions in terms of the size of the enemy convoy sighted and attacked.

With the arrival of winter weather in November 1951, the Communists began to break the fighter-bomber blockade of North Korea's rail lines, and the night intruders accordingly sighted fewer Red vehicles moving with lights on North Korea's roads. As the convoys became smaller and better dispersed, Fifth Air Force claims of vehicles destroyed declined to 4,571 in November to 4,290 in December 1951.[108] In the latter month, moreover, the Fifth Air Force also lost a part of its night-intruder capability, for Marine Squadron VMF(N)-513 ran short of aircraft and crews and was forced to suspend its intruder operations. Accordingly, 3d Wing intruder crews began to cooperate with the Firefly flare ships for attacks along the road route between Pyongyang and Sariwon.[109] On the cold moonlight nights of these winter months, however, the night intruders reported some good success against the increasing number of Communist trains that were sighted. Locomotives never showed headlamps and could be sighted and destroyed only by crews who hunted them at low altitudes and looked for plumes of smoke or steam. It must have been easier said than done, but the 3d Group noted that "one very successful method of attack [against trains] stops the locomotive by cutting the rails ahead and behind the initial position of the train; marks the position of the train with a fire bomb; and then applies low-level bombing attacks using 500-pound parademos."[110] Apparently because Fifth Air Force regulations allowed a locomotive to be claimed as "destroyed" only when such ordnance was used, the night-intruder crews who hunted locomotives almost always employed some type of 500-pound bomb.[111]

As the Communists built up their battleline logistical stocks and grew better able to cope with daytime railway interdiction, the number and

*A tragic example later illustrated the wide discrepancy between a night intruder's actual and claimed destruction. On 30 March 1953 a B-26 crew made five separate attacks with 500-pound general-purpose bombs and fragmentation clusters against a well-lighted South Korean motor pool and adjacent road traffic. Upon returning to its base, the B-26 crew claimed to have destroyed six trucks and to have started a raging fire in the target area. In the ensuing investigation it was found that four Koreans were killed and the tires on two jeeps were punctured by bomb fragments. Such were the total results of the bombing attack. The pilot of the attacking aircraft was also said to have been one of the most conscientious men in his organization, but under conditions of darkness and in the excitement of combat he had been totally unable to judge the damage done to ground targets. *See* Colonel George H. Kneen, Jr., "The Night Intruder in Tactical Air Operations" (Air War College thesis, Apr. 1954), pp. 24–25.

1st Lt. James D. Todd, B-26 navigator-bombardier, checks his bombsight.

density of vehicle sightings continued to decline and the night intruders reported poorer and poorer results during the early months of 1952. Other tasks, moreover, diverted B-26's from intruding. In accordance with the "Saturate" operations, the 3d Wing after 11 March each night scheduled approximately 49 B-26's to make intensive railway interdiction cuts, each employing six 500-pound general-purpose bombs. These bombers saved their externally carried bombs (160-pound parafrags in the dark of the moon and 500-pound parachute demolition bombs in moonlight periods) for route-reconnaissance attacks against enemy vehicles. Since the rail-cutting endeavor greatly shortened the time available for route-reconnaissance and vehicle claims decreased, the 3d Wing secured permission late in March to schedule 12 B-26's each night exclusively for rail-cutting missions in three target areas. Other planes flew standard "lone-wolf" night-intruder sorties. Until the end of May the rail-cutting B-26's sought to intensify rail blockage by night attacks with 500-pound bombs, but at this time, in deference to an operations analysis suggestion, the rail-attack B-26's began to employe antipersonnel bombs, the idea being to hinder nocturnal rail repair rather than to inflict more damage to the rail lines.[112] The 452d Wing continued to emphasize night-intruder route reconnaissance, but in March it reported some highly-successful results obtained by bomber-stream attacks against accumulations of enemy supplies in Hwangju, Chunghwa, and Sariwon. On occasion both wings were diverted to shoran targets, though neither wing had much shoran capability. Ground-radar-directed close-support missions also engaged an increasing number of the light bombers.[113]

Lacking any better means of assessing their mission accomplishments, the B-26 wings could judge their success only by aircrew claims of vehicles destroyed which plummeted downward to 2,489 in January, 2,397 in February, 1,750 in March, and 1,723 in April.[114] The additional support which USAF had undertaken to provide did not help the B-26 wings with the accomplishment of their night-attack mission. The wings reported that the nonstandard B-26's sent to them from the United States were "shocking disappointments." Some of the old planes still had "flat-top" canopies, which disqualified them for combat since crewmen who wore winter flying equipment and survival gear could not squeeze out of them in a bail-out emergency.[115] Even with the nonstandard B-26's, moreover, USAF ultimately had to recognize its inability to bring the 3d and 452d Wings up to war strength. In the spring of

1952 a final USAF programming action allocated 24 B-26's to each 3d Wing squadron and 16 B-26's to each 452d Wing squadron. The FEAF authorization for light bombers thus included 120 B-26's as unit equipment and 60 B-26's in theater reserve.[116] The supply of B-26 replacement crews was also deficient. Geared to produce 45 crews every five weeks, the combat crew-training school at Langley Air Force Base could not satisfy FEAF's attrition and rotation requirements which went from 58 crews a month to 63 a month, and then to 93 a month in the last half of 1951. USAF had to obtain the additional crews by levying on zone of interior commands for casual crew personnel who were formed into crews for training in the Far East.[117] The British Mark IX bombsights delivered to the B-26 wings in November 1951 proved no better in the hands of poorly qualified bombardiers than the Norden sights, and in May 1952 the Fifth Air Force accordingly retired the British sights from operation.[118] In these same months during which each intruder sortie flown reported fewer enemy vehicles destroyed. Communist ground fire wrought increasing losses on the B-26's. By the summer of 1952 Col. G. S. Brown, the Fifth Air Force's director of operations, could only report that "we were trading B-26's for trucks in a most uneconomical manner."[119] It was evident that the Fifth Air Force's light bombers were no longer scoring positive results against the enemy.

6. Close Support Was Not Neglected

Since the Eighth Army had occupied in June 1951 the line that it required to shield the Republic of Korea against Communist aggression, General Van Fleet limited his forces to a defense of existing positions in the summer of 1951. During these months the Mosquito controllers who hovered over the front lines every day noted that the Reds were not deeply dug in but were too widely dispersed to offer adequate air targets. After a ground reconnaissance, Major Roswell E. Currie, air liaison officer with the 1st Cavalry Division, described the enemy's emplacements as networks of open trenches with occasional dugouts covered with small logs and earth. The true "bunker" was exceptional in the summer of 1951, and most emplacements sheltered no more than five enemy soldiers. At the front lines, Currie wrote, the Reds had reached a point of widest dispersion and smallest concentration and offered the poorest targets for air attack.[120] Acknowledging his reduced requirements for air support in the defense of stable positions, General Van Fleet (as he expressed it) "played ball" with General Everest and held his requests for air support to a minimum in order that the Fifth Air Force would have enough effort to accomplish its tasks of counterair and interdiction.[121]

Although both generals recognized that close air support had limited possibilities against an entrenched enemy, other than for sharpshooting attacks against hostile positions on the

reserve slopes of hills which could not be hit by friendly gunfire, Generals Van Fleet and Everest nevertheless sought to bring the close-support control system up to the standard required by joint doctrine. As contemplated in joint agreements, General Van Fleet established the positions of G-2 and G-3 Air officers as full-time jobs at corps and divisions and provided sufficient personnel to permit them continuous schedules of operations. These officers were normally located for business in divisions and corps fire-support coordination centers (FSCC's). In infantry battalions and regiments as assistant S-3 (Operations) officer additionally served as S-3 Air. To request an immediate air strike, a battalion S-3 normally dispatched a message over organic communications to the division G-3 Air, who consolidated the battalion requests and forwarded them over the air-request net directly to the Joint Operations Center. If appropriate, the division G-3 Air might arrange for division artillery to perform a task nominated for air, in which event he would disapprove the request for air support. At the corps FSCC, the corps G-3 Air monitored all immediate air-strike requests, indicating his approval by maintaining silence. On the other hand, if corps artillery could handle the target, the corps G-3 Air entered the air-request net and disapproved the air-support request. Preplanned air-strike requests went up from battalion, through regiment, through division, and through corps, being evaluated and consolidated at each echelon before arriving at the Joint Operations Center.[122]

Recognizing that effective air support against immediate targets depended in no small part upon an efficiently operating tactical air-request net, the Eight Army looked toward improvement of its communications. Several divisions attempted to establish tactical air-request nets to link S-3 Air officers with the division G-3 Air, but terrain obstacles and enemy jamming of the radio transmissions were said to have rendered the reliability of these nets uncertain. At about this same time the Eight Army was also wiring itself in for a static defense. Apparently, the divisions elected to discontinue special tactical air-request nets and to use organic wire communications for requesting close-support missions. These wire communications continued to be overloaded with other traffic, with the result that battalion S-3 officers not infrequently met delays when they attempted to call for immediate air support.[123] Actually, however, in view of the static ground front, the Eighth Army commonly required ground units to submit requests for "immediate" air strikes on a prescribed schedule starting at 0100 hours each morning. The result of this arrangement was that few of the targets submitted were legitimately "immediate" and most targets so submitted could have been better handled as preplanned targets. For handling air-support requests between divisions, corps, and the Joint Operations Center, the Eighth Army continued to employ SCR-399 high-frequency radio sets, but it was making plans to replace these old radio sets with AN/GRC-26 radio teletype equipment.[124]

In recognition of its responsibilities for air-ground operations, the Fifth Air Force continued to make improvements in its tactical air-operations system. Organized at Pyongtaek Airfield on 25 April 1951, the 6147th Tactical Control Group (Provisional) provided a desirable organization framework for Mosquito tactical air-coordinator and tactical air-control party functions, but

the new organization did not immediately solve personnel or equipment problems of the two functions. Because Korea's terrain was rugged and the tactical air-control parties on the ground were seldom able visually to direct close-support strikes, Mosquito tactical air coordinators continued to direct nearly all fighter-bombers to their targets.[125] Like the control party's jeep, the T-6 trainer aircraft used by Mosquito controllers was not entirely adequate as a control vehicle. The slow and unarmed trainer planes were no longer able to rove through flak-free skies far behind the enemy's lines in search of targets. By the summer of 1951 the Mosquito planes were seldom permitted to penetrate more than two miles into enemy territory, and 45th Tactical Reconnaissance Squadron RF-51's instead sought targets to the rear of the enemy's lines.[126] The Fifth Air Force gave some thought to employing F-51 aircraft as Mosquito planes, but the problem of getting additional communications equipment into the Mustangs was too great.[127] On the other hand, the T-6 was too "hot" to operate from an average ground division's light aviation airstrip. At the Eighth Army's suggestion, the 6147th Group tested L-19 aircraft as control planes in July 1951 but rejected them as being too vulnerable to enemy ground fire.[128] While the T-6 would continue to be a not entirely satisfactory vehicle for an airborne coordinator, the Fifth Air Force continually worked to adapt it to its mission. Initially, Mosquito controllers "talked" fighter pilots to their targets, but by the summer of 1951 the Fifth Air Force had installed rocket rails which allowed the T-6's to carry 2.25-inch subcaliber aircraft rockets for designating ground targets.[129] Early in August 1951 Far East Materiel Command technicians completed additional communications installations, which allowed the Mosquito controllers to use the same 12 channels of very-high-frequency communications now employed by the tactical air-control parties. For direct communications with front-line ground troops, all Mosquitoes were equipped with SCR-300 infantry radio sets.[130]

The personnel and equipment available to tactical air-control parties continued to influence their effectiveness and in good part to determine their tactical employment. As for personnel, the 6150th Tactical Control Squadron (Ground) furnished the enlisted radio operator and radio mechanic to each tactical air-control party. From the outset of the Korean war the tactical air wings had provided experienced pilots to serve detached service tours as forward air controllers, at first, twenty-one days, and after February 1951 sixty days. The longer tour allowed a pilot to become familiar with his duties, but such a tour seriously interfered with the pilot's flying proficiency. According to the usual criteria, a pilot selected to serve as a forward air controller had flown some 20 missions in combat, and during his tour at the front lines he not only lost flying proficiency and flight pay, but when he returned to his squadron to complete his 100 combat missions he usually found a changed combat situation and new flying companions.[131] Seeking to remedy these inequities, the Fifth Air Force on 1 October 1951 instituted a new procedure whereby all forward air controllers were to be pilots assigned to the Mosquito squadrons of the 6147th Tactical Control Group. The success of this system was essentially dependent upon the caliber of pilots assigned to the Mosquito squadrons, but to some extend it improved the proficiency of forward air

Grumman F9F-2 fighter prior to landing on the USS *Boxer.*

controllers since a pilot normally flew 20 missions as a Mosquito coordinator before embarking on an eighty-day tour with a tactical air-control party. Improved personnel efficiency and availability enabled the 6150th Squadron to rotate airmen after a sixty-day tour with a tactical air-control party, but the airmen were expected to serve several tours with control parties during their year of duty in Korea.[132]

More than anything else, the tactical air-control party's equipment dictated its employment in Korea. As a control vehicle, the jeep was never adequate, but some needed improvements were made in its radio equipment. By 5 June 1951 all control parties in the field were provided with AN/VRC-3 radio jeeps which possessed 12 channels of very-high-frequency communications. The Fifth Air Force promptly set aside two of the frequencies for common use and allocated the other ten frequencies as unit tactical frequencies, one being assigned to each tactical wing, to the Marine wing, and to Navy aircraft. The new signals capability greatly reduced communications jamming, for a close-support flight reported to a tactical air-control party on the common reporting-in-and-out frequency and then both the party and the strike pilots switched to the unit tactical frequency for the management of the air strike.[133] As had always been the case, the jeep vehicle was too small and light to stand up under rugged field conditions and too

large to approach forward observation posts from which a forward air controller could visually control air strikes. In July 1951 the Fifth Air Force secured portable AN/TRC-7 radio sets which in theory allowed a forward air controller to go on foot to a forward observation post. These sets, however, had only two channels of very-high-frequency communications and were thus not very practicable.[134] To keep radio equipment in the tactical air-control parties in operating order was a problem of extreme complexity since the fragile signal equipment was subject to rough usage and was always remote from any Air Force unit. The 6150th Squadron kept a traveling technician team working in the field and stationed spare radio jeeps at the corps and divisions. By local arrangements the ground forces generously provided as much cross-servicing for the control-party equipment as was possible.[135]

Because the 3903d Radar Bomb Scoring Squadron's MPQ-2 radar detachments had provided outstanding nighttime close-support control in support of the Eighth Army during the spring of 1951, the Fifth Air Force and Eighth Army devoted much attention to evaluating and improving the blind-bombing technique. In order to permit the 3903d Squadron's detachments to return to their regular duty in the United States, the 502d Tactical Control Group fed its own peronnel into the tactical air-direction posts (or "Tadpoles"), and in September 1951 took command of the three posts, one being assigned to each aircraft control and warning squadron.[136] Each of these "Tadpoles" established semipermanent positions approximately ten miles behind the front lines of the three American corps. Designation of targets for radar-directed bombing was normally the province of the corps G-3 Air officer. Using all sources of information available to him, the corps G-3 Air screened and plotted worthwhile objectives on a target work map. To request an air mission, the G-3 air established two pairs of eight-digit grid coordinates to mark the beginning and the end of the best straight-line bombing run across a given target. The corps G-3 Air then sent the coordinates to the Joint Operations Center for approval.[137] Seeking to improve the equipment possessed by the tactical air-direction posts, the Fifth Air Force secured two new and improved AN/MSQ-1 radar bomb-direction sets in October 1951, but some time was required to "shake down" the new sets. In one early test an MSQ controller had not completed all necessary steps in the bombing procedure and directed a B-29's bombs against his own installation. Fortunately, the B-29 was carrying incendiaries, which burned several tents but caused no loss of life.[138] Several more months would be required to get the MSQ sets into working order, but the MPQ system directed planes to ground support targets almost every night. In fact, most Eighth Army divisions seemed to want a part of the B-29's bomb load dropped in front of them each and every night.

It was ironic that the air-support control system in Korea began too flesh out to its required capabilities in the summer of 1951, when the ground fighting was slack and not much close air support was needed. Early in August 1951, when the Fifth Air Force began its intensive attacks against North Korea's railways, General Van Fleet agreed to establish the Eighth Army's requirement for close air support at 96 sorties each day. In case of emergency, General Everest would of course give the Eighth Army as much air support as it required, but

Members of the 35th Infantry Regiment keep a sharp lookout for enemy movement, while U.N. Forces bombard the area with white phosphorous.

under the existing situation General Everest thought that the 96-sortie figure was a fair division of effort. With this amount of air support, the Eighth Army would be able to handle special targets, and the Fifth Air Force would be able to get the practice it needed to retain its air-support skills. In order to provide the required sorties, the Fifth Air Force commonly committed most of the 1st Marine Air Wing and part of the 18th Figher-Bomber Wing to the close-support effort. At their airdromes Mustangs and Corsairs were held on strip alert awaiting scramble orders from the Joint Operations Center.[139]

Despite the fact that the responsible Eighth Army and Fifth Air Force commanders had decided that the rail-interdiction attacks would best accomplish the United Nations mission in Korea, Eighth Army subordinate commanders were gravely dissatisfied with the limitations placed on close support. Late in August, when he ordered the U.S. X Corps to move forward and straighten its lines in eastern Korea, General Van Fleet still considered that the stipulated amount of close support was enough to satisfy the Eighth Army. Beginning on 2 September, the X Corps offensive against "Bloody" and "Heartbreak" Ridges in the "Punchbowl" area of eastern Korea came to a successful conclusion on 19 September. During September the Fifth Air Force and its attached units flew 2,451 close-support sorties, of which total the U.S. X Corps received 1,664 sorties, the U.S. I Corps received 335, the U.S. IX Corps received 356, and the ROK I Corps

Heartbreak Ridge

received 96 sorties. Of the X Corps troops, the 1st Marine Division, which was engaged in the heaviest fighting in the "Punchbowl," received 687 close-support sorties during September.[140]

Even though his division had received a lion's share of close support during September, Maj. Gen. Gerald C. Thomas, commander of the 1st Marine Division, personally took his dissatisfaction to General Everest on 2 October. In conversation with Everest, General Thomas stated that his division had taken unnecessary casualties because its air support had not been adequate or timely. Through the Joint Operations Center the 1st Marine Division had requested 271 air-support missions but only 187 missions had been approved. The average time between the division's request and the air strike had been 113 minutes. Only 32 immediate air-support requests had been accomplished within thirty minutes. According to General Thomas, Marine aircraft had flown 367 support sorties for his division while Air Force and Navy planes had provided 320 sorties. As a matter of policy, General Thomas stated that Marine ground troops wanted to be supported by Marine airmen. When General Everest asked him how many close-support sorties he considered adequate for his division, General Thomas replied that the 1st Marine Division required a minimum of 40 close-support sorties a day.[141] In response to the Marine general's criticisms, General Everest noted that the Joint Operations Center, whenever possible, dispatched Marine pilots to support the 1st Marine

Division, but Everest asserted that he could not agree to discriminate in favor of the 1st Marine Division by giving it 40 close-support sorties a day when the Eighth Army received only 96 sorties under usual circumstances.[142] General Van Fleet stated that the aerial interdiction program ought to be continued and noted that he could not allocate any specific number of close-support sorties to a ground unit on an exclusive and continuing basis.[143] Back in Tokyo General Ridgway sympathized with the Marine groundmen for desiring support from Marine airmen, but he could not agree that any one division in the battleline should receive a disproportionate amount of close air support at the expense of the other fighting divisions.[144]

Desultory throughout October 1951 the Eighth Army's ground probes were virtually halted by General Ridgway's order on 12 November 1951. Reasoning that the reopened truce negotiations at Panmunjom offered such a good prospect for peace as to rule out large-scale ground offensives by either side, and noting that the cost of major attacks against Red defenses could not be justified in terms of the limited results which would ensue, General Ridgway directed the Eighth Army to cease offensive operations and begin an active defense of its front.[145] Under the philosophy of air-ground doctrine which recognized that air support was made available to ground commanders on the basis of their need for it, virtually all of FEAF's air striking power had supported the Eighth Army during the crucial ground battles in the spring of 1951. Now in the winter of 1951, when the Eighth Army was undertaking no offensive action and the Communist ground armies were quiet, the Fifth Air Force had reason to expect that ground commanders would request a minimum of close air support. This, however, was not the case. Some divisions vigorously insisted upon getting their "share" of air support. One air liaison officer stated that a division commander had ordered his G-3 Air "to request 15 prebriefed flights per day and to *find* targets to justify this many flights."[146] Another air liaison officer reported that another division commander had instructed his G-3 Air to initiate requests for large numbers of air strikes against small dugouts which probably did not contain more than two or three enemy soldiers.[147] Occasionally close-support strikes paid dividends. In November Mosquito controller Captain Walter Bullock spotted six enemy tanks and two self-propelled guns firing at friendly troops near Hupyong. Bullock summoned a flight of 18th Wing Mustangs which burned out four of the tanks and one of the guns. More often than not, however, the Mosquitoes led supporting pilots against ground-designated objectives where no sign of hostile activity could be observed from the air.[148]

"When required," stated the Far East Air Forces late in November 1951, "close air support of United Nations Army forces may take precedence over other FEAF programs."[149] In the winter of 1951-52, however, the static ground situation was limited to clashes between opposing patrols and allowed few opportunities for effective close support. A blanket of snow covered most air targets along the bombline and to the enemy's immediate rear. Now the fighters were often forced to circle their target areas for long periods of time while they searched for obscure objectives. Under such circumstances, the growing order of Communist automatic weapons in the front lines took a toll of Mosquitoes and of fighter-bombers.[150] In January 1952 General

Van Fleet implemented a month-long artillery-air campaign against enemy field positions. Designing to impress the Reds with United Nations firepower, artillery batteries fired at hostile targets on one day and on alternate days aircraft struck the targets with high-explosive and napalm bombs. In response to these attacks, the Reds dug deeper into the ground and built deeply covered trenches and bunkers which could be destroyed only by precisely aimed 500- or 1,000-pound bombs.[151] For a week in mid-February 1952 General Van Fleet's forces employed "Operation Clam-Up," whereby outposts temporarily abandoned their positions and all air-support missions within 20,000 yards of the front lines were canceled. The Eighth Army hoped that the Reds would increase their patrolling and that the enemy patrols would fall into ambuscades. But the Reds refused the bait, and "Clam-Up" ended on 16 February without success.[152]

In the spring months of 1952 seasonal rains limited United Nations and Communist ground forces to patrolling activity. Fearing that the summer months would bring a resurgency of Communist ground attacks, General Everest and General Van Fleet gave attention to improvements in the air-ground system and to training. To get closer to the front lines, the 6147th Tactical Control Group moved to Chunchon Airfield (K-47) in April 1952. During the spring new LT-6G aircraft replaced the tired old T-6C and T-6F Mosquito aircraft. These new planes had many improvements such as a larger internal-fuel supply, centralized radio controls, a better rocket sight, and an ability to carry 12 target-marking rockets.[153] Arrival of officer personnel familiar with the AN/MSQ-1 in November 1951 sped the preparation of the new sets for field operations, and by May 1952 two MSQ-1 radars were supporting the U.S. I and IX Corps. Mountainous terrain somewhat negated the MSQ-1's longer theoretical range, but the accuracy of the MSQ-1 was better and its computer was more refined and faster working than that of the old MPQ-2.[154] Early in 1952, the Eighth Army obtained needed new equipment for the operation of its tactical air-request net when AN/GRC-26 radioteletype sets replaced the old SCR-399 radio equipment. At first the need to encode and decode messages transmitted over the radio-teletype net slowed the passing of immediate air requests, but the installation of automatic on-line security devices later took care of this. Another defect in the tactical air-request net was not so easily overcome. The AN/GRC-26 sets at divisions and corps were located in the local fire-support coordination centers, but the other terminals of the corps' nets were in the Eighth Army's communications center, located some five miles from the Joint Operations Center in Seoul. Received at the communication center on several radioteletype machines, air requests had to be retransmitted to the Joint Operations Center on a single machine. This communications bottleneck slowed traffic and raised a further problem of which corps' requests for immediate air support would receive priority in the retransmission to the Joint Operations Center.[155]

From the beginning of the war in Korea Far East Air Forces leaders had been impressed by their observations that many Army and Air Force leaders did not understand the principles of tactical air operations. In March 1951 the Eighth Army-Fifth Air Force board which had studied air-ground operations had recommended the establish-

ment of an air-ground operations school in Korea to train current commanders and future unit commanders as they reported for duty. The Fifth Air Force had been in favor of the school, but the Eighth Army had stated that such training was impracticable in the combat zone.[156] In Japan at Johnson Air Base, however, the Japan Air Defense Force had begun to operate an abbreviated air-ground operations course in conjunction with the U.S. XVI Corps. In Korea, in the autumn of 1951, Fifth Air Force air liaison officers attempted to disseminate a sound understanding of the principles of air-ground operations, but these officers reported that the Eighth Army's replacement turnover had brought in more and more new people who were not familiar with air support and had never experienced combat which required all-out air support.[157] On 17 September 1951 the Fifth Air Force's air liaison division accordingly instituted a three-day "routine familiarization course" for air and ground officers at Seoul. The air liaison division also sent teams to the field to make special presentations to Eighth Army divisions. The small school was not well attended, and the instructional teams seldom secured attendance of key people at their briefings.[158] After visiting Korea in January and February 1952 representatives of the U.S. Joint Tactical Air Support Board reported that "The most outstanding discovery of the tour was the quite apparent lack of indoctrination within both Army and Air Force units in the fundamental principles and concepts of Tactical Air Operations."[159]

In response to this criticism, General Ridgway ordered the Japan Air Defense Force to expand its activity at Johnson Air Base into a Far East Air-Ground Operations School capable of providing a week's indoctrination for 30 air and ground officers.[160] Although the air board's remarks brought no additional students to the Fifth Air Force's little school in Seoul, General Everest nevertheless recognized that his pilots had been so long engaged in interdiction attacks that they were losing their skills in close support. Such was especially true in the Thunderjet wings, for the 49th Group reckoned that 90 percent of its pilots had never flown close-support missions.[161] The Eighth Army's machinery for requesting close support was also getting rusty and needed a workout. In order to develop proficiency, General Everest began in March 1952 to rotate all fighter-bomber squadrons on weekly stints of close-support duty. Held on "JOC Alert" at their bases, fighter-bomber pilots worked hard to meet Fifth Air Force standards of scramble time, which was to get airborne in fifteen minutes. Over the front lines the fighter-bombers found few really worthwhile targets. For the most part, Mosquito controllers directed them to put their ordnance upon bunkers and weapons emplacements. The fighter-bomber pilots knew that their activity was mostly for training, but the 49th Group reported that the close-support missions "offered a welcome relief to all pilots who have been constantly flying rail-cutting missions in the seven months of Operation Strangle."[162] When the increased close-support effort continued into April, a USAF officer frankly questioned whether the close-support commitment was accomplishing anything worthwhile. The Fifth Air Force replied that the ground stalemate offered little justification for a heavy close-support effort. What it was attempting to do was to maintain its readiness to oppose a Communist ground attack.[163]

7. *Rail Interdiction in Retrospect*

At the Panmunjom truce talks Communist delegates showed no signs of desiring peace as the winter gave way to spring in 1952. On instructions from Washington, Admiral Joy offered concession after concession until the United Nations could give little more if it was to attain the peace with honor. Ten months of comprehensive railway interdiction had evidently failed to hurt the Reds enough to compel them to accept United Nations armistice terms. In fact, the Reds were obviously proud that oriental manpower was overcoming western technology. Radio Peking would gloat that the United Nations Command "mobilized more than 2,000 military aircraft and still failed to cut off the supply line to tiny North Korea."[164]

Despite the magnitude of the United Nations air effort—which included 87,552 interdiction sorties flown by FEAF aircrews alone and claims for over 19,000 rail cuts plus the destruction of 34,211 vehicles, 276 locomotives, and 3,820 rail cars[165]—the Communists had been able to supply their front-line troops and to build logistical dumps in the forward areas. Early in April the Fifth Air Force knew of the locations of major depots at Sopo, Pyongyang, and Yangdok and of forward depots at Mulgae-ri, Koksan, Singosan, Sepo-ri, and Hoeyang.[166] Along the front lines the Reds displayed more firepower than ever before. In July 1951 Communist ground troops fired only about 8,000 rounds of artillery and mortar, but in May 1952 they directed some 102,000 rounds against United Nations positions.[167] There was little doubt that Communist ground divisions had accumulated adequate supplies. "I think that the hostile forces opposing the Eighth Army...have a substantially greater offensive potential than at any time in the past," General Ridgway told questioning senators on 21 May 1952.[168] Many high-ranking officers were quick to discount the success of the aerial interdiction campaign. Back in Washington General Lemuel C. Shepherd, commandant of the Marine corps, publicly stated that "Operation Strangle" was "recognized as a fizzle" and that the Reds were steadily building up their land forces in spite of it.[169] "The interdiction program was a failure," said Vice-Admiral J. J. Clark, commander of the Seventh Fleet. "It did *not* interdict. The Communists got the supplies through; and for the kind of war they were fighting, they not only kept their battleline supplied, but they had enough surplus to spare so that by the end of the war they could even launch an offensive.[170]

The critics of the United Nations aerial-interdiction campaign in Korea apparently failed to evaluate the railway-interdiction operations in terms of the stated purpose, which was: "To interfere with and disrupt the enemy's lines of communication to such an extent that he will be unable to contain a determined offensive by friendly forces or be unable to mount a sustained offensive himself." Viewed in terms of its stated purpose, the railway-interdiction campaign had not failed. "It is believed," stated an Eighth Army intelligence report on 22 March 1952, "that the air and naval interdiction program...has limited the enemy capability of successfully maintaining an all-out, major, sustained offensive."[171] Despite the shift of United Nations air effort away from

Maj. Gen. Edward M. Almond, USA, commander, X Corps, and Lt. Gen. Lemuel C. Shepherd, Jr., USMC, commander, Fleet Marine Force, Pacific.

interdiction beginning in May 1952, the North Korean rail network had been so badly battered by ten months of intensive attack that it would not again be able to support a major and sustained Communist ground offensive.

Although the comprehensive railway-interdiction campaign attained its limited purpose, the operation nevertheless disclosed certain regrettable failures in command, in planning, and in execution. Involving all theater air forces and far-reaching in scope, the air campaign against North Korea's railroads should properly have been ordered and controlled at theater air-force level. The facets of the interdiction program were completely interrelated and the program had to succeed or fail as an entity, yet no one air officer could be considered responsible for the success or failure of the interdiction campaign because there was no single responsible air commander. The Fifth Air Force planned and after a measure supervised the interdiction attacks, but it was powerless to direct the operations of the independent Seventh Fleet or of the equally independent FEAF Bomber Command.[172] Forced to cajole when it could not order, the Fifth Air Force employed the flamboyant code name "Strangle," a caption which gave those who did not understand the real objective of the interdiction program a vehicle for proclaiming its failure.[173]

The Fifth Air Force planning for the comprehensive railway attacks correctly identified the importance of the

North Korean railway system to the Red war effort, but it displayed two serious defects. The planners did not adequately compute the force capabilities of the United Nations air forces required to effect the desired degree of interdiction of the North Korean railway system. At the beginning,the Fifth Air Force apparently assumed that United Nations air forces had the capability to destroy the enemy's rail system in North Korea. At the end, United Nations air forces failed in their efforts absolutely to interdict North Korean rail transportation because they lacked sufficient aircraft strength to maintain by day and night the intensive rail cuts required to keep all rail lines out of operation. "Nothing is so bad in air campaigns as not to have enough force to do a job completely," commented General Weyland. "For example," he added, "all but 4 or 5 percent of pre-war rail traffic in North Korea was stopped, but this was sufficient to form a solid base upon which to add enough truck and A-frame transportation to maintain a static supply line."[174]

Closely related to the failure of the Fifth Air Force's operational planners to calculate the friendly forces which would be required to interdict North Korea's railways was the failure of intelligence officers to assess the enemy's countermeasures to the planned air attacks. Since operations officers very seldom asked for enemy reaction studies, air intelligence officers very seldom accomplished such studies. Despite the fact that the success of the railway-interdiction program would depend upon the enemy's countermeasures, Fifth Air Force operations officers called for no enemy reaction estimates. This was a mistake.[175] Modest in their supply requirements and able to give or decline combat, Communist front-line troops were able to gauge their supply expenditures so as to survive periods of disruption in their logistical support. Back of the lines, moreover, the North Korean railroad bureau managed a crude but wonderfully effective rail-recovery effort. Units of 50 rail-repair troops were stationed at major rail stations, while crews of ten men were located every four miles along the tracks. Because of the abundance of unskilled labor and the crudeness of the repairs, the section gangs were able to repair rail cuts in a remarkably short time. According to FEAF surveillance studies, the Reds fixed rail cuts in from two to six hours, made bridge repairs in from two to four days, and repaired "maximum-effort" damages to rail lines in from four to seven days.[176] Defecting North Korean railway employees presented a picture of limited but persistent rail movements.[177] Communist truck transport was slow, but captured documents indicated that each truck was expected to cover 62.5 miles per day, or 1,562.5 miles per month, five days being allocated each month for maintenance. Captured documents also revealed that the Reds waged a constant campaign to sustain the morale of their truck drivers, rewarding some with the honor of "transportation hero" and punishing "rightists who are fearful of death." One propaganda leaflet emphasized that "the loss of one trip due to illness of the driver means that 2,250 men cannot get food for one day."[178] Although the railway attacks initially appealed to Fifth Air Force planners because the targets were lightly defended by flak, the Reds began to concentrate their automatic weapons along the rail lines very quickly. By June 1952 the Communists were using over half of their antiaircraft artillery (132 heavy guns and 708 automatic weapons) to protect their key

bridges and their rail lines.[179] By the standards of World War II, the Red flak order was weak, but it was strong enough to take an unacceptable toll of FEAF planes in Korea.

Although ten months of sustained air attacks against North Korea's railroads attained their stated purpose of slowing and disrupting the Communist logistical support system, one may nevertheless wonder whether a more forceful air campaign against more vital target systems might not have been more profitably employed from the beginning of the armistice talks. Seen abstractly, the United Nations railway-interdiction campaign was defensive and preventive rather than offensive and positive. United Nations airpower sought to disrupt the Communist logistical system because the Eighth Army feared that the Reds might otherwise easily accumulate the supplies they required to mount a major and sustained ground offensive. Even though the Eighth Army was stalemated and not intending to attack, United Nations airpower was again supporting the United Nations ground forces. Within their limited scope of possible accomplishment, United Nations railway-interdiction attacks apparently brought some degree of military pressure to bear upon the Communists in the autumn and early winter of 1951, thus justifying the operation as a worthwhile short-time application of airpower. Given enough time, any astute enemy will devise countermeasures to a given line of military action, and the Reds began to practice effective countermeasures to the interdiction attacks by December 1951. As a result, the United Nations railway-interdiction strikes attained progressively diminishing results after January 1952. Had United Nations airpower been permitted to attack more decisive target systems as early as August 1951 or certainly in January 1952, the Communists might very probably have been willing to accept reasonable armistice terms much earlier than was the case. But the Korean war was fought in the goldfish bowl of world opinion, and more forceful air operations were prohibited until the United Nations Command had presented its "final" offer of armistice terms in April 1952. If the rail-interdiction campaign lacked the military effect which possibly could have been attained by other operations, it nevertheless conformed with a contemporary climate of world opinion which earnestly desired to end the fighting in Korea even with some sacrifice of principle.

15. *Toward an Air-Pressure Strategy*

1. Thoughts on Airpower as a Political Weapon

"In time," wrote General Weyland, "the pressure from air attack came to be recognized as the primary objective of the air offensive."[1] The concept of airpower as a political as well as a military weapon was not new. In the strategic air campaign against Japan during World War II American airpower had demonstrated an ability to produce psychological responses in the control elite and people of the Japanese nation which were possibly of equal significance to the physical damage done to hostile targets in the homeland. After sustaining a year of unrestrained Superfortress attacks which threatened to destroy all of the accumulated wealth of the Japanese homeland, Japan's leaders had surrendered without ground invasion. The employment of atomic bombs at Hiroshima and Nagasaki obscured the effect of the sustained aerial campaign as the causative factor in Japan's surrender. Actually, well before August 1945 the Japanese government had been seeking a means to end the war.[2]

Early in the Korean hostilities Maj. Gen. Emmett O'Donnell, Jr., had wished to use the FEAF Bomber Command to put "a very severe blow on the North Koreans, with advanced warning...telling them that they had gone too far in what we all recognized as being an act of aggression." Again, at the end of September 1950, General Stratemeyer had proposed to issue a warning and then to send a massive B-29 strike against Pyongyang, which would destroy military objectives and cause the tottering North Korean government to listen more attentively to United Nations terms for ending the war. Again, in July 1951, as armistice negotiations were beginning at Kaesong, General Weyland had proposed to drop warning leaflets which would permit civilians to escape harm and then to mount a massive air attack against military targets in Pyongyang. Each of these proposals to flex the psychological attributes of superior United Nations airpower had been forbidden by orders from Washington. General O'Donnell had best described the politico-military limitations imposed on the employment of airpower within Korea. "We are fighting distinctly 'under wraps,' " O'Donnell said.[3]

Largely because of limitations imposed upon airpower by Washington, the first year of the Korean war had been fought according to the rules for a ground campaign. To some extent, moreover, both Generals MacArthur and Ridgway gave indications that they viewed air and naval forces as supporting agencies for the ground forces. General Ridgway's official mission directives, issued in April 1951, implied a superiority of the Army mission in Korea. "Your mission," Ridgway informed the Eighth Army commander on 22 April, "is to repel aggression against...the territory...of the Republic of Korea.... You will direct the efforts of your forces toward inflicting maximum personnel casualties and materiel losses on hostile forces in Korea, consistent with the maintenance intact of all your major units and the safety of your troops."[4] On 30 April Ridgway ordered the FEAF commander to maintain theater air superiority and to "provide general air support for United Nations forces in Korea, to include:

(A) Close air support of surface forces. (B) Interdiction, including isolation of the battle area. (C) Air transport, troop carrier, and air evacuation. (D) Special missions, including electronic countermeasures, psychological, and clandestine."[5] In the summer of 1952 Brig. Gen. Jacob E. Smart, FEAF's deputy for operations, finally requested that all United Nations Command forces should be made aware that the United Nations commander and his staff "recognize that the Army, Navy, and Air Force are each responsible for attaining the theater commander's overall objective." General Smart desired such a command statement in order to "put an end to the opinion so often expressed or implied that the Eighth Army is responsible for winning the Korean war, and that the role of other services is to support it in its effort."[6]

During the initial year of Korean hostilities United Nations airpower had been predominantly employed in a tactical role in Korea. It had maintained air superiority, interdicted enemy movement, and provided close support for friendly ground forces. While airpower was supposedly supporting the ground campaign, however, air strikes directed at the rear of the Communist front-line combat zone had actually proved to be a principal means of stopping the enemy's offensives and of reducing his capability to wage ground warfare. A minimum-strength air force, equipped for the most part below authorized levels, had actually proved to be extremely destructive of the enemy's personnel and equipment. Up until Korea the destruction of enemy forces in being and of their support elements had not been considered to be a priority Air Force mission, but such had proven to be a distinct capability against the North Korean People's Army and the Chinese Communist forces in Korea. Excited by the new thought on 19 January 1951, General Stratemeyer had called General Vandenberg's attention to the fact that airpower had proven to be a primary and most economical means of waging war. In Korea, Stratemeyer pointed out, airpower had been able effectively to destroy enemy forces in being. General Stratemeyer thought that airpower's demonstrated ability to destroy hostile armed forces would be of value in defending other areas of the world against Communist aggression, particularly if the air forces were authorized to employ nuclear weapons. On 10 June 1951 General Weyland again reminded General Vandenberg that airpower had demonstrated "innumerable advantages...as a predominant weapon for destroying the enemy fighting machine." At this time General Weyland asked that FEAF's capabilities for destructive attacks should be increased "to a level whereby doubt can no longer exist relative to the true part airpower has played in the final defeat of the current enemy."[7]

The United States Air Force could correctly maintain that "The Korean war has had first priority in every respect and has been equipped to our poor best at the expense of the Strategic Air Command, the Air Defense of the United States, and our overseas deployment program."[8] Chiefly because of its scant resources, USAF had been unable to provide General Weyland's stated requirements for increased combat effectiveness in June 1951, but it was in some part true that Air Force leaders in Washington questioned whether airpower could exercise a more decisive role during the truce negotiations. General Nathan F. Twining, the USAF vice chief of staff, noted that "it is quite clear that airpower is a

dominant factor in the ability of the United Nations forces in Korea to hold their own against the much larger forces available to the enemy." But General Twining doubted that airpower could prove decisive under the limitations imposed on air operations in Korea. "Current policy precludes the United Nations air striking at the sources of the enemy's strength beyond the Manchurian border," he said. "The United Nations air effort being limited to the confines of Korea, the full effect of air striking power cannot be achieved." Under these circumstances, General Twining told General Weyland that "it would not be economical to build up the United Nations air resources above the requirement for operations in Korea and air defense of Japan.... The vital object under the present conditions," Twining said, "...is to maintain air superiority over Korea."[9]

At the beginning of the Korean truce negotiations General Weyland was unable to secure either the tactical opportunity or the logistical wherewithal that he needed for more aggressive air action. In some measure, moreover, General Weyland was held prisoner by the doctrinal concepts for the employment of airpower in land campaigns, even though such a campaign was no longer in progress in Korea. General Weyland understood that he must preserve United Nations air superiority as a matter of first priority, but aside from this the only possible employment for airpower under the existing climate of politico-military decisions was either against interdiction objectives or close-support targets along the stalemated front lines. Viewing this choice, General Weyland reasoned that "in the fall of 1951 it would have been sheer folly not to have concentrated the bulk of our air effort against interdiction targets in the enemy rear areas. Otherwise the available firepower would have been expended inefficiently against relatively invulnerable targets along the front, while the enemy was left free to build up his resources to launch and sustain a general offensive."[10]

Initially meaningful in terms of its impact upon the Communist military situation, the United Nations air campaign against North Korea's railroads soon lost any ability that it might have had to influence the course of armistice negotiations at Panmunjom. Still confronting the choice as to whether it would be interdiction or close support, however, General Weyland positively asserted on 26 December 1951 that the Air Force was going to continue railway interdiction on a top-priority basis. Soon, however, a powerful new voice in the Meiji building began to question the existing United Nations strategy and the ability of the railway interdiction program to attain meaningful results in terms of the armistice negotiations. The voice was that of Brig. Gen. Jacob E. Smart, who on 18 January 1952 replaced General Crabb as FEAF's deputy for operations. In the month that he had understudied General Crabb, General Smart had witnessed the declining effectiveness of FEAF's efforts to utilize tactical air doctrines in a stalemated truce-talk situation where conventional doctrines for the employment of tactical air forces applied only to the air-superiority portion of the air effort.[11] Up until this time FEAF had explained its air operations in terms of air superiority, interdiction, and ground support, but in February General Smart secured acceptance of a new statement of FEAF operations policy which noted that the command sought to maintain effective and positive

military pressure upon the Communist military forces in order that the United Nations Command might obtain the most favorable results in the Korean armistice negotiations.[12]

The Far East Air Forces accepted the proposition that aerial operations ought to maintain military pressure upon the Reds in order to influence Korean armistice negotiations, but there was little agreement as to how military pressure could be waged. Over in Korea General Everest was said to believe that railway interdiction might yet attain positive results. In Tokyo Brig. Gen. Charles Y. Banfill, FEAF's deputy for intelligence, argued that the Reds would soon be able to mount substantial ground attacks if aerial interdiction were lightened or discontinued.[13] Early in March 1952 General Smart decided to get some concentrated thinking on the subject of FEAF's efforts in Korea. He accordingly relieved Col. Richard L. Randolph from his regular duties as assistant chief of FEAF's combat operations division and briefed him on the job he wanted done. In essence, Smart wanted to know what FEAF could do in Korea. He wanted 90 percent thinking and 10 percent writing. He was primarily interested in findings and recommendations. At Randolph's request General Smart also assigned to the study Lt. Col. Ben I. Mayo, another young officer who had been a combat commander in Korea from the earliest days of the hostilities. General Smart notified the FEAF staff of the project and requested full support. He imposed no time restrictions and asked only that Randolph and Mayo "dig as completely and fully into the problem as it required and...come up with the best possible answers on how to prosecute more effectively the air war in Korea."[14]

Working in and out of the office General Smart made available next to his own in the Meiji building, Colonels Randolph and Mayo discussed the problem with FEAF staff officers and personnel from Bomber Command and Fifth Air Force. They studied photographs of North Korea analyses of FEAF's operational capabilities. On 12 April 1952, after six weeks' work, they submitted a staff study covering their findings and recommendations to General Smart.[15] The study did not pretend to have all the answers but it was a shrewd analysis of shortcomings in Korea and suggested the concept of a new strategy which might be of value. Colonels Randolph and Mayo did not consider that the months of comprehensive railway interdiction had been wasted, for North Korea's railways had been so badly mauled that they could not be easily rehabilitated. In the future small but periodic air attacks would keep the rail lines in marginal operating condition. Tried against the standard of air pressure, however, the railway-interdiction program was no longer practicable. As an economic item, railway track was not expensive to the enemy. As a military effort after December 1951, moreover, United Nations air attacks against the North Korean railway system had reached a virtual state of balance wherein the United Nation's ability to inflict damage was roughly equalled by the enemy's ability to repair the damage. To continue the rail attacks would be, in effect, to pit skilled pilots, equipped with modern, expensive aircraft, against unskilled coolie laborers armed with picks and shovels. Even if United Nations air action did delay or diminish the flow of hostile supplies to the enemy, such action could not place intolerable military pressure upon the Reds as long

as they maintained a static ground front.

After this introduction Colonels Randolph and Mayo examined the alternative employments of FEAF airpower which seemed possible under the circumstances prevailing in Korea. FEAF could maintain United Nations air superiority through counterair fighting and airfield bombing attacks. Or FEAF could destroy and damage enemy supplies, equipment, and personnel. Or FEAF could delay the movement of enemy supplies, equipment, and personnel. Or FEAF could provide close support for friendly ground operations. In view of the static ground situation, air actions which delayed the movement of hostile supplies or attacked entrenched troops along the front lines promised no more than minimal achievements with the possibility of costly air losses. Since the enemy based his air force north of the Yalu, on airfields which could not be attacked, FEAF could hardly bring pressure upon the enemy by destroying his air capability, but FEAF nevertheless had to maintain air superiority over North Korea in order to prevent the Reds from bringing pressure to bear on United Nations Command forces. Airplanes, moreover, were an economic cost to the Reds, and Randolph and Mayo felt that as many of them as possible should be destroyed in air-to-air fighting. The real opportunity which FEAF could exploit in Korea would be to take the Communist armies under attack. From their study of the alternative courses of action, Colonels Randolph and Mayo recommended that the first priority of FEAF effort should be given to United Nations air-superiority tasks and that such effort as remained should be employed to accomplish "the maximum amount of selected destruction, thus making the Korean conflict as costly as possible to the enemy in terms of equipment, supplies, and personnel."

Having arrived at the broad concept that the Far East Air Forces should achieve air pressure through the selective destruction of items of value to the Communist nations fighting in Korea, Colonels Randolph and Mayo discussed the sorts of targets which could be attacked. In order to exploit the inherent flexibility of airpower, any air-pressure target list had to be highly flexible and kept under constant review. Evaluation of specific targets, moreover, would need to consider the importance and value of the target to the enemy, airpower's ability to destroy the target, and the estimated cost in loss and damage to air units to be expected in the course of attacks against the target. These factors had to be weighed and balanced, for FEAF would have to live within its means. Other than North Korea's hydroelectric power facilities—which should be attacked—Randolph and Mayo admitted that "gold targets" were scarce in North Korea. They suggested that one solution to the scarcity of targets might be to attack targets which were least unremunerative. Finding lucrative targets in war-torn North Korea did not promise to be easy, but the problem would not be insurmountable, once available reconnaissance and intelligence effort was directed toward the end. "It is believed," the planning pair stated, "that once the concept—destruction—is clearly stated and made known to all operations and intelligence agencies, targets can be found, developed, and successfully attacked."

Before FEAF could expect to secure adoption of the strategy of air pressure through selective destruction, Colonels Randolph and Mayo recognized that they had to offer answers to two

questions which would interest the theater commander. Would the Reds be able to stockpile logistical support at an appreciably faster rate if FEAF applied its effort in a different way? What risk did the United Nations Command incur if the Reds did stockpile faster? Colonels Randolph and Mayo assumed that United Nations airmen would, to a great extend, continue to interdict enemy movement as long as they continued to maintain air superiority and to operate over North Korea every day. Under these circumstances the Reds would be unable to move during daylight hours. Moreover, interdiction would not be abandoned but instead focused upon destroying materiel and killing troops. Under the conditions of the static ground front the Reds could be expected eventually to build their supply level up to any degree which they desired by merely accumulating a little more than they expended. But as long as the United Nations Command maintained air superiority and held the whiphand of air attack, the Reds could never hope for an ultimate ground victory in South Korea, no matter what their jump-off supply level might be. Just as in 1950 and 1951, a Communist ground offensive would force the enemy to expose his troops and supply lines to a violent air attack as he moved from prepared defenses and dispersed supply dumps. Once again the Eighth Army could preserve itself by fire and maneuver. Back of the enemy lines, moreover, the cumulative effect of the anti-railway attacks would prevent the fast and reliable resupply which the enemy would require for an all-out ground campaign. Since the Communists could not expect to win ground victory in Korea, Randolph and Mayo argued that the United Nations Command incurred very little real risk even if the Reds did build up their front-line supplies at a faster rate.

Following the completion of their study on 12 April, Colonels Randolph and Mayo verbally briefed their conclusions and recommendations to General Smart and selected members of his staff. General Smart agreed with the findings and presented them to General Weyland, who gave his concurrence to the study.[16] The concept of air pressure through selective destruction was in fact a development of the germ of the idea which Weyland had submitted to USAF in June 1951. The idea of selective destruction appealed to Weyland for another reason. Limited to attacks against conventional targets within the territorial confines of Korea, the Far East Air Forces apparently had little ability to influence the actions of Soviet Russia and Communist China, the powers who were actually calling the tune at Panmunjom. These Communist bloc nations, however, had economic and military property at risk in North Korea. If, through selective attack, the Far East Air Forces could destroy targets in North Korea which had significance to the Soviet bloc they could make the direct effect of air campaign in North Korea felt as far away as the seats of power in Moscow and Peking.[17]

Even though he personally endorsed the concept of air pressure through selective destruction, General Weyland must have had his doubts as to whether the United Nations Command would support more forceful air operations. For several months General Weyland had been unsuccessful in his efforts to get approval for air attacks against North Korea's hydroelectric power facilities. Ever since September 1950, when the Joint Chiefs of Staff restraining order against further strategic air attacks saved them from impending

destruction,* North Korea's major hydroelectric power systems—Sui-ho, Fusen, Choshin, Kyosen, Funei, and Kongosan—had been giving aid to the enemy cause. When the Chinese Communists had seemed about to intervene in Korea in November 1950, the Joint Chiefs of Staff had accepted the estimate that the loss of "electricity from these power systems...would be a severe economic blow to Manchuria." In November 1950 the Departments of State and Defense had apparently hoped that preservation of North Korea's hydroelectric power resources might reduce the risk of Chinese Communist intervention in the Korean war.[18] Subsequent to the Chinese intervention, Secretary of Defense George C. Marshall had explained that North Korean hydroelectric facilities had not been attacked because their relation to the United Nations military effort was "not immediately so direct as to demand that destruction, and they always remained a possibility in negotiations."[19]

Although the Fifth Air Force intended to continue its railway-interdiction campaign on 5 January 1952 General James Ferguson urged that the Panmunjom truce talks had been so long-drawn-out as to warrant attacks against North Korea's hydroelectric plants. "These targets," Ferguson wrote, "are some of the most lucrative in North Korea, and their destruction would hinder the enemy's ability to wage war."[20] General Weyland was in favor of the proposal and recommended to General Ridgway that destruction of the hydroelectric power complex would "accomplish immediate as well as long-range military effects against the enemy, and would additionally create psychological and political effects to our advantage."[21] When the request came across his desk on 3 March, however, General Ridgway refused to approve it but informed Weyland that he would consider the proposal "in the event that a decision is reached that the Communists are deliberately delaying armistice negotiations and are increasing their offensive capabilities."[22] On 11 March General Ridgway informed the Joint Chiefs of Staff that he was planning to loose the Eighth Army from its operations restrictions if the Reds broke off the truce talks. General Ridgway believed, however, that the truce negotiations would succeed provided the United Nations stood inflexibly on major issues. He stated that he was not ready for the last resort, which was "to apply the one influence which the Communists the world over recognize, and that is force."[23]

General Ridgway's hope that the armistice negotiations would succeed was unfounded. Having wrangled throughout the autumn of 1951 about so simple a matter as the demarcation line, the Reds were even more bitterly obstructive about other items on the agenda. In order to ensure that neither side reinforced during the military armistice, the United Nations Command demanded the creation of a neutral-nations supervisory commission with inspection authority and insisted that neither side should build or rehabilitate airfields during the armistice. The Communists were agreeable to the supervisory commission but they insisted that Russia must be invited to join it. The Reds stoutly opposed any prohibition on the construction or rehabilitation of military airfields. Discussions concerning the agenda's fourth item dealing with the disposition

**See* Chapter 6, p. 193-194.

of prisoners of war deadlocked early. The United Nations favored an all-for-all exchange, with the war prisoners to be permitted to accept or reject repatriation. The Communists desired compulsory repatriation.[24]

As the Panmunjom negotiations moved toward a complete stalemate, Air Force planners in Washington followed Joint Chiefs of Staff orders and sought to decide what actions could be takin if the armistice talks foundered. In response to a request for information on 29 April, General Weyland told the USAF planners that North Korea's hydroelectric power facilities were legitimate and profitable military targets, which, if suddenly destroyed, would deny electrical power to many small war factories and might "impress the North Koreans with the price they are paying for their continued recalcitrance."[25] When USAF assured Weyland that his views would be submitted to the Joint Chiefs, General Ridgway stated on 1 May that he saw no reason for the Joint Chiefs to direct air attacks against the hydroelectric plants without following the normal procedure of allowing him to make the first recommendations.[26] The Joint Chiefs of Staff replied that Washington studies showed that the destruction of the plants was desirable and reminded Ridgway that except for Sui-ho he had authority to order the attacks, but they assured the theater commander that further action would await his recommendations.[27]

The Far East Air Forces' plans for a more forceful air campaign to begin with all-out air attacks against the North Korean hydroelectric facilities seemed stymied. And at this juncture the Panmunjom truce negotiations were approaching a complete impasse. Acting on instructions from Washington, Admiral Joy offered a package proposal on 28 April which sought to break the deadlock. The United Nations Command would concede on the airfield question and would accept Poland and Czechoslovakia as "neutral" nations—but not Russia. In return the United Nations Command insisted that the Reds accept the principle of voluntary repatriation for prisoners of war. After a short recess the Reds rejected this solution on 2 May 1952. As he was instructed to do in this event, Admiral Joy was careful not to break off negotiations, but he announced that the position of the United Nations was "clear, final, and irrevocable."[28]

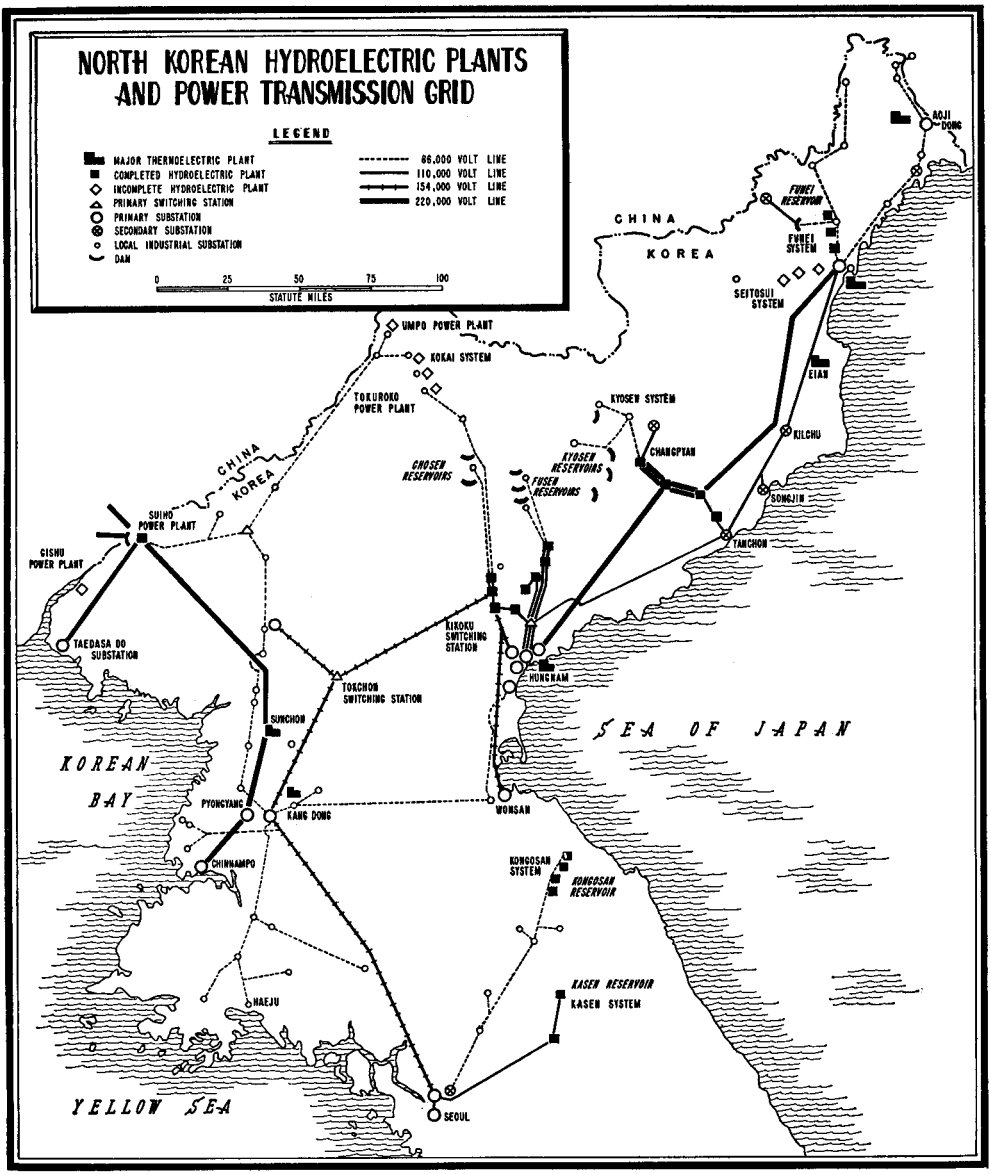
2. Hydroelectric Attacks Test the Air-Pressure Concept

The United Nations Command had attempted to negotiate with the Reds for almost a year and had compromised on point after point in the discussions. In order to attain its objectives, the United Nations Command could no longer afford to yield to the implacable Reds. The time had come to apply additional military force. General Ridgeway's successor had already been named in Washington. On 28 April President Truman announced Ridgway's relief for other duties and the appointment of General Mark Wayne Clark as Commander-in-Chief, United Nations Command and Far East Command.

Commander of the U.S. Fifth Army in Italy during World War II and postwar commander of American occupation forces in Austria, General Clark had more recently been the chief of Army Field Forces. When he arrived in Tokyo on 12 May 1952, General Clark already believed that "only through forceful action could the Communists be made to agree to an armistice the United States considered honorable." General Clark asked each of his force commanders the same question: "What can I do militarily and otherwise to make the Communists realize that the price of peace is not as cheap as they are trying to make it?"[29] The change in theater command was only one of several changes in key commanders in the theater at this time. Promoted to the rank of general on 5 July 1952, General Weyland would continue to command FEAF, but, in accordance with USAF rotation policies, General Everest yielded command of the Fifth Air Force to Maj. Gen. Glenn O. Barcus on 30 May 1952. On 10 June General Barcus was promoted to the temporary rank of lieutenant general. An experienced air officer, General Barcus had commanded the XII Tactical Air Command in Europe and the USAF Tactical Air Command. In 1950 he had headed a USAF evaluation board which had made an exhaustive study of Korean air operations. As he took command of the Fifth Air Force, General Barcus noted the "partial paralysis" which had settled over Korea and resolved that the Fifth Air Force should attack the Communists with "increasing vigor and efficiency."[30]

"A significant change in combat-operations policy took place in May," wrote General Weyland. "The scope of interdiction operations was expanded to include destruction of important targets, target complexes, and target systems."[31] Nothing much seems to have been put in writing, but all air commanders recognized that they could now take more forceful actions. For several months in Korea Fifth Air Force intelligence officers had been targeting significant centers of hostile logistical activity. In a specially ordered, one-time, day-long assault on 11 March, the 8th Fighter-Bomber Group had already flown 254 fighter-bomber sorties to deliver 154.2 tons of high-explosive bombs, 33,660 gallons of napalm, and 63,900 rounds of ammunition against well-dispersed dumps comprising the Red branch logistical depot behind the western end of the front lines at Mulgae-ri.*[32] In view of its concern for railway interdiction, the Fifth Air Force had not followed through with other attacks on this target list, but in May the Fifth Air Force began similar massed fighter-bomber attacks against other logistical targets. On 8 May 485 fighter-bomber sorties blasted the Red supply depot at Suan in the "biggest single attack since the beginning of the Korean conflict." On 15 May 256 fighter-bomber sorties completely destroyed a vehicle-repair factory at Tang-dong, a few miles north of Pyongyang. On 22 May 472 fighter-bomber sorties destroyed factories near Kijang-ni where the enemy was making hand grenades and ammunition. On 23 May 275 fighter-bomber sorties returned to this same area to attack a steel-fabricating plant. Photo interpret-

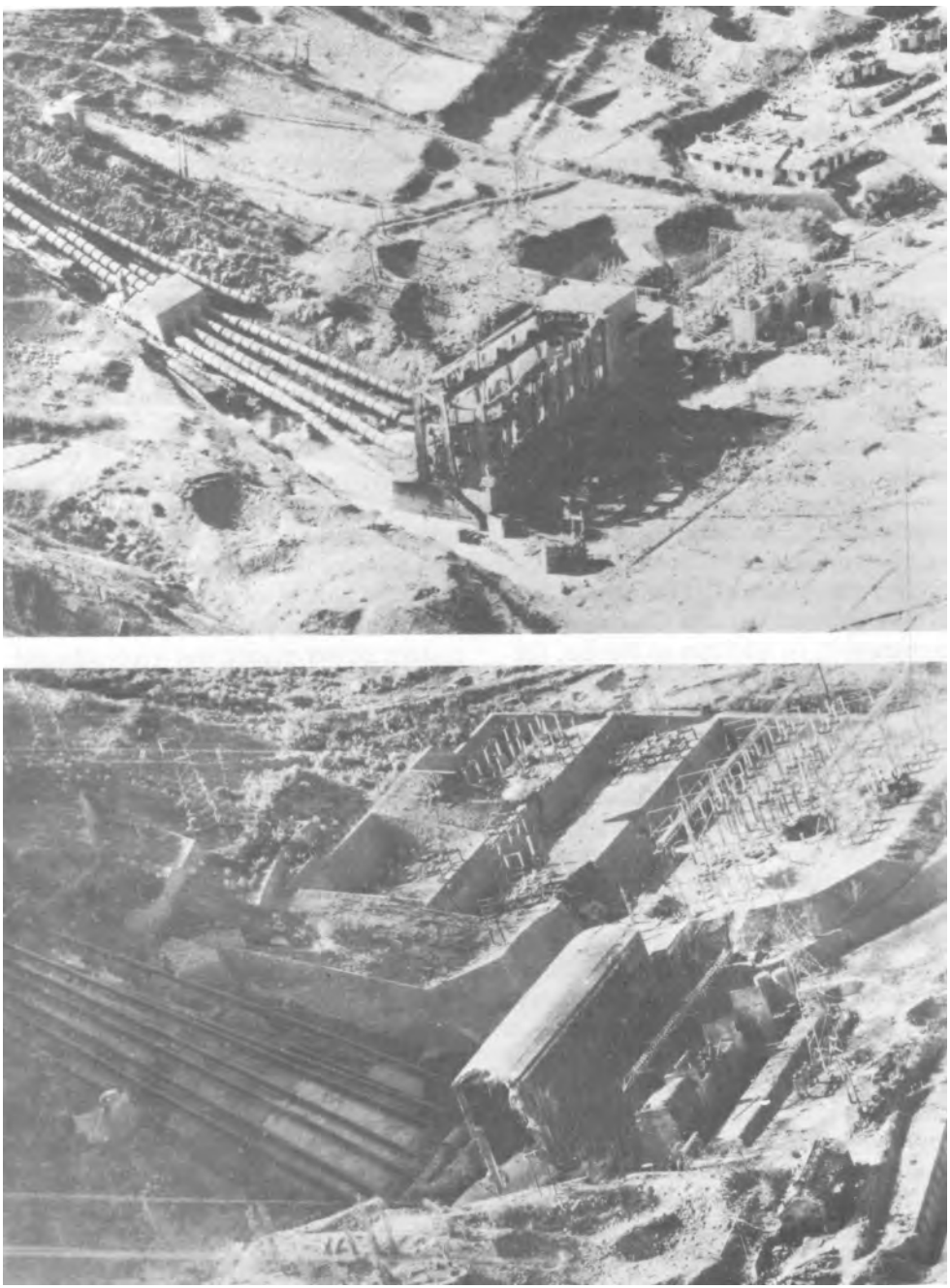
*The 8th Fighter-Bomber Group performed this magnificent feat with only 51 F-80C aircraft. The number of sorties flown by each plane, together with the exceptionally heavy amount of ordnance delivered, demonstrated how splendidly the Shooting Star jet interceptor had been made over into a fighter-bomber. For this mission, however, the F-80's did not require external fuel and could carry ordnance on their wing tips. There was another factor in the mission accomplishment. "We all worked like hell!" said Lt. Col. Levi R. Chase, the 8th Group's commander.


NORTH KOREAN HYDROELECTRIC PLANTS AND POWER TRANSMISSION GRID
LEGEND
MAJOR THERMOELECTRIC PLANT
COMPLETED HYDROELECTRIC PLANT
INCOMPLETE HYDROELECTRIC PLANT
PRIMARY SWITCHING STATION
PRIMARY SUBSTATION
SECONDARY SUBSTATION
LOCAL INDUSTRIAL SUBSTATION
DAM
66,000 VOLT LINE
110,000 VOLT LINE
154,000 VOLT LINE
220,000 VOLT LINE
0 25 50 75 100
STATUTE MILES
AOJI DONG
FUSEI RESERVOIR
FUSEI SYSTEM
CHINA
KOREA
SEITOSUI SYSTEM
EIAN
KILCHU
SONGJIN
TANCHON
KYOSEN SYSTEM
CHANGPIAN
KYOSEN RESERVOIRS
FUSEN RESERVOIRS
CHOSEN RESERVOIRS
UMPO POWER PLANT
KOKAI SYSTEM
TOKUROKO POWER PLANT
SUIHO POWER PLANT
GISHU POWER PLANT
TAEDASA DO SUBSTATION
IKOKU SWITCHING STATION
HUNGNAM
TOKCHON SWITCHING STATION
SUNCHON
SEA OF JAPAN
KOREAN BAY
PYONGYANG
KANG DONG
WONSAN
CHINNAMPO
KONGOSAN SYSTEM
KONGOSAN RESERVOIR
KASEN RESERVOIR
KASEN SYSTEM
HAEJU
YELLOW SEA
SEOUL

ers revealed that the attacks destroyed 93 percent of the first day's target and 80 percent of the second day's objective.[33]

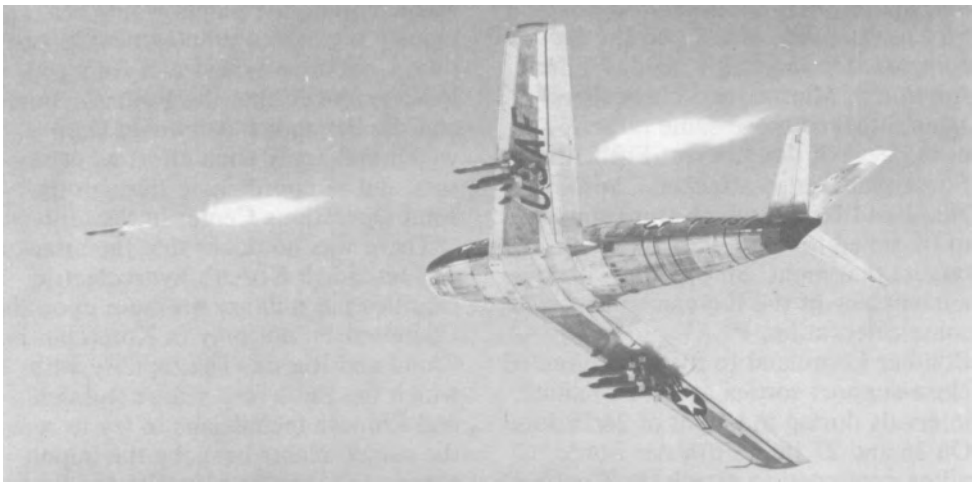
During much of May prisoner-of-war riots at Koje-do camps and turmoil in the Republic of Korea government prevented General Clark from giving much thought as to the course the Korean hostilities were to take. On 6 June, however, General Weyland visited Clark and explained to him the significance of North Korea's hydroelectric power complex and emphasized that all of the plants except Sui-ho could be attacked on the theater commander's order. Given General Clark's approval for developing the targets system, General Weyland put his operations staff to work on two briefing plans, one plan to include Sui-ho on the target list and the other excluding it. In addition to Sui-ho, the FEAF operations staff listed Fusen, Choshin, and Kyosen for attack. The smaller Funei and Kongosan complexes could wait for another time. To get the job done in two days' time, before the enemy could react to the attacks, the FEAF staff saw that they would need Navy assistance. When the plans were completed on 11 June, General Weyland took them to General Clark and asked him to approve attacks as soon as the Air Force and Navy could draw up coordinated schedules of attack. On 17 June General Clark ordered General Weyland and Vice-Admiral Robert P. Briscoe, commander of the Naval Forces Far East, to attack all of the major power installations except Sui-ho. For the coordinated attacks Clark named Weyland as "coordinating agent."[34] After studying an information copy of Clark's directive in Washington, the Joint Chiefs of Staff decided on 19 June that Sui-ho's generating plant should be added to the attack program. Getting President Truman's approval, the Joint Chiefs authorized General Clark to add Sui-ho to the target list that same day.[35]

General Weyland alerted the Fifth Air Force and Bomber Command for strikes against the North Korean power complexes on 23 or 24 June, these dates being selected in deference to Admiral Briscoe, who wanted to have four fast carriers on the line for the first time since the Hungnam evacuation. Over at Seoul General Barcus had been doing some serious thinking, for he was expected to send his fighter-bombers against Sui-ho, only 38 miles up river from the lair of some 250 MIG-15's at Antung. All of the power-plant strikes had to be timed to perfection, or else the MIG airmen could make the attack very costly. Navy airmen were already slated to bomb the eastern power plants, but Vice-Admiral J. J. Clark, the aggressive new commander of the Seventh Fleet, flew to Seoul and proposed that Navy airmen should join the attacks against Sui-ho. Not since the Yalu bridge attacks of 1950 had Navy pilots entered MIG Alley, but when Barcus accepted the Navy's offer coordinated plans shaped up rapidly. General Weyland would name the day and time of the attack in accordance with target weather at Sui-ho, and no electric power plant would be hit until the Navy dive-bombers and Fifth Air Force fighter-bombers began their runs at Sui-ho. After the Sui-ho strike was in progress, Fifth Air Force pilots would hit Choshin No. 3 and No. 4 plants and Fusen No. 3 and No. 4 plants, while Navy pilots would be hitting Fusen No. 1 and No. 2 plants and the four plants at Kyosen. Shoran-bombing B-29's would attack Choshin No. 1 and No. 2 on the night of the daylight strike. If weather permitted, the United National hydroelectric



(top) Hits on Kyosen No. 4 destroyed the generator house (foreground) and damaged the transformer yard.

(bottom) At Kyosen No. 1 U.N. bombing rendered the entire plant unserviceable.



An F-86 releasing 5-inch high velocity rockets in test runs over Nellis AFB range, Nevada.

strikes would begin at 0930 hours on 23 June.[36]

At daybreak on 23 June 1952 Fifth Air Force weather reconnaissance crews reported heavy clouds along the Yalu, and the planned attacks were off. Toward midmorning, however, the weather was drifting southward and it was clearing at the Yalu. This sort of weather would benefit the United Nations attack, since it would cover attacking planes en route to and from the Sui-ho target. In a rapid recasting of plans General Weyland flashed orders for an afternoon strike to begin at 1600 hours. The attack would be followed up on the next day and concluded by a medium-bomber attack on the night of 24/25 June. Promptly at the appointed time, as 84 Sabres patrolled watchfully overhead, 35 AD Skyraiders from the *Boxer, Princeton,* and *Philippine Sea* accompanied by 35 F9F jet fighters from the same ships arrived at Sui-ho. As the F9F's suppressed flak, the Navy dive-bombers attacked Sui-ho's generating plant. In procession between 1610 and 1700 hours, 79 F-84's and 45 F-80's ran the bomb total on Sui-ho up to 145 tons on target. Two hours later 25 F-86's escorted two RF-80's back to Sui-ho to record what had happened. The strikes went off to perfection. Although the area was defended by 44 heavy guns and 37 automatic weapons, Communist ground fire was well neutralized and inflicted only minor damage to two aircraft. Strangely enough, the 250 MIG fighters based at Antung and Ta-tung-kou made no attempt to resist the raid. In fact, while the strikes were in progress some 160 of the Red planes took off and fled to the interior of Manchuria. Evidently some rattled Red air commander at Antung feared that his airfields were gong to be attacked and pushed the panic button.[37]

A few minutes after the attacks got under way at Sui-ho on the afternoon of 23 June, Fifth Air Force Mustangs attacked Fusen No. 3 and No. 4 while 1st Marine Air Wing pilots hit Choshin No. 3 and No. 4. Skyraiders, Corsairs, and Panthers from the *Boxer, Prince-*

ton, and *Bon Homme Richard* bombed Fusen No. 1 and No. 2 and the Kyosen complex. On the following day Fifth Air Force, Marine, and Navy fliers again attacked these same targets, and in the heat of the moment Fifth Air Force planes also attacked Choshin No. 1 and No. 2, which were supposed to be saved for Bomber Command targets that night. Since the second anniversary of the Korean war needed some celebration, FEAF ordered Bomber Command to fly radar-directed close-support sorties at fifteen-minute intervals during the night of 24/25 June. On 26 and 27 June Fifth Air Force pilots continued to attack the Choshin and Fusen plants. As the four-day assault ended, the Fifth Air Force had flown 730 fighter-bomber and 238 counterair sorties and had sustained no casualties from enemy action. In two days of attack the Navy had flown 546 sorties and had lost two planes to ground fire. Both of the Navy pilots had been rescued.[38]

To Air Force and Navy commanders and pilots alike the sustained strikes against such a vital target system as the North Korean hydroelectric plants were especially pleasing. When the smoke cleared away from the targets, photo reconnaissance showed that something more than 90 percent of North Korea's electric power potential had been knocked out. Of the 13 plants in the four major complexes attacked, 11 were clearly unserviceable and the other two were doubtful. For the first time in Korea Navy and Air Force pilots had worked together against a single target, and Admiral Briscoe called Weyland's planning "superb." Looking back on the Korean war, General Weyland later wrote that the hydroelectric attacks stood out in his mind as one of two particular strikes that were "spectacular on their own merit." Since the plants would obviously require continuing neutralization, General Weyland and Admiral Briscoe agreed that the Fifth Air Force and the Seventh Fleet would keep watch and apply such effort as necessary and as coordinated through the Joint Operations Center in Seoul.[39]

There was no doubt that the attacks against North Korea's hydroelectric facilities put military pressure upon the Communists, not only in Korea but in China and Russia. The rapidity with which the Reds sent scarce Russian and Chinese technicians to try to repair the ruined plants bespoke the importance of the power plants to the Soviet bloc.[40] For more than two weeks, moreover, North Korea sustained an almost complete power blackout, and after this the production of small thermoelectric plants plus some limited use of the lesser damaged hydroelectric plants restored North Korea's power to perhaps 10 percent of its former capacity.[41] Intelligence agent reports confirmed FEAF's prediction that the loss of electric power would curtail war production in many small factories, themselves so dispersed as to be impracticable air targets.[42] Intelligence reports received from Manchuria indicated that the neutralization of Sui-ho's generators represented a loss of 23 percent of the 1952 electric-power requirements of northeast China. Because of power shortages, 30 out of 51 key industries at Port Arthur, Dairen, Funchun, and Anshan failed to meet the annual production quotas prescribed by Peking. The Reds tried a variety of expedients to compensate for 120,000 kilowatts of power which no longer arrived from Sui-ho, but these expedients provided only a fractional part of the power deficit.[43]

Although the North Korean hydro-

electric plants were military targets and no violation of Chinese or Russian territory could even be alleged, the air attacks brought world-wide repercussions. In the British Parliament Laborites Clement Attlee and Aneurin Bevan denounced the bombings as provocation which might lead to World War III. Prime Minister Winston Churchill admitted that he had not been consulted prior to the hydroelectric raids but insisted that there was no change in United Nations policy toward Korea. Announcement by Churchill that he was appointing a British deputy in Tokyo did much to clear the controversy on 1 July, and a Labor motion criticizing Churchill's failure to "secure effective consultation" on Korean matters failed of adoption in the House of Commons.[44] In Washington the Department of Defense received queries from congressmen wanting to know why the North Korean power plants had not been bombed earlier. General Clark stated his personal opinion that the power stations had been potentially profitable military targets any time after Chinese Communist intervention, but in replies to congressmen the Department of Defense stressed the military characteristics of the targets and explained that military considerations had forestalled attacks until June 1952.[45] The result of the British furor and the congressional queries was again to inform the enigmatic Reds that the United Nations stil intended to wage a limited war in Korea. "Once again," noted FEAF, "the persuasive threat of airpower had been lessened."[46]

3. Reorientation and Reorganization of the Far East Command

After he had gotten an opportunity to study the political and military situation in Korea, General Clark informed the Joint Chiefs that the "underlying reason for failure thus far to achieve an armistice is that we have not exerted sufficient military pressure to impose the requirement for an armistice on the enemy." Unless an Eighth Army ground offensive could destroy the numerically superior and well-entrenched Red ground armies and carry victory to the Yalu, General Clark did not believe that ground action could compel the enemy to seek an armistice. Anything short of complete military victory attained by the Eighth Army, Clark said, would be "purchased at highly unpalatable personnel cost." Even if the Korean war were to be expanded, Clark indicated that he would prefer to extend the air war to Chinese and Manchurian targets and institute a naval blockade of China before launching a United Nations Command ground offensive.[47] Under the existing truce-talk situation, General Clark favored the maintenance of maximum pressure upon the Reds. "The capability for such pressure, without unacceptable cost," Clark told the Joint Chiefs, "lies in the air arm."[48] With one significant limitation, the Joint Chiefs also accepted the strategy of air pressure. In their first formal reference to the matter on 8 August, the Joint Chiefs ordered General Clark to "continue, within existing directives, to make maximum practicable use of available air strength in attacks upon all military targets in North Korea." They cautioned, however, that it was "con-

sidered important to avoid public statements ascribing the high level of air activity as bringing pressure on the Communists to agree to an armistice, so that Communist prestige is not so seriously engaged as to make more difficult ultimate Communist agreement to an acceptable armistice."[49] Somewhat later General Omar N. Bradley, chairman of the Joint Chiefs of Staff, recognized that the airpower of the United Nations Command "constitutes the most potent means, at present available to the United Nations Command, of maintaining the degree of military pressure which might impel the Communists to agree, finally, to acceptable armistice terms."[50]

When he began to search for the ways and means of exercising maximum military pressure against the Communists in Korea, General Clark soon noted that the organization of the United Nations Command and the Far East Command did not permit each of its force components to attain their maximum capabilities. As theater commander, General Clark recognized that he was expected to stand above armed-service connections and to seek to accomplish the objectives of the United Nations and the United States. In other words, General Clark was vested with the accomplishment of the over-all mission. According to the principles of armed-force unification, Clark also recognized that each of his force components contributed its own specialized capabilities to the attainment of the theater commander's mission and in so doing assisted the other components. No single service, however, existed solely or primarily for the support of another service.[51] In a letter issued to all commands on 11 August 1952 General Clark recalled that in the critical days of ground battle earlier in the Korean war all theater airpower had supported the embattled Eighth Army. Such had been in accordance with the theater commander's desire at times of ground emergency, but General Clark emphasized that the theater commander's purpose now was to "exploit throughout North Korea the intrinsic capabilities of air forces."[52]

As early as December 1946 the Joint Chiefs of Staff had directed theater commanders to provide themselves with a "joint staff with appropriate members from the various components of the services...in key positions of responsibility." In the Far East, however, the United Nations Command and Far East Command headquarters had continued to be staffed by Army officers. The headquarters staff also doubled in duty as the theater Army headquarters, which had never been activated.* General Clark soon recorded the opinion that his headquarters "should be a joint, tri-service operation, rather than an army project."[53] On 20 August he announced that he intended to organize a joint Far East Command headquarters staff, to comprise appropriate members from each of the three military services in key positions of responsibility. Concurrently, he intended to establish the long-missing Army Forces Far East, which would be the senior Army command on the same level with the Far East Air Forces and the Naval Forces Far East.[54]

According to plan, the Army Forces Far East was activated on 1 October 1952, with manning provided from the simultaneously inactivated Japan Logistical Command and the Headquarters and Service Command, Far East Command. Actually, the organiza-

**See* Chapter 2, pp. 44-45.

tion of the new command resulted in a small savings of personnel, thus disputing the old story that the absence of the Army command represented an economy in people.[55] The reorganized United Nations Command and Far East Command headquarters did not begin to function until 1 January 1953. As a joint organization, the new headquarters was staffed by 91 Army officers, 48 Air Force officers, and 43 Navy officers.[56] The new joint staff included a chief of staff, three deputy chiefs of staff representing Army, Navy, and Air Force components, and five "J-staff" positions. Two of the top-level positions were allocated to the Air Force: a deputy-chief-of-staff position filled by Maj. Gen. Ernest Moore, who came from command of the Thirteenth Air Force to assume the duties, and the J-2 Intelligence position, a job which FEAF released in order to nominate an Air Force officer as J-3 Operations. For some reason, however, an Air Force officer did not serve as J-3 until the Korean war was over.[57] General Clark was highly enthusiastic concerning his new joint staff members. "They all had outstanding records," Clark wrote, "and...pulled together in the tri-service team." At its late date of accomplishment, the top-level reorganization lacked great significance to the Korean fighting, but Clark observed: "Had we carried the war to a victorious conclusion it would have required the closest kind of integration of ground, naval, air, and amphibious operations. A truly integrated staff of the three services, in which men were picked for their ability rather than the color of their uniforms, is the answer to combined operations."[58] In several respects the headquarters reorganization of the United Nations Command and the Far East Command proved less than a complete solution to existing interservice problems. Stating that such was necessary to avoid the requirement for another senior Army general officer, General Clark assumed command of the new Army Forces Far East. General Clark also made the new command "executive agent" for many theater functions. Thus the Army Forces Far East took over allocation of surface transportation in Japan, whereas all theater allocations of surface transport might more properly have been managed by a joint theater transportation board, as was the case with the allocation of air transportation.[59]

Establishment of the United Nations Command and Far East Command joint staff ensured that service problems received more sympathetic staff consideration at the theater level, but the reorganization did not secure a desired unity of air operations since the Far East Air Forces and the Naval Forces Far East continued as independent equals in the theater command structure. Although the new strategy of air pressure demanded integrated United Nations air attacks employing Air Force and Navy pilots, General Clark perferred to attain such unity of air actions through "team play."[60] On several occasions, when Air Force and Navy airmen attacked the same target, General Clark recognized FEAF's "coordination control" authority over air operations in Korea and named General Weyland as "coordinating agent" for the planning and execution of the particular attacks.

In the absence of a single controlling authority for air operations against North Korea, the United Nations air-pressure campaign was managed in the same informal fashion as had other air campaigns in Korea in the past. To ensure the most effective employment of Fifth Air Force and Bomber Com-

F9F fighters from the USS *Boxer* armed with 5-inch rockets. *(Courtesy U.S. Navy).*

mand efforts for the air-pressure operations, General Weyland rejuvenated the FEAF Formal Target Committee,* which had become somewhat moribund in the year that the Fifth Air Force had managed comprehensive railway interdiction from its command post in Seoul. Comprising operations and intelligence representatives from FEAF, Bomber Command, and the Fifth Air Force, the FEAF Formal Target Committee met biweekly, usually in Tokyo, to study and recommend a fortnight of operational activity. When General Weyland approved them, the Target Committee's recommendations were distributed to the Fifth Air Force and to Bomber Command for execution and to the Naval Forces Far East for information.[61] Admiral Briscoe also directed his Navy air commanders to give advance notice of independently planned naval air strikes in order to ensure effective coordination with other air operations which might be planned or scheduled.[62]

Directed to work cooperatively through the Joint Operations Center in Korea in order to maintain surveillance and continued neutralization of the North Korean hydroelectric plants, the Fifth Air Force and Seventh Fleet established such harmonious relations by August 1952 that General Weyland authorized General Barcus to request naval air strikes when he required assistance for a particular operation. At this same time, however, FEAF reserved the right to negotiate for assistance from the Naval Forces Far East when such was advisable.[63] In the last weeks of the Korean hostilities, after the Seventh Fleet agreed to participate integrally in the Joint Operations Center in Korea,† the Fifth Air Force suggested that a Navy

**See* Chapter 2, pp. 54-55.
†*See* Chapter 19, pp. 676-677.

airman might well be included in the membership of the FEAF Formal Target Committee. Since he possessed no operational control over naval air units, General Weyland reasoned that he could not order a naval air officer to attend the FEAF Formal Target Committee meetings. Nevertheless, General Weyland reasoned that FEAF did possess "coordination control" over air operations in Korea and that Navy representation on the FEAF Formal Target Committee would be highly desirable. General Weyland accordingly directed the Fifth Air Force to invite a Navy member of the Joint Operations Center to attend meetings of the FEAF Formal Target Committee.[64] In the last year of the Korean hostilities the Far East Air Forces and the Naval Forces Far East worked together well for the accomplishment of a common air strategy, but this "team play" came from the fortunate personalities of the commanders concerned rather than from more stable dictates of command authority and organization.

4. FEAF States Policy and Examines Capabilities

Although the United Nations air attacks against North Korea's hydroelectric facilities must have made the Reds begin to wonder whether their game at Panmunjom was worth the candle, the attacks produced such a furor that FEAF was not at all sure that the United Nations would accept a strategy of air pressure through selective destruction. Obviously embarrassed by high-level statements in Washington and London that United Nations policies were unchanged, the FEAF combat operations division replied to a request for information on that score from USAF that there had been no basic change in policy but that "there had been a change in the weight of effort expended against various targets."[65]

Such circumspection may have been justifiable under the circumstances, but on 26 June the FEAF Target Committee nevertheless proposed that FEAF combat-operations policy ought at least to be rewritten sufficiently to direct the Fifth Air Force and FEAF Bomber Command to maintain air pressure through destruction operations rather than to continue with the old policies of delay, disruption, and dislocation. General Weyland approved the recommendation, and within the next two weeks FEAF intelligence and operations officers matured a new policy directive.[66] Even before this directive was released, however, General Smart cautioned the FEAF Formal Target Committee "to keep in mind that his modification is not a major change in policy, but rather a shift in emphasis from delay and disruption operations to destruction."[67]

As issued to the Fifth Air Force and FEAF Bomber Command on 10 July 1952, the new FEAF operational policy directive recognized three factors. The first was that the Communists had amassed in the Far East large air forces which could be offensively employed against United Nations forces at any time. The second was that the major

sources of enemy supply were off limits to United Nations air attack, and the enemy supply "pipeline" from the sanctuary to the front lines was relatively short. Moreover, the ground front had been so long stable that enemy resupply requirements were low. Thus the obstruction of enemy supply movements in Korea could not prevent the enemy from building up his supply stockpiles. The third factor was that friendly ground forces in a stabilized ground situation did not require great amounts of close air support.

In order to exert the maximum pressure against the Communist forces in North Korea, FEAF air effort was to be employed with first priority given to the maintenance of control of the air. Second, such other combat air effort as was available would be employed to accomplish the maximum selected destruction in order that the Korean conflict should be made as costly as possible to the enemy in terms of equipment, supplies, facilities, and personnel. Third, such air operations as were feasible would be conducted to reduce the immediate threat to United Nations forces posed by Communist ground armies. Direct air support would be provided to United Nations ground forces as required by the initiation of friendly or enemy offensive ground action. As a general principle, the scope and tactics of air employment would be constantly monitored in order to assure that all units were kept at a high level of readiness for combat. The air-attack program would also include provisions to assure crew proficiency in any type of mission they might be required to fly in a future emergency or a renewed ground campaign.

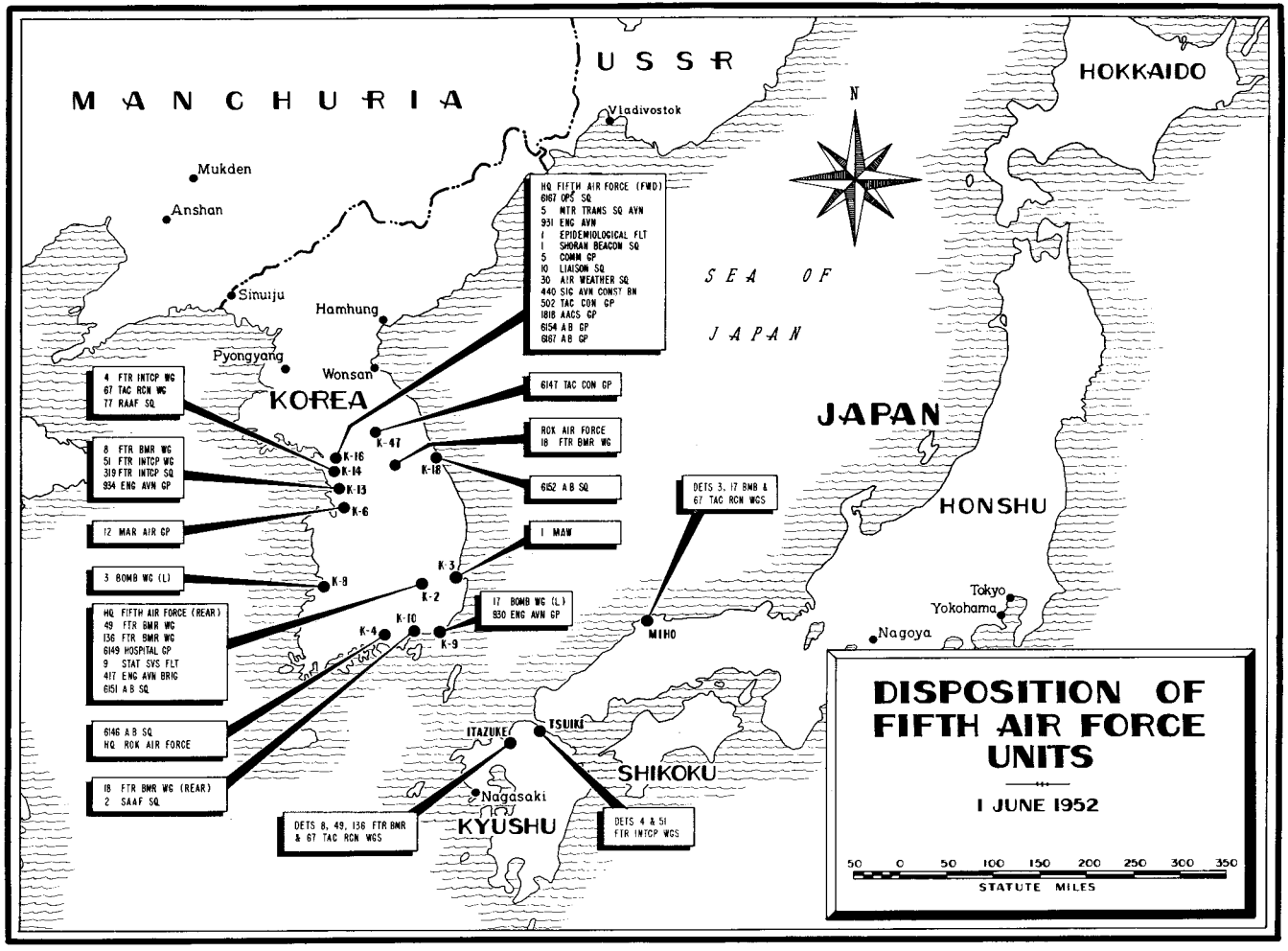
As long as there was no significant change in the tactical situation in Korea, the major proportion of air capabilities would be employed in destruction operations. The following specific target categories were listed in order of their priority: aircraft; serviceable airfields; electric power facilities; radar equipment; manufacturing facilities; communications centers; military headquarters; rail-repair facilities; vehicle-repair facilities; locomotives; supply, ordnance, and petroleum products; rail cars; vehicles; military personnel; rail bridges and tunnels; marshaling yards as facilities; and road bridges. The selection of specific targets for attack was to be made with a consideration to the relative listed priority of the target category, the vulnerability of the target to air attack, and the defenses of the targets. Within the target categories all sources of information would be exploited in order to search out and identify the most lucrative objectives. The possibility of developing worthwhile objectives was to be exploited, and sufficient attack would be employed against the enemy rail system in order to develop targets such as locomotives and rolling-stock concentrations and to ensure that the system was not rebuilt to such an extent that it would support extensive sustained enemy ground operations.

In order that fleeting targets developed by destruction attacks would be followed up and attacked with the least delay, close coordination between the Fifth Air Force and Bomber Command was essential. Since it had the more flexible capability, the Fifth Air Force was vested with responsibility for exploiting fleeting-type targets. The Fifth Air Force was also made responsible for maintaining air superiority in Korea, but Bomber Command would attack such airfields as the Fifth recommended and FEAF directed. Bomber Command would normally apply its efforts against communica-

tions centers, manufacturing facilities, rail bridges, and concentrations of supplies and railway equipment. Such targets, however, could also be attacked by the Fifth Air Force.[68]

The FEAF air-pressure directive showed a distinct concern for air-force capabilities, for General Weyland understood how vitally shortages of logistical support had hampered air operations in the first two years of the Korean war. Fortunately, FEAF's logistical support was improving. In two years of war everyone agreed that the Far East Air Materiel Command (FEAMCom) had done a marvelous job. With little expansion other than the employment of many skilled Japanese technicians and the mobilization of Japanese productive enterprise, Brig. Gen. John P. Doyle had been supporting four times as many air organizations as in June 1950. FEAMCom, however, had long required expansion, and, effective on 1 February 1952, General Doyle had undertaken a general reorganization of his command. Creation of the 6400th Air Depot Wing at Tachikawa relieved FEAMCom of the direct management of depot functions there and freed it to provide an over-all guidance of theater air logistics functions. The 6148th Air Depot Wing was organized at Iwakuni Air Base, with plans for its later expansion into a full-fledged depot wing. In the Philippines the 6208th Depot Wing was little changed, but the 6405th Korea Air Materiel Unit in Korea was expanded to handle battlefield recovery of air materiel as well as aircraft maintenance and ammunition-supply missions. Following this reorganization, General Doyle yielded command of FEAMCom to Brig. Gen. Paul E. Ruestow on 10 June 1952. In order to provide increased recognition of the logistics function, FEAMCom was redesignated as the Far East Air Logistics Force (FEALogFor) on 2 July 1952, and General Ruestow was promoted to major general on 6 September 1952. During the autumn of this year General Ruestow planned a continued expansion of his force, which would be possible when the 75th Air Depot Wing arrived from the United States on 30 December 1952. The new wing would detach a part of its units to flesh out the 6148th Wing at Iwakuni, and it would establish a new air depot in Korea at Chinhae Airfield (K-10). Early in 1953 the Far East Air Logistics Force would be prepared to provide expanded logistical support to the fighting air forces.[69]

When General Weyland and his staff planned the sustained air-pressure compaign in July 1952, they could also take some comfort from the fact that American production was beginning to catch up with the demands imposed by the Korean war. In February 1952 the Joint Chiefs had notified General Ridgway that USAF had bought 60 F-86's from a Canadian aircraft company (Canadair), which, with domestic Sabre production, should enable FEAF to achieve two war-strength Sabre wings, together with 50 percent theater reserve, by June 1952. To provide the 51st Fighter-Interceptor Wing with three tactical squadrons, General Everest chose to transfer the 39th Fighter-Interceptor Squadron from its attachment to the 18th Wing on 1 June 1952. Attached to the 51st Wing at this time, the 39th Squadron began to receive new F-86F aircraft. The Sabre equipment program met some slippages, but the two Sabre wings would be up to authorized unit-equipment strength in August 1952.[70] Further to augment the air defenses of the Far East, the Joint Chiefs of Staff authorized USAF to maintain a Strategic Air


MANCHURIA
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TSUIKI
SHIKOKU
Nagasaki
KYUSHU
N
HQ FIFTH AIR FORCE (FWD)
6167 OPS SQ
5 MTR TRANS SQ AYN
931 ENG AVN
1 EPIDEMIOLOGICAL FLT
1 SHORAN BEACON SQ
5 COMM GP
10 LIAISON SQ
30 AIR WEATHER SQ
440 SIC AVN CONST BN
502 TAC CON GP
1818 AACS GP
6154 A B GP
6187 A B GP
4 FTR INTCP WG
67 TAC RCN WG
77 RAAF SQ
8 FTR BMR WG
51 FTR INTCP WG
319 FTR INTCP SQ
954 ENG AVN GP
12 MAR AIR GP
3 BOMB WG (L)
HQ FIFTH AIR FORCE (REAR)
49 FTR BMR WG
136 FTR BMR WG
6149 HOSPITAL GP
9 STAT SVS FLT
417 ENG AVN BRIG
6151 A B SQ
6146 A B SQ
HQ ROK AIR FORCE
18 FTR BMR WG (REAR)
2 SAAF SQ
DETS 8, 49, 136 FTR BMR & 67 TAC RCN WGS
6147 TAC CON GP
ROK AIR FORCE
18 FTR BMR WG
6152 A B SQ
1 MAW
17 BOMB WG (L)
930 ENG AVN GP
DETS 3, 17 BMB & 67 TAC RCN WGS
DETS 4 & 51 FTR INTCP WGS
K-16
K-14
K-13
K-6
K-9
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DISPOSITION OF FIFTH AIR FORCE UNITS
1 JUNE 1952
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STATUTE MILES

Command fighter wing on rotational tours of duty in Japan. Until this time fighter aircraft had always been moved by surface transport across the Pacific, and expedited movements of assembled aircraft had often subjected hurriedly waterproofed planes to significant corrosion damages. Seeking to attain global mobility for fighters as well as for bombers, Strategic Air Command fighter wings had been developing in-flight refueling capabilities. Early in July 1952, led by its commander, Colonel David C. Schilling, the 31st Fighter-Escort Wing accordingly took off from Turner Air Force Base, Georgia, and employed in-flight refueling for a pioneer fighter flight across the Pacific. After an easy-stage, 11-day flight, the 31st Wing reached Misawa Air Base in Japan on 15 July 1952. Arrival of the 31st Wing not only provided needed F-84E aircraft for the defense of Japan, but its trans-Pacific flight demonstrated the practicability of moving operational fighters to the Far East by air in a short time and without the corrosion difficulties of a water voyage.[71]

Late in the spring of 1952 the Fifth Air Force's fighter-bomber strength had been seriously depleted both by logistical causes and by excessive losses sustained during the railway interdiction campaign. As attrition replacements for its F-84E Thunderjets, the Fifth Air Force had long been expecting either more F-84E planes or the new model F-84G, basically the same plane but especially designed to be a fighter-bomber. In an emergency action announced in February 1952, however, USAF ruled that the Fifth Air Force would for five months have to receive a total of 102 F-84D (Modified) aircraft instead of the standard-model Thunderjets. General Everest protested that the F-84D plane had less speed and range so that it could not be employed in formations with the F-84E, but the USAF decision stood.[72] General Everest therefore ordered that the 49th Wing would take over all F-84E's while the 136th Wing would receive the F-84D's, and this conversion was completed in May 1952.[73]

Fortunately for the Fifth Air Force, which encountered multifold logistical and operational problems stemming from the old F-84D's, USAF indicated in May 1952 that it would be able to bring three Far East Thunderjet wings up to strength and provide 50 percent theater reserves by deliveries of latest model F-84G's during the first quarter of fiscal year 1953. In this same period the completion of additional construction at Kunsan Airfield (K-8) and the scheduled arrival of the 31st Wing for air defense duty at Misawa would permit the 116th Fighter-Bomber Wing to move to Korea. Like the 136th Wing, the 116th Wing was a former Air National Guard organization whose period of authorized service was running out and required designation as a regular Air Force unit. Accordingly, on 10 July 1952, the 116th and 136th Wings were relieved from the federal service and their personnel and equipment were assumed by the simultaneously activated 474th and 58th Fighter-Bomber Wings.[74] Transported by air from Misawa, the 474th Wing opened its command post at Kunsan Airfield on 10 July and began to fly its first combat missions from the Korean airfield on 1 August.[75] Beginning in August and swelling in volume in September 1952, deliveries of new model F-84G's accelerated the phasing-out of the troublesome F-84D aircraft and also began to bring the three Thunderjet wings up to strength. Two shipments of these planes flew the Pacific and a third arrived by aircraft

carrier.[76] Although some of the new planes arrived without various items of needed supporting equipment, the F-84G's were available in sufficient numbers by September 1952 to permit the Fifth Air Force to bring its Thunderjet wings up to unit-equipment strength for the first time in more than a year.[77]

The Thunderjet wings comprised only a portion of the Fifth Air Force's fighter-bomber problem, for old Mustangs and Shooting Stars had long required relief from combat. Seeking to determine whether or not the Sabre could act as a fighter-bomber during May 1952, the 4th Fighter-Interceptor Group flew a few experimental dive-bombing attacks, getting well-placed hits with 1,000-pound bombs against Sinuiju and Uiju airfields and against the marshaling yards at Kunu-ri. In this latter attack, on the afternoon of 13 May, Col. Walker M. Mahurin, the group commander, was shot down by enemy ground fire and captured by the Communists. Despite this tragedy, the 4th Group experiments showed that the F-86 Sabres could serve as fighter-bombers as well as fighter-interceptors.[78] In a long-range projection calculated on the promise of increasing F-86 production, USAF on 18 July agreed to plans whereby the 8th Fighter-Bomber Wing and the 18th Fighter-Bomber Wing with its attached 2d South African Air Force Squadron would be converted to F-86F aircraft, properly modified as fighter-bombers, with a target date beginning in November 1952.[79] This conversion would be of advantage to the Fifth Air Force in two ways: it would acquire new fighter-bombers, which could, if need be, serve also as fighter-interceptors. Achievement of this action was far in the future, but the Fifth Air Force undertook one effort to help the old Mustangs keep flying. Leaving the 18th Wing as the rear echelon at Chinhae Airfield (K-10), the 18th Group and the 2d SAAF Squadron moved up to Hoengsong Airfield (K-46) during June 1952. At this airfield the Mustangs were only 60 miles behind the front lines and they could reduce their flying time.[80]

As a result of long negotiations and by agreeing to take nonstandard B-26's, FEAF possessed 187 B-26's in theater inventory in May 1952. Many of these planes were "cats and dogs" models in various configurations which required a large amount of depot modification before they could be assigned to the combat wings in Korea. Although the change had no effect on combat capabilities, the Fifth Air Force inactivated the reservist 452d Bombardment Wing (L) and concurrently activated the regular 17th Bombardment Wing (L) effective on 10 May 1952. In September 1952 the 3d and 17th Wings attained their unit-equipment authorizations of B-26 light bombers.[81] Other than getting the light bomber wings up to authorized strength, there was not much more that FEAF could do for them. After long study FEAF had now concluded: "The B-26 is nearly completely inadequate to perform night-intruder missions and there is not too much that can be done to develop that airplane to perform in the proper night-intruder role."[82]

In two years of war in Korea no single factor had so seriously handicapped Fifth Air Force operational capabilities as the lack of adequate air facilities. Operations from short and rough runways damaged and deteriorated combat aircraft, posing inordinate maintenance, supply, and attrition burdens upon the combat wings and tactical air force. Except for the single 9,000-foot cement-concrete runway opened at Taegu Airfield on 28 June

1952, Fifth Air Force flight surfaces were still of such a polygenous composition as to limit the ordnance carried by planes and to require constant heavy maintenance. The Fifth Air Force, however, was belatedly acquiring the aviation engineer units which it required to build adequate air facilities. In May and June 1952 the 417th Engineer Aviation Brigade, the 934th Engineer Aviation Group, and the 366th, 840th, and 841st Engineer Aviation Battalions unloaded in Korea. From its command post at Taegu, the 417th Brigade filled a long-standing need for an agency which could supervise the construction of air facilities in the combat zone. The Fifth Air Force's director of installations now ordered construction and specified requirements; the 417th Brigade supervised the actual work and administered the aviation engineer troops. According to a divison of effort specified by the brigade, the 930th Engineer Aviation Group became responsible for new construction and heavy maintenance at airfields in southern Korea, the 931st for similar duties in the Seoul-Suwon and central reaches of Korea, and the 934th for the construction of an entirely new jet fighter airfield on the flood plain of the Chinwi-chon River, south of Suwon, at the village of Osanni.[83] In the year following July 1952 the Fifth Air Force could at last expect to get more adequate air facilities everywhere in Korea.

According to official USAF programs, FEAF's combat capabilities were to increase in fiscal year 1953, which began on 1 July 1952. The air-pressure policy directive, however, posed a requirement which was somewhat new in Air Force annals. In order to provide for possible emergency requirements, such as an all-out Communist air attack or ground assault, FEAF expected to employ its aircraft at a rate which it could sustain indefinitely and still keep some 75 percent of its aircraft combat-ready. For much of the time during World War II American aircrew training and aircraft production had been so bountiful that combat air forces had been reasonably sure of obtaining timely replacements as they were needed. In critical periods in Korea FEAF had also allowed the emergency to justify the expedient and had knowingly used up aircraft and exhausted aircrews without regard to replacements. Such, however, would not be practicable for sustained air operations, which would have to hammer the Reds day after day without respite. Supply support for the new Sabres and Thunderjets, moreover, would continue to be so limited as to demand rigorous control. The rate of the air-pressure operations would have to be carefully regulated in terms of spare parts and supply, engine availability, aircraft age, expectations of loss and damage, and personnel manning and experience, all of which FEAF had to forecast and requisition up to six months in advance of the time they would be needed.[84]

The maximum combat capability which FEAF would be able to sustain and still keep 75 percent of its aircraft combat-ready would be a derivative of the number of aircraft possessed by tactical units calculated in terms of operational planning factors representing logistical support and aircrew replacements. In June 1952 FEAF planning factors set the maximum monthly sortie rate for tactical aircraft as follows: F-51—25.5 sorties, F-80—28.5 sorties, F-84—25 sorties, F-86—25 sorties, and B-26—17 sorties. Although the number of combat sorties which would be flown would increase with additional possessed aircraft in the

autumn of 1952, and could be juggled by flying shorter combat missions than the planning factors contemplated, the Fifth Air Force could in mid-1952 sustain each day something on the order of 115 F-86 counterair sorties, 220 fighter-bomber sorties, and 63 light-bomber sorties. While the planning factors were not known for these units, the 77th Royal Australian Air Force Squadron customarily flew approximately 18 Meteor counterair sorties and the 1st Marine Air Wing averaged approximately 100 sorties of all types each day in the autumn of 1952.[85] The Fifth Air Force accepted the validity of the FEAF planning factors and resolved to pitch its operations at a sortie rate which could be sustained.[86] As formally instituted in September 1952, the Fifth Air Force operations program required its tactical air wings to fly a fairly constant rate of combat and training sorties so as to ensure that logistical pipelines would sustain the total effort. When combat sorties fell below the programmed effort because of such conditions as adverse weather, the tactical wings were expected to take up the slack by flying additional training sorties. In this way tactical aircraft and crews would fly a predetermined number of hours each month and all support and maintenance would be geared to such standards.[87]

In context with the requirements of its global responsibilities for strategic bombardment in May 1951, USAF had established the aircraft strength of the FEAF Bomber Command at 99 B-29's, counting aircraft out of commission but repairable in the theater and pipeline factors of planes in transit to and from the United States. The USAF Strategic Air Command was responsible for providing combat attrition replacements. Because of difficulties in providing logistical support for the Superfortresses in the spring of 1951, USAF had demanded that FEAF reduce the combat rate of Bomber Command to 12 sorties each day. Considering the number of planes assigned in August 1951, however, General Weyland had been reluctant to establish Bomber Command's operational rate at only 12 sorties a day. According to FEAF calculations, Bomber Command actually should be able to fly 16 sorties a day. As a compromise, General Weyland accordingly authorized Bomber Command to fly 12 combat sorties a day except on days Weyland called for more effort, and to use the remaining sorties for training. This arrangement held good in June 1952. Bomber Command could actually fly at a sustained rate of 16 sorties a day, but it preferred to schedule 12 to 15 combat sorties and to devote its remaining capability to sorely needed shoran bombing practice.[88]

When Brig. Gen. Wiley D. Ganey, who had taken command on 15 March 1952, mustered the FEAF Bomber Command's strength for the new air pressure operations, he was assisted by various developments which were taking place in the Strategic Air Command. Seeking maximum organizational mobility, the Strategic Air Command inactivated all combat group headquarters and made the combat wings directly responsible for the operations of the combat squadrons. On 8 July 1952 the complete headquarters of the 98th and 307th Bombardment Wings were accordingly transferred to the FEAF Bomber Command for an indefinite period of temporary duty.[89] Conversion of Strategic Air Command wings to more modern aircraft released B-29 aircraft so that the FEAF Bomber Command did not have to be charged with

pipeline factors. The authorized strength of Bomber Command remained fixed at 99 aircraft, but it actually would possess an average of 105.6 planes in the year following July 1952.[90] When additional logistical support became available in August 1952, USAF authorized Bomber Command to increase its sortie rate by 50 percent. Because of a slow increase in theater B-29 stock levels, however, General Ganey decided to make no immediate increase in the combat sortie rate but instead to allocate the increased logistical support to training.[91]

If the emergency justified it, FEAF's combat wings could exceed their programmed operations factors for a day, a week, or a month, but, in compensation for the added sorties flown, the wings had to reduce their operations in a later period or else face logistical bankruptcy. Viewed in terms of the rates of air operations which could be sustained in combat, FEAF's striking power was always a finite quantity and actually quite small in comparison with the tasks presented to it. The manner in which essentially scarce air effort could be most profitably employed against the best possible air targets would be a major concern of the air-pressure strategy.

5. Finding Targets for Air-Pressure Attacks

Up until the middle of 1952 USAF doctrines had always been concerned with "strategic" and "tactical" air missions, and FEAF leaders found it difficult to pioneer in new doctrines which visualized airpower as an instrument of national policy. Viewed in relation to existing doctrine, the air-pressure strategy appeared to require "strategic" target systems, which were no longer very numerous in Korea. On 28 August 1952, for example, General Banfill flatly stated that "Fifth Air Force and BomCom's earlier work, coupled with the recent destruction of the enemy's power system, has left Korea almost devoid of targets that are suitable in a strategic or economic sense."[92]

In terms of historical operations and established concepts of target selection very few "lucrative" air targets remained in North Korea, but when intensive target analysis keyed to the destruction operations was put to work it turned up a good many worthwhile targets. Some of these targets had been overlooked in the initial strategic attack plans of 1950, some of them had recuperated from earlier bombings, and some new targets were discovered which might have escaped notice had they not been closely scrutinized in the light of the air-pressure strategy. This experience led Brig. Gen. Don Z. Zimmerman, successor in the duties as FEAF's deputy for intelligence, to point out the lesson that "A dynamic and constant expansion of the target horizon...will always reveal that an efficient employment of airpower can be made regardless of the circumstances of the operation, the geographical location, the composition, deployment, and tactics of the enemy forces. It is the mission of the targets people to research and reveal the most effective way of employing all our combat air strength."[93]

When the FEAF commands began the

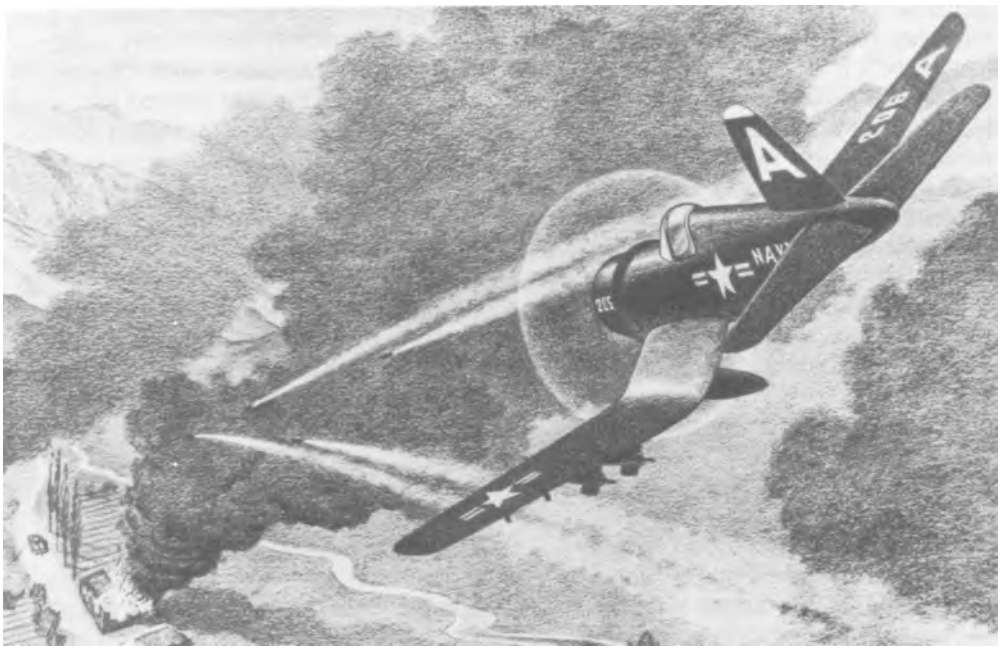
work of selecting and nominating air targets under the dictates of the FEAF operational policy directive of 10 July 1952, the Fifth Air Force was in relatively good shape. Located with the forward echelon of Fifth Air Force headquarters in Seoul, the Air Targets Division was already a small assembly plant for the production of targets. Immediately the targets division regeared itself to collate and confirm target intelligence with photography on an assembly-line basis. In this work the Fifth Air Force made heavy use of Detachment No. 2, 6004th Air Intelligence Service Squadron, which, in fact, proved to be its most important single collector of tactical air intelligence. Under the command of the same Major Donald Nichols who had been so active in the early days of the Korean war, Detachment No. 2 collected information from agents, prisoners of war, and refugees, submitting between 600 to 900 air-intelligence information reports to Fifth Air Force intelligence each month. In order to develop targets from the voluminous quantities of photo cover taken daily by its aircraft, the 67th Tactical Reconnaissance Wing established a targets section within the 67th Reconnaissance Technical Squadron. The findings of this photographic interpretation agency were issued in the form of target special reports.[94] As was anticipated, the Fifth Air Force did not experience any great difficulty in finding destruction targets. Early in November 1952 Fifth Air Force targets representatives reported that they had a backlog of 300 targets ready for attack, in addition to some 600 troop concentrations that were noted and targeted. In the mill at that time were about 330 potential objectives, of which approximately one-third would prove suitable for air attack. Most of the Fifth Air Force's targets were Communist headquarters, troop concentrations, supply dumps, and communications centers.[95]

The FEAF policy directive of 10 July 1952 required the FEAF Bomber Command to direct its B-29's against communications centers, manufacturing facilities, supply concentrations, and other similar targets. The new strategy posed a requirement for between 60 to 80 diversified shoran targets each month, a requirement which would be difficult for Bomber Command to meet on two accounts.[96] For one thing, FEAF Bomber Command's deputy for intelligence lacked sufficient personnel to handle any large day-to-day quantity of targets. The FEAF Targets Directorate recognized this, but, instead of assigning additional people to Bomber Command, the directorate decided to "operate" and to assist in the research and preparation of target materials for the B-29's.[97] This action seemed necessary at the time, but its results were said to be disappointing. Almost all of the FEAF Korean Targets Analysis Division's effort was diverted from its primary duty of maturing overall target recommendations and priorities while it made a slight contribution to Bomber Command in view of the large quantity of targets which that organization required.[98] As the destruction operations progressed, the Fifth Air Force turned over to Bomber Command a good number of targets which were worth attacking but not suited for light bombers or fighter-bombers. The 67th Tactical Reconnaissance Wing also furnished a continuous flow of information, either in the form of photo prints or of completed reports and studies accomplished in Korea. Another source of target photography was the 91st Strategic Reconnaissance Squadron, whose RB-29's flew regular missions over the eastern part of North Korea. The 548th Reconnaissance Technical Squadron also provided medium-bomber targets.

Actually, there was no shortage of intelligence information, but Bomber Command's real difficulty lay in its shortage of people available for the intensive study required to locate and develop profitable medium-bombardment targets.[99] Seeing Bomber Command's continuing targeting troubles in retrospect, General Zimmerman drew the lesson that "If a command, through some limitation or inadequacy, is unable to fulfill a required function, the higher headquarters, rather than to attempt to assist in the actual production, should instead provide the command with the necessary wherewithal to maintain a capability commensurate with its responsibility."[100]

A second major problem affecting Bomber Command's targets was the fact that all of its shoran targets, because of inaccuracies in existing Korean maps, had to be especially processed for attack by a multiplex stereoplotting process, which, in effect, justified maps against aerial mapping photography. In July 1952 the Far East Command's 64th Engineer Base Topographic Battalion could provide Bomber Command with only five sets of multiplexed shoran coordinates a week.[101] Early in July FEAF air-targets people were so hard pressed to supply medium-bomber targets that they flatly stated that the North Korean transportation system was the "only target system suitable for B-29's in North Korea."[102] During July the FEAF Bomber Command accordingly used aircraft not scheduled for special targets in attacks against marshaling yards along the enemy's rail routes. These July marshaling-yard attacks yielded pitifully small returns. Assessment of the results of nine missions involving 71 B-29 sorties showed only 17 rail cars destroyed or damaged.[103] On 1 August FEAF accordingly directed that the medium bombers would thenceforth seek enemy materiel, military personnel, and supplies.[104] But until FEAF could expand its multiplexing capability, Bomber Command continued to get reduced bombing accuracy. When supply targets near Pyongyang were attacked in September, for example, the bomb patterns were not uncommonly a thousand feet away from the mapped aiming points.[105] In August, however, the 548th Reconnaissance Technical Squadron had assembled the necessary equipment at Yokota, and by the end of the year all multiplex coordinates were being determined by the 548th Squadron. By January 1953 the 548th Squadron could multiplex a maximum of 90 average-difficulty targets each month and could complete such coordinates on priority targets in three to four days.[106] This capability solved Bomber Command's requirement for the exact locations of incorrectly mapped bomber objectives in North Korea.

In the coordination of the effort of the FEAF Bomber Command and the Fifth Air Force, the FEAF Formal Target Committee performed a splendid role. The usual agenda for the biweekly meetings in Tokyo began with an intelligence briefing on such matters as the status of air targets in North Korea. Following this, Bomber Command and Fifth Air Force representatives presented statements of the general intent of their respective operations planned for the next two weeks. The committeemen gave constant attention to the elimination of competition for air targets. On occasion FEAF targets representatives outlined target systems or a desired line of air activity which was to be exploited, and the other committee members took steps to implement the desired actions. The meetings of minds at these sessions ensured that the fighter-bombers and the



F4U Corsair from the USS *Boxer* makes a rocket attack on a North Korean tank. (Art by Herbert C. Hahn, *Courtesy U.S. Navy).*

medium bombers both received the targets which they could best handle and that targets developed as a result of a given attack would be followed up by other strikes. Old concepts that certain targets were "tactical" and others were "strategic" were abandoned, and, so far as FEAF resources were concerned, airpower was undivided by artificial and unreal attempts to classify targets by types of aircraft.[107]

Although FEAF intelligence agencies successfully accomplished a selection of targets for the air-pressure attacks, they never solved one major problem. Air intelligence could target physical objectives for attack and could calculate the physical damage done to the air targets by air strikes, but it was not able to determine what significance a particular physical objective might have to the Communist regime nor could it project the effect of a given amount of destruction upon the hostile regime's primarily political decision to end the fighting. As General Zimmerman pointed out, Army forces had always judged and portrayed their success by a line drawn on a map which showed the current position of the fighting front in relation to the enemy's territory. The Air Force, however, had no way of judging or portraying the effect of its attacks which could range all over the enemy's homeland. The air-pressure attacks thus posed a requirement for new types of social and political intelligence which were unknown to Air Force intelligence. "Briefly stated," said Zimmerman, "the problem is to determine the effect of air action in war and then to present this effect in a simple, brief way so that it may be clearly understood and appraised."[108]

16. *Summer, Autumn 1952*

1. The Problem at Panmunjom

At Panmunjom on 8 May 1952 Vice-Admiral C. Turner Joy summed up the United Nations position in regard to Korea. In order to create a neutral nations armistice surveillance commission to monitor the cease-fire agreement, the United Nations Command would accept Poland and Czechoslovakia as members, provided the Communists would accept Sweden and Switzerland. The United Nations would agree that the armistice provisions would make no reference to the reconstruction or rehabilitation of airfields. The United Nations would exchange approximately 70,000 prisoners who were not opposed to repatriation for the 12,000 soldiers the Reds claimed to be holding as prisoners of war. But the United Nations could not agree to forcible repatriation of Chinese and North Korean prisoners who did not wish to return to their Communist-dominated homelands. "The issues are clear; the stakes are manifest," said Joy. "Our position is one from which we cannot and shall not retreat."[1] At Washington on 7 May President Truman spoke his deep conviction. "We will not buy an armistice," he said, "by turning over human beings for slaughter or slavery."[2]

When the Communist delegates at Panmunjom would not accept the United Nations compromise but responded with "firm and final" offers of their own narrowing disagreement to the prisoner-exchange issue, General Clark and Admiral Joy advocated a unilateral suspension of the plenary armistice sessions until such time as the Reds would accept the United Nations compromise. Washington, however, wanted to keep the truce talks going.[3] Even though the Red delegates at Panmunjom displayed faces of stone and tongues of serpents, the United Nations Command had begun to receive reports that Communist China did not like the first measures of air pressure and wanted a military armistice in Korea. According to a reliable source, Chinese and Soviet diplomatic representatives met at Peking on 28 June 1952 to discuss new policies to be followed at Panmunjom.[4] If the United Nations Command could maintain and increase its pressure on the Reds, the Chinese might eventually buckle under the strain and agree to reasonable truce terms.

2. Sabres Maintain Air Superiority

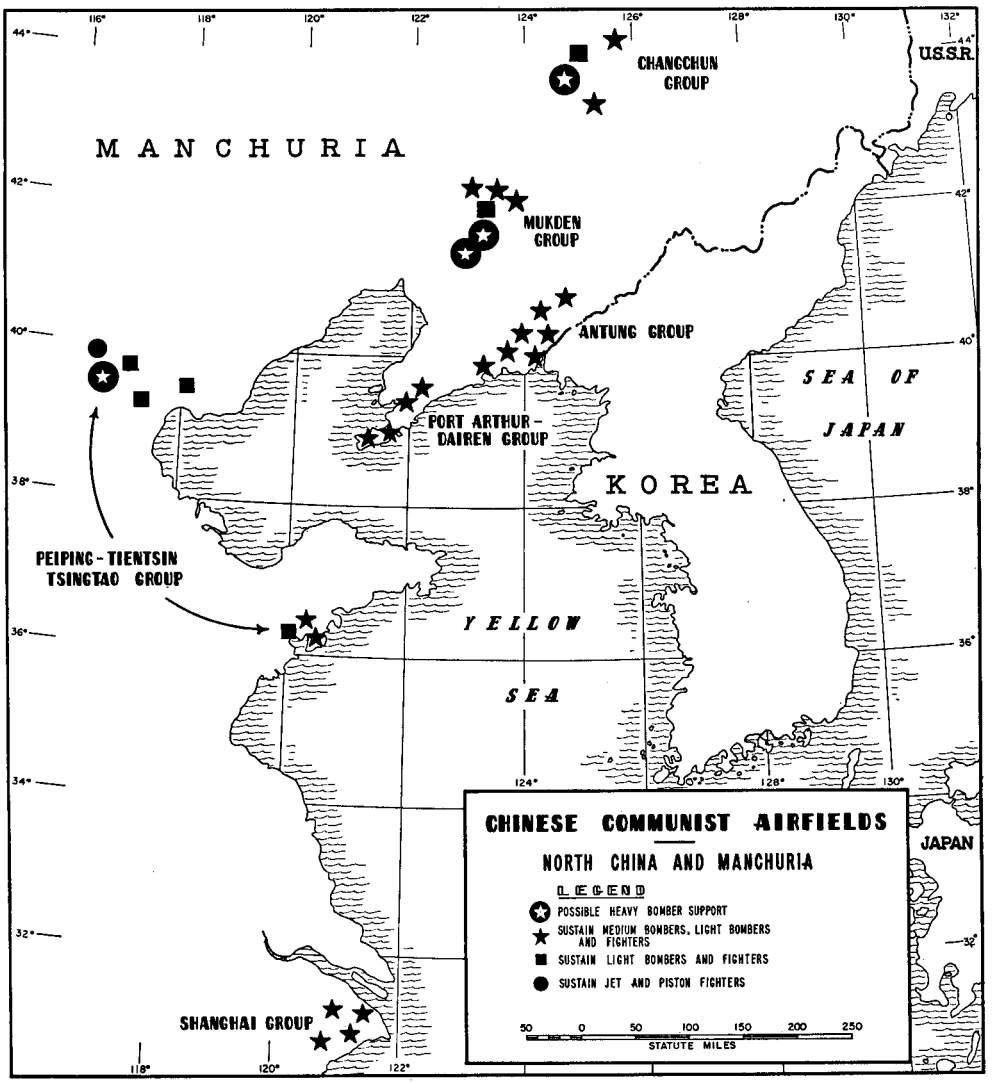
The success or failure of the United Nations Command air-pressure campaign depended upon whether or not the United Nations could maintain friendly air superiority over North Korea. General Weyland's air-pressure policy directive of 10 July 1952 therefore accorded first priority to operations required to maintain control of the air over North Korea. Friendly air superiority was important for several reasons. Only with friendly control of

the air could United Nations airpower attack targets which might motivate the Reds to accept reasonable truce terms. Friendly control of the air also paralyzed the mobility and thwarted offensive plans of the superior numbers of Red ground forces north of the battlelines. United Nations control of the air made the Communists appreciate the essential hopelessness of their situation in Korea. Long before now Chinese foot soldiers had recognized the irony of their situation. "We have superior air power," said some, "while we hide in air-raid shelters." "Our President Mao loves airplanes, not soldiers," said others.[5] Without air support the men of the Chinese Communist field armies knew they were beaten.

Obviously because of their recognition that airpower was the key to victory in North Korea and because of their fear that the United Nations Command might extend air attacks to other Far East target areas, the Communist powers had been hurriedly building major air forces around the periphery of Korea. In June 1952 the Chinese Communist Air Force evidently reached its authorized strength of 22 air divisions and 1,830 aircraft, including 1,000 jet fighters. Some 1,115 of these planes were massed at airfields within Manchuria.[6] During the first half of 1952 Soviet air units in the Far East also reached a probably authorized strength of approximately 5,360 aircraft.[7] After June 1952 the Communist air order of battle in the Far East remained stable at approximately 7,000 aircraft, some 5,000 of them belonging to Russia, 2,000 to Communist China, and about 270 to North Korea. While the numbers remained stable, the Reds nevertheless conducted a vigorous modernization program, replacing conventional planes with modern jet types. In November 1952, for example, FEAF learned that the Red Chinese had obtained 100 latest-model IL-28 light jet bombers and had them stationed in Manchuria.[8] The Communist air order of battle in the Far East not only dwarfed the United Nations air forces, but the Reds also possessed more modern planes than did the United Nations air forces.

Any time after June 1952 the Communists possessed a vastly overwhelming theoretical air superiority over the United Nations Command, but, for the time being at least, the Communist air commanders gave signs that they intended to use their aerial might for a vigorous defense of North Korea and Manchuria and not for offensive air strikes. Sabre pilots who patrolled the Yalu reported that the Reds were building additional airfields to those at Antung, Ta-tung-kou, and Ta-ku-shan. The new airfields were at Kuan-tien, Feng-cheng, Tapao, and Kachiapa. Antung continued to be the central command post and the logistical center of the complex, but MIG-15 interceptors were based at five of the airfields, each of which could support continuing operations of up to 300 aircraft. By American standards these Chinese airfields were poor installations, lacking facilities for maintenance and service of aircraft, but the Reds showed that they could accept lower standards of flying safety and personal comfort and still operate at a fairly high rate.[9]

Feeding information which permitted the Chinese Communist-North Korean joint operations center at Antung to scramble MIG-15 interceptors was an extensive Communist radar network which included as many as 25 early-warning and 11 ground-control intercept stations. Hostile early-warning coverage ultimately extended well south of the 38th parallel, and the



hostile ground-control intercept coverage was most effective along the west coast of Korea and particularly within a 90-mile radius of Antung. At first Communist radars were a miscellany of old obsolete models, some of which were evidently of American manufacture, but late in 1952 at Antung the Reds established a new model ground-control intercept radar, evidently of the latest Soviet type, which was as good as any set possessed by the United Nations Command.[10] Employing MIG-15 fighters based around Antung by day and a miscellany of jet and piston day-fighters by night, the Communist air

forces began to integrate ground-control interception techniques into their air defenses after June 1952. Either by day or by night the ground-control intercept radar at Antung could position Red fighters within two to five miles of United Nations planes out to a distance of 70 miles. This was about as much assistance as any ground-control intercept radar could give to fighter pilots because at closer distances the "blips" of friendly and enemy planes merged on the ground radar scope.[11]

To provide local defense of their installations in North Korea the Communists increased their flak order of battle to reach peak totals of approximately 786 antiaircraft artillery guns and 1,672 automatic weapons in the winter of 1952-53. The principal heavy gun was the Soviet 85-mm. M-1939 piece, whose effective ceiling was about 25,000 feet. The principal automatic weapon was the Soviet 37-mm. M-1939, which could fire approximately 160 rounds a minute up to an effective ceiling of about 4,500 feet. The Reds moved their flak in context with United Nations air objectives, but most guns, gun-laying radars, and a large share of the automatic weapons were customarily concentrated around Pyongyang, Sinanju, Antung-Sinuiju, the Sui-ho dam, and Manpojin. Lacking enough gun-laying radars and forced to use day-fighters in a night-fighter role, the Reds made extensive use of searchlights, eventually displaying about 500 of them. From 20 to 30 searchlights were customarily deployed around Antung-Sinuiju, the Sui-ho dam, Pyongyang, and the Sinanju bridges, but anywhere north of the Chongchon River Red searchlight belts could usually pick up and illuminate night-flying aircraft. On clear nights the searchlight beams ranged up to 30,000 feet, and enough of them had radars or sound-control mechanisms to locate and track an aircraft until other visually directed lights could switch on and cone the plane. The Reds usually kept their searchlights mobile and moving from place to place.[12]

After June 1952 the Communist air-defense system featured fighter-interceptors, ground-control intercept radar, antiaircraft artillery, and searchlights, but the major threat to United Nations air superiority was still the MIG-15 aircraft. These Red interceptors were not only a threat to the success of the air pressure operations, but as planes they represented a not-inconsiderable cost to the economy of Red China. To make the war expensive to the Reds, General Weyland wanted to destroy as many of the Red interceptors as possible in air-to-air combat. Later on, when the Sabres were improved enough to do battle on more equal terms with the MIG's, General Barcus was going to turn the "Tigers" loose, but in the summer of 1952 Barcus told Sabre pilots that they were not to get overanxious. "This is not the time to do or die for dear old Rutgers," he warned. "I'll let you know when the time comes, and then I will expect the very best of everything you have."[13] Colonel Gabreski of the 51st Wing explained that the Sabres were continuing to go to MIG Alley only for the purpose of "maintaining air superiority so that the fighter-bombers can perform their mission."[14]

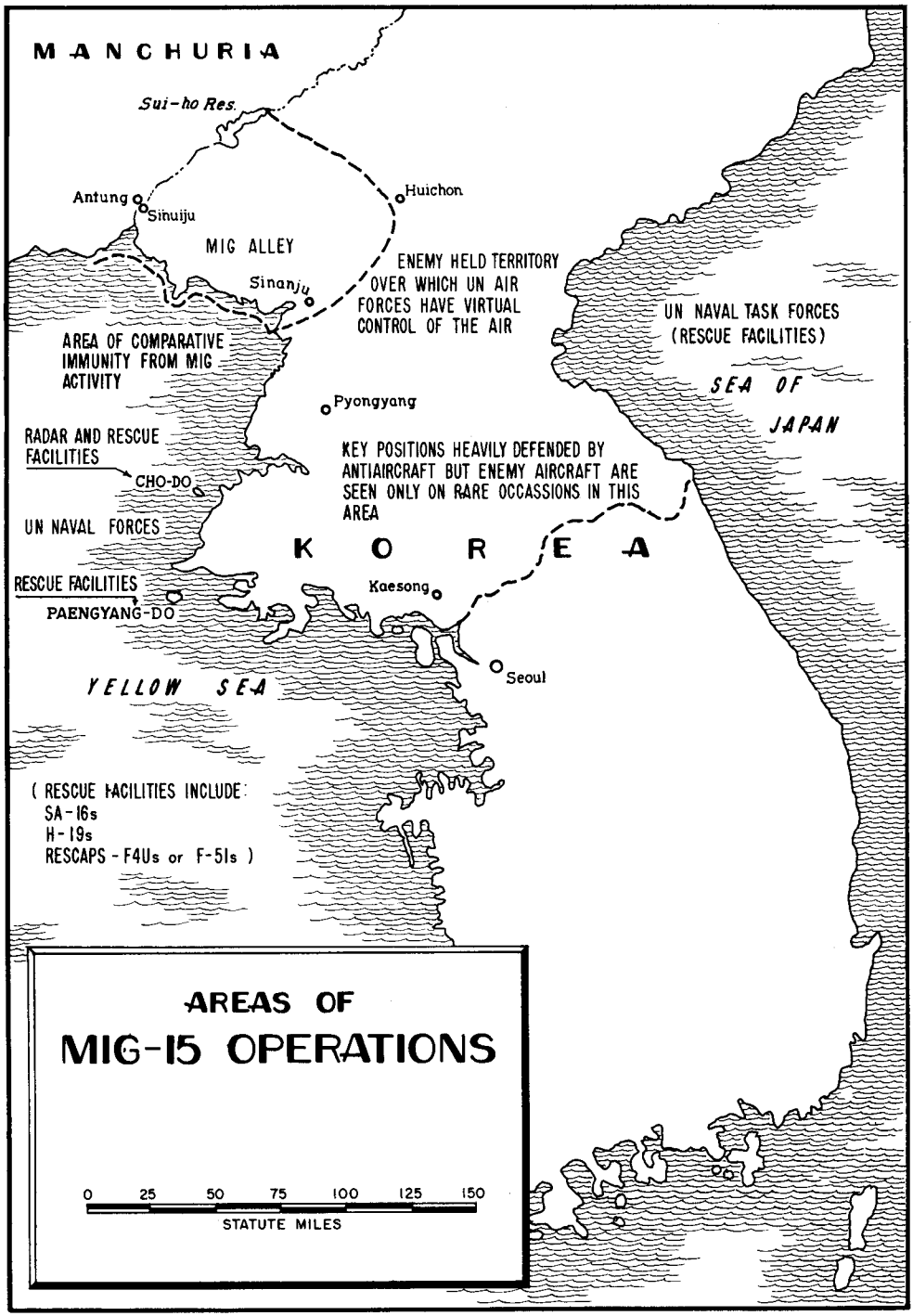
Under the circumstances wherein the Communist MIG pilots possessed sanctuary bases just beyond the Yalu, flew an aircraft with a higher service ceiling than any United Nations fighter, and possessed ground-control intercept radar direction, the Communist air forces had almost all of the natural advantages for aerial combat in the segment of airspace north of the

Chongchon River called MIG Alley. Nearly 90 percent of the MIG's sighted in North Korea after June 1952 would be in MIG Alley's 6,500 square miles, or (since the altitude of combat went up to 50,000 feet) 65,000 cubic miles.[15] Charged to protect friendly fighter-bombers against an enemy who was able to choose when he would commit his aircraft and whose MIG's were nearly always able to initiate combat from higher altitudes, the Sabre wings were forced continually to revise their tactics to thwart the tactics of the enemy. "Tactics that are successful in the morning may be obsolete in the afternoon," noted a 51st Wing study on the subject.[16]

Although the standard Sabre tactics had come to include the Yalu barrier patrol, flown at high cruising speeds, by fluid-four flights, Major Winton ("Bones") Marshall suggested that the Sabre pilots had another tactic which was worthwhile. "One of the best tactics we had was the good old American fight," he said. "Regardless of how many 86's we had, we would pile into any number of Communist MIG's which usually resulted in confusion in their ranks, and many times they turned around and went back across the river again even though they had us badly outnumbered."[17] The quality of the Communist pilots who flew over North Korea also affected the accomplishment of the Sabre mission. "We've placed the MIG pilots into two classes, the 'Honcho' or professional and the 'Students,' " explained Colonel John W. Mitchell, who took command of the 51st Wing on 13 June 1952. "We can always tell which one we are up against.... When we hit the 'Students' we have an easy time of it, but when we run into a 'Honcho' we know immediately that we've got to exert every bit of skill and technique at our command to set this bird down."[18]

In the months since December 1950 F-86A and F-86E model Sabres had battled MIG-15 aircraft under unfavorable terms in Korea. Nearly everyone had a different opinion as to which was the "best" airplane—the Sabre or the MIG—but the contest involved a fundamental equation that the MIG-15 had a light airframe and a powerful engine whereas the F-86 had a heavy airframe with a powerful engine. No one wanted to change the rugged reliability of the Sabre's airframe, but in the autumn of 1951 the 4th Fighter Group had called for the development of a new engine which would deliver as much as 6,500 to 7,000 pounds of thrust for incorporation on the Sabre. In December 1951 USAF stated the requirement for such a powerful jet engine, but for the near future it could provide nothing better than the J-47-GE-27 engine, which could deliver 5,910 pounds of thrust under full military power. This engine was already incorporated in the F-86F Sabre.[19] The first of these F-86F's to reach the Far East came to the 51st Wing's new 39th Squadron in June 1952. In September 1952 the 4th Wing's 335th Squadron also received these new-model Sabres.[20]

Knowing Korean requirements firsthand, General Partridge in early January 1952 put the full resources of the USAF Air Research and Development Command to work on a top-priority search for ways and means to increase the performance of Sabre aircraft. Several approaches were tried, but the most significant development was to reduce the Sabre's air resistance, or "drag." Because of the stalling characteristics of the swept-back wing, the Sabre had been designed with leading-edge wing slats


MANCHURIA
Sui-ho Res.
Antung
Sinuiju
Huichon
MIG ALLEY
Sinanju
ENEMY HELD TERRITORY OVER WHICH UN AIR FORCES HAVE VIRTUAL CONTROL OF THE AIR
UN NAVAL TASK FORCES (RESCUE FACILITIES)
AREA OF COMPARATIVE IMMUNITY FROM MIG ACTIVITY
SEA OF JAPAN
Pyongyang
RADAR AND RESCUE FACILITIES
CHO-DO
KEY POSITIONS HEAVILY DEFENDED BY ANTIAIRCRAFT BUT ENEMY AIRCRAFT ARE SEEN ONLY ON RARE OCCASSIONS IN THIS AREA
UN NAVAL FORCES
KOREA
RESCUE FACILITIES
PAENGYANG-DO
Kaesong
Seoul
YELLOW SEA
(RESCUE FACILITIES INCLUDE:
SA-16s
H-19s
RESCAPS - F4Us or F-51s)
AREAS OF
MIG-15 OPERATIONS
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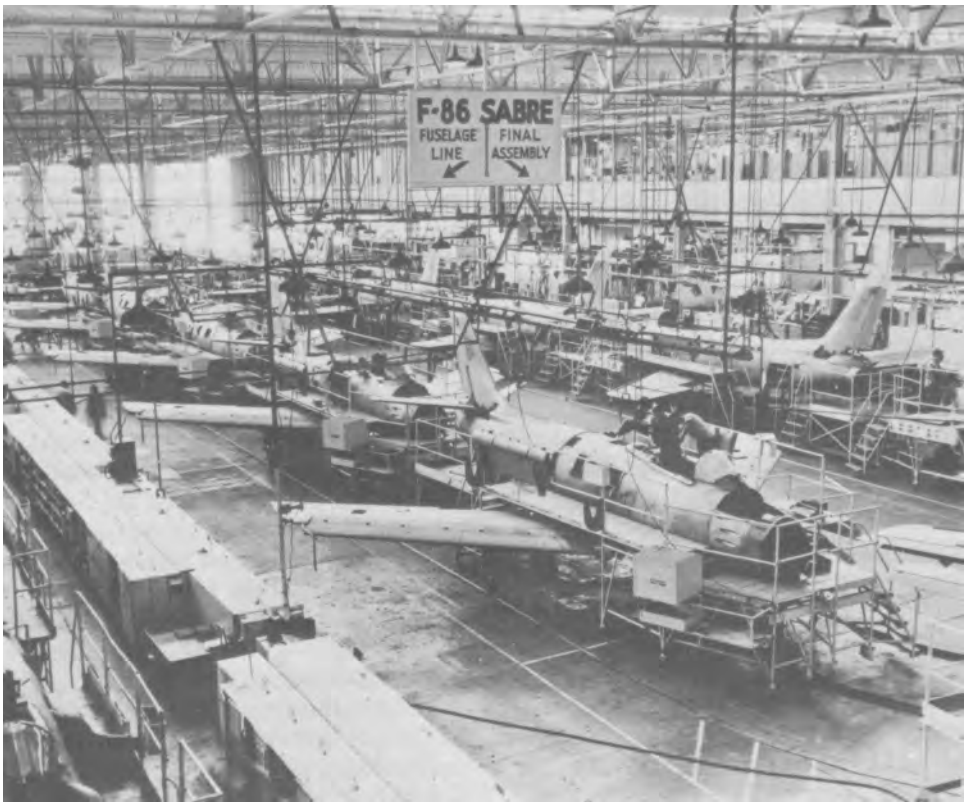


(top left) F-86E; (top right) F-86F; (bottom) the assembly line at North American Aviation, Inc.

which aerodynamically extended or retracted to provide low stalling speeds for landings and high speeds for flight. Even when retracted, however, the wing slats still provided some air resistance. At the suggestion of North American technicians, Wright Air Development Center test pilots obtained favorable results from a Sabre whose wing slats were sealed with fabric and dope. Further tests with "solid leading edges," which extended each wing chord by six inches at the base and three inches at the tip, indicated a noteworthy improvement in performance. In August 1952, 51st Wing pilots who flew three F-86F's with solid leading wing edges were highly enthusiastic, and the Fifth Air Force took steps so to modify all its Sabres. When retrofitted with the solid leading edges, the F-86F greatly reduced the advantages previously enjoyed by the MIG's. Maximum operating altitude jumped to 52,000 feet. Maximum mach went to 1.05 and the modified F-86F could make tighter turns at high altitudes. In level flight, the F-86F was some ten knots faster than the F-86E, and it exceeded the earlier plane's rate of climb by 200 to 300 feet a minute.[21]

Confident in the knowledge that their Sabre aircraft were being improved, aggressive pilots of the 4th and 51st Fighter-Interceptor Wings earnestly met the threats of superior numbers of Communist MIG's. At mid-1952 the Communist air forces began to follow a new concept of operations which involved exploitation of all phases of their developing air-defense system. Although the Reds did not oppose the United Nations air attacks against their Sui-ho hydroelectric plant, the Red air forces in June 1952 evidently decided to employ quality instead of quantity. Only 298 MIG sorties were sighted in the air over northwestern Korea in June, but the Red airmen who met the Sabres were aggressive and willing to fight. The Sabres still had the edge in June's combat. At a cost of three friendlies lost, the Sabres destroyed 20 MIG's. Only one Sabre pilot became an ace in June, but his was a most exceptional case. Second Lieutenant James F. Low had volunteered for flight training in July 1950 and became a 4th Wing jet ace on 15 June 1952, only six months after he had graduated from flying school. While the Communists were conservative in daylight hours, they manifested a growing interest in night activity. Over the not-too-important railway bridge at Kwaksan, on the night of 10 June, Red jets destroyed two Superforts and damaged a third so badly that it barely survived an emergency landing in South Korea. Counting the 12 aircraft which attacked on 10 June, 76 enemy sorties were seen by night-flying FEAF aircraft during the month, marking a new high in Communist night action.[22]

When United Nations airmen began massed attacks against more significant air pressure targets in July 1952, the Communist airmen made good use of their air-defense system. Profiting from radar control and cloudy weather, the MIG pilots made "end runs" around the Sabre screen at the Yalu. Some MIG's decoyed or engaged the Sabres, while others attempted to set up attacks against United Nations fighter-bombers. On 4 July, when Fifth Air Force fighters were bombing the North Korean Military Academy near the Yalu at Sakchu, at least 50 MIG's countered the attack. A part of the MIG's got through the Sabre screen to make unsuccessful passes against the fighter-bombers. In the engagement the Sabres claimed 13 MIG's destroyed but lost two of their own number. There

was no longer any doubt that some of the "honcho" pilots were Russians. On 4 July a Sabre pilot pulled in close to a stricken MIG and observed that the enemy pilot had a ruddy complexion and bushy eyebrows of light red. After 4 July Sabres continued to fly the Yalu patrols, but they held their screen closer to the area where fighter-bombers and reconnaissance planes were working. They also scheduled heavy escort for the unarmed reconnaissance planes which scouted hostile targets deep within MIG Alley. During July the Reds flew only 404 observed daytime sorties, but the MIG pilots were more adept than usual. The Sabres destroyed 19 MIG's and the Reds shot down four Sabres. During the hours of darkness United Nations radar plotted 63 Communist flights, but the B-26's and B-29's saw only 16 enemy planes, probably because the bombers generally avoided the heaviest defended areas.[23]

Evidently rankled by the United Nations destruction operations and having profited from three months of reduced activity, the Communist air forces surged back into full action on 1 August 1952, as if by special order. Once again the majority of Red pilots did not have enough combat experience and were reluctant to tangle, but other MIG's employed end-runs, decoys, and "yo-yo" tactics. In an effort to attack United Nations fighter-bombers, the MIG's successfully evaded the Sabres four times to come as far south as the Haeju peninsula. This evasion came to naught, however, for the MIG pilots lost all their potential fighter-bomber kills because of poor gunnery, inept maneuvers, and simple overeagerness. In the major air battle of the month, on 6 August, 35 Sabre pilots engaged 52 MIG's and shot down at least six MIG's. In another engagement, on 8 August, Captain Clifford D. Jolley scored the victory he needed to become a jet air ace. The increased tempo of the air-to-air war, marked by sightings of 1,155 MIG's, permitted the Sabres to destroy 33 enemy aircraft at a cost of only two friendly interceptors. At night the Reds were not as active as usual, and United Nations crews observed only ten enemy aircraft, four of which came close enough to make unsuccessful firing passes.[24]

The 18th jet ace, Capt. Clifford D. Jolley.

As FEAF badgered the Reds by

attacking targets close to the Yalu during September, the Reds responded with 1,857 observed sorties. Showing an ability to evade the Sabres on 1 September, eight MIG's got down to Haeju where they bounced and damaged a Mustang. In the first of several major air duels during the month 39 F-86's fought 17 separate engagements with 73 MIG's north of the Chongchon in a daylong air battle on 4 September. In this unequal fight against enemy pilots who flitted back and forth across the Yalu, the Sabre airmen destroyed 13 of the enemy planes at a loss of four of their own number. During the day Major Frederic C. ("Boots") Blesse of the 4th Wing destroyed his fourth MIG and fifth enemy aircraft, making himself the 19th jet ace of the Korean war. By the end of the month Major Blesse would have eight MIG's and an LA-9 to his credit. In a thirty-minute air battle on 9 September, stirred up by fighter-bomber attacks against the North Korean Military Academy at Sakchu, the Sabres and Thunderjets encountered some 175 MIG's. The enemy attack appreciated the situation, for some flights engaged the Sabres while others jumped the Thunderjets. In the latter half of September the MIG's continued to be active, but they attempted only two brief passes against the fighter-bombers, both on 21 September during an attack against a munitions plant south of Sinuiju. In this day's fighting Captain Robinson Risner destroyed his fifth MIG to become the theater's 20th jet air ace. In this month of intensive air actions the Fifth Air Force lost six Sabres and three Thunderjets, but the Sabres racked up a new monthly high of 63 MIG's destroyed in combat.[25]

With the beginning of October 1952 the Communist air forces again revised their tactics and employed a pattern of operations similar to the one they had used in the same season of the previous year. Some 1,360 Communist aerial sorties were observed during the month, but most of the Red planes flew at altitudes of 43,000 feet or higher and in large formations. Most of the Red pilots were unaggressive, but the "honcho" leaders could be lethal when they saw a favorable opportunity. On three days Red airmen penetrated to Wonsan to meet and shoot down three conventional Navy aircraft. When they got the chance, moreover, the Red pilots singled out small Sabre formations and worked coordinated attacks against them with superior numbers of aircraft. As the Sabre wings attempted to combat the changing Communist tactics, certain developments lent a hand to the swept-wing American jets. After a long delay the 502d Tactical Control Group opened a limited-scale air-direction center off North Korea's western coast on the island of Cho-do in October, and this facility could give the Sabres ground-control intercept vectors of the same kind that the Reds had enjoyed for several months. In order to combat the high-flying MIG's and simultaneously to catch other MIG's who attempted to penetrate at lower altitudes, the Sabre wings began to fly high patrols with their F-86F's at about 40,000 feet and lower patrols with their F-86E's at about 30,000 feet. When the MIG's got down to Wonsan, the Fifth Air Force established a subsidiary daylight barrier patrol along the Chongchon River which was flown by four Sabres or Meteor-8 aircraft. Noting that the "fluid-four" flights were vulnerable to attack by superior numbers of MIG planes, the 51st Wing began to fly missions with flights of six aircraft and the 4th Wing employed sections of eight aircraft. The changed Sabre tactics evidently mastered the

Reds, for the Fifth Air Force lost a single Thunderjet and four Sabres while the Sabres were destroying 27 MIG's. At night, during October, United Nations bombers reported 128 observations and encounters with enemy planes. These sightings apparently increased as the bombers hit targets close to the Yalu. Thus, on 17 October, when eight B-29's attacked a military headquarters at Tosong, 19 Red aircraft attempted unsuccessfully to find and attack the bombers.[26]

At the end of October 1952 two years of jet air warfare were drawing to a close in Korea. In these years the Communists had not yet produced an aircraft-pilot combination of a high enough standard to combat the Sabres. Even though the primary duty of the Sabres had been to defend friendly fighter-bombers, the Sabre pilots had been destroying MIG's with a margin of superiority of eight to one. The Sabre victory must have been persuasive to the Communist aggressors everywhere. "The ability of our pilots to take the MIG," thought Colonel Mitchell, "...has undoubtedly slowed the Russian in his headlong rush into another war. It has made him consider the fact that he is not quite ready yet, and it must rankle him to know that we are getting better and stronger all the time."[27] But the story of the air war over North Korea was not as one-sided as it appeared, for Communist air defenses had given the United Nations Command much concern in the latter half of 1952. In no small part United Nations destruction operations were succeeding because good planning was mitigating the effectiveness of the Red air defenses.

3. Massive Air Assaults Serve Psychological Purposes

When the air-pressure attacks were about to get under way in July 1952, FEAF target men had in mind several targets which were worthy of massed strikes. Two months before FEAF target experts had made detailed studies of command posts, communications centers, troop billets, and supply warehouses which had sprung up in the city of Pyongyang. The North Korean capital had not been subjected to air attack for nearly a year and it was crowded with military targets. On 13 May General Weyland had asked General Clark for permission to send a massed attack against military targets in Pyongyang. Clark was agreeable, but he asked Weyland to hold up the attacks until the armistice delegation could get the Reds to mark all prisoner-of-war camps, as both sides had agreed to do. The Joint Chiefs of Staff authorized the attacks on 3 July, and on 5 July General Clark directed Weyland to attack specific military targets at Pyongyang and to make every effort "to avoid needless civilian casualties." General Clark also authorized Weyland to seek naval participation in the attacks and to employ all the United Nations air units he thought necessary.[28]

Over in Korea Fifth Air Force and Eighth Army intelligence officers had been working on another target system. From long study these intelligence

planners knew that Red supplies entered Korea at Sinuiju, Okkang-dong, Manpojin, and Linchiang and traveled southward to major supply-dispersal areas in the vicinity of Singosan and Singye. Supplies imported through the first three gateway cities came southward through Pyongyang and Kunu-ri. Supplies entering at the last gateway city traveled by rail to Hamhung and thence by rail and truck to the major dispersal areas. The supply dumps at Singosan and Singye were well dispersed and difficult for air attack to destroy, but the Reds were using towns and villages along their main supply routes to store supplies, to service vehicles, and to shelter troops. At about the same time that the intelligence planners noted the importance of the towns and villages along North Korea's main supply routes, General Barcus was concerned with the lack of imagination manifest in the employment of his light-bomber force. They follow the same schedule night after night, he said. Almost immediately Fifth Air Force operations officers decided to make use of the light bombers for attacks against the communications centers along the enemy's main supply routes. Guided by a pathfinder crew which would identify the target for attack, streams of light bombers would arrive at five-minute intervals to drop incendiary and delay-fuzed bombs on the towns and villages sheltering Red supplies. After dropping their internal bombs at the primary targets, the B-26 crews would proceed to a designated main supply route and perform route reconnaissance with their external ordnance and guns. The program would have twofold results. It would destroy supplies in transit and create effective roadblocks for short periods of time. At first the Fifth Air Force designated 35 towns and villages for light-bomber attack, but it soon increased the list to 78 towns and villages.[29]

The massive assault against Pyongyang and the attacks against town and village communications centers were aimed at military objectives, but General Smart wanted to exploit psychological as well as destructive attributes of airpower. "Whenever possible," he directed, "attacks will be scheduled against targets of military significance so situated that their destruction will have a deleterious effect upon the morale of the civilian population actively engaged in the logistic support of the enemy forces."[30] Psychological warfare planners at FEAF accordingly recommended a specific prestrike warning program, and the necessary warning leaflets were prepared by the Far East Command. In support of the assault against Pyongyang, plan "Blast" would be executed. Several days prior to the attack planes would drop leaflets over Pyongyang warning civilians to stay away from military installations of any kind. Several days after the attack planes would drop companion leaflets stressing the fact that civilians had been warned to avoid military targets. In support of the communications center attacks, plan "Strike" was applicable. Planes would drop leaflets showing the main supply routes and warning that all military targets along these lines would be attacked. After a communications center had been bombed, other leaflets would be dropped there to inform all concerned that they had been warned of the impending attacks.[31]

While the Fifth Air Force was awaiting approval for the Pyongyang strikes, it attacked other targets of importance. On 4 July 70 fighter-bombers attacked North Korea's Military Academy, near the Yalu and some 50 miles northeast of Antung.

The fighter-bombers successfully evaded MIG interceptors who got through the Sabre screen, but they turned in relatively poor bombing results.[32] On 8 July 84 fighter-bombers attacked bridges on the rail line between Kanggye and Kunu-ri, while 41 other fighter-bombers hit the generators, transformer yards, and penstocks at Choshin No. 1 and No. 2, which were still possibly useful to the enemy.[33]

Everyone in the United Nations air forces was waiting for 11 July 1952—the day which General Weyland had designated as the date for "Operation Pressure Pump." Practically every operational air unit in the Far East was to have a part in the savage assault against 30 targets designated in Pyongyang. The massive strikes carried an element of risk, for they would be in progress nearly all day, giving the MIG's plenty of time to react. Pyongyang was also defended by 48 guns and more than 100 automatic weapons, making it one of the worst "flak traps" in Korea. But on 11 July the strikes went off well. As Sabres and Meteors stood patrols north of the Chongchon without incident, aircraft from the Seventh Fleet, *H.M.S. Ocean*, the 1st Marine Air Wing, the Republic of Korea Air Force, and the Fifth Air Force made strikes at 1000, 1400 and 1800 hours. After the first strike weather on the east coast prevented the Seventh Fleet's planes from returning to their carriers and so kept them out of action at South Korean airfields during the remainder of the day. Operating on the west coast, Seafuries and Fireflies from *H.M.S. Ocean* flew two missions, while most of the Fifth Air Force's jet fighter-bombers made all three strikes. Timed to hit just before the first strikes were on target, Marine and Navy flak destroyers worked effectively, but there was still enough flak in the air to shoot down two Navy planes and a Thunderjet. In addition to these losses, eight Fifth Air Force planes sustained major damages and 19 others suffered minor damages. That night 54 shoran-directed B-29's attacked eight targets which had been saved for them. This was the biggest air attack so far in the Korean war, for 1,254 aircraft sorties had been committed in "Operation Pressure Pump."[34]

Examination of bombing assessment photographs showed that the aerial blow was quite successful against the command posts, supply aggregations, factories, troop billets, railway facilities, and gun positions marked for destruction in Pyongyang. At least three of the 30 targets were completely destroyed, and all but two of them were heavily damaged. According to agent reports, the North Korean Ministry of Industry's underground offices were destroyed and a direct hit on another air-raid shelter was said to have killed 400 to 500 Communist officials. Off the air for two days, Radio Pyongyang finally announced that the "brutal" strikes had destroyed 1,500 buildings and had inflicted 7,000 casualties.[35]

Approaching their problem with the view toward making the war expensive to the Communists, United Nations target planners turned up a good number of significant targets. The North Korean hydroelectric plants required continual serveillance and repeated strikes to prevent the Reds from repairing them. Some industrial targets had been missed in the strategic air campaign in 1950, and others had recuperated from earlier attacks. The destruction strategy, moreover, turned up an entirely new target category—the North Korean metals and mining business. "Any mines...which are in

operation," reasoned FEAF's director of targets, "are being operated for just one outfit—the USSR and the Chinese Communist Forces, to help pay for the war." Air attacks could not hurt mine shafts, but they could put the mines out of operation by destroying hoist houses, compressor shacks, or transformer yards.[36] On 15 July the Fifth Air Force sent 171 sorties to gut the Sungho-ri cement plant and an adjacent locomotive repair shop. The cement plant had been bombed before, but it had recovered and was again working.[37] Seventh Fleet carrier pilots attacked both Choshin power plants on 19 and 20 July, and the No. 2 plant was bombed by 44 B-29's on the nights of 19/20 and 21/22 July.[38] On 27 July carrier-based aircraft attacked and largely destroyed the Sindok lead and zinc mill, a facility which was reportedly shipping 3,000 tons of processed ore to Russia each month.[39] On the night of 30/31 July 63 shoran-bombing B-29's attacked the Oriental Light Metals Company, near Sinuiju and only four miles from the Yalu. This was the largest medium-bomber strike against a single target during the Korean war, and post-strike reconnaissance showed that this militarily important factory—which had been overlooked in the 1950 strategic strikes—was 90 percent destroyed.[40]

Taking advantage of good flying weather early in August, the Fifth Air Force directed heavy attacks at Communist troop concentrations and industrial remnants. Agent reports and aerial photographs indicated that the General Headquarters of the North Korean People's Army was located in a built-up area about four miles outside Pyongyang City. Dividing the objective area into targets for nine wings, the Fifth Air Force sent 273 sorties there in two strikes on 4 August. Late on the afternoon of 5 August 111 fighter-bomber aircraft attacked a tungsten mine at Kiju. A troop concentration and a chemical plant near In-hung-ni were attacked by 145 fighter aircraft on 11 August.[41] On the night of 18 August Bomber Command employed 14 B-29's to effect 60 percent destruction of the Nakwon Munitions Plant. This factory, a few miles southeast of Sinuiju, was reported to be producing thousands of antitank and hand grenades each day.[42]

According to plan, the Fifth Air Force light-bomber wings commenced their night attacks against Communist communications centers on 20 July. Employing M-20 incendiary clusters and M-76 fire bombs, the 3d and 17th Wing crews arrived at heights of about 4,000 feet at five-minute intervals to bomb targets marked for them by the incendiary bombs carried by a pathfinder lead crew. Once the fire got going, each bomber added to the conflagration. The usual target was about one-fourth square mile in size, and B-26 crews put 50 to 60 percent of their bombs into these designated areas without much difficulty.[43] From their beginning the light-bomber fire raids were marked with success. Bomb damage assessment of one of the first targets hit—the Namchonjom supply center—showed that it was 95 percent destroyed. Intelligence agents within the enemy's lines forwarded enthusiastic reports. A light-bomber strike against Changyon caught a battalion asleep in the village and killed nearly 300 North Korean troops. At Pomhwa-dong a company of troops assembled for supper was said to have been wiped out.[44]

As the communications center attacks got under way, General Barcus implemented a vigorous warning program, both to save the lives of innocent civilians and to cause maxi-

mum disruption of civil order. Fifth Air Force operations officers were a little dubious about disclosing targets that the light bombers would attack, but General Barcus favored an even more vigorous warning program than the leaflets would afford. Preparatory to attacks against Sinchon and Yonan, Radio Seoul warned the people to leave these towns right up to the time of the B-26 attack. On 5 August, moreover, General Barcus announced to press and radio the names of the 78 North Korean centers which were scheduled to be destroyed.[45] While these warnings were both humanitarian and utilitarian, the U.S. Department of State on 6 August announced that it deplored the attack warnings as "an unfortunate move" which would be intensively exploited by Communist propaganda. In a message to the American embassy, which was passed to General Clark, the State Department noted that oriental audiences were particularly vulnerable to "psywar" since they tended to see the use of massive airpower as the symbol of "western technology domination" of Asia. No matter how it was handled, the State Department message said, the subject of mass bombing of military targets in or near heavily populated areas could not be useful to the United Nations Command. The State Department recommended that the main theme of "hard stories" should be that targets for United Nations air attack were selected on a strictly military basis and that air action was not aimed at the civilian population.[46]

One of the major objectives of the United Nations air pressure strategy was to hurt the Communists as badly as possible while denying them an ability to retaliate. Because of this objective, General Barcus was forced to make a few operational restrictions and to redirect the work and organization of his light-bomber wings. For several months prior to July 1952 the Fifth Air Force had been losing more aircraft to enemy action than were replaced. Even more serious was a high damage rate which placed a severe burden on the Fifth Air Force's combat capabilities. Operations analysis studies showed that the fighter-bombers were sustaining most of their losses and damages from ground fire hits received at altitudes below 2,500 feet.[47] During the daylong strikes against Pyongyang, Fifth Air Force fighter-bombers sustained damages at a rate of 27 per 1,000 sorties.[48] Shortly after this General Barcus accordingly established a minimum altitude of 3,000 feet for fighter-bomber attack. At about this same time Admiral Clark took similar action and ordered the carrier pilots of Task Force 77 to recover from dive-bombing attacks at altitudes not lower than 3,000 feet.[49] General Barcus recognized that the price in bombing accuracy to be paid for the 3,000-foot-minimum-attack altitude would be appreciable, but he expected additional training and better mission planning to increase the bombing accuracy of the fighter-bomber crews.[50] Despite an extensive continuation dive-bombing training program effected by squadrons in rotation between August and October 1952, the Fifth Air Force fighter-bomber wings did not regain their bombing accuracy. In order to pull out at 3,000 feet, the fighter-bombers had to release their bombs from about 4,500 feet, and the overall result scored in the continuation training program was an average circular error probable of 225 feet. Operations analysts doubted that any group of USAF pilots could have done better than this when they released bombs from such altitudes. Strangely enough, the minimum altitude

restrictions, which accepted lowered bombing accuracy, were distasteful to a good many pilots. "If it is worth being here at all," one of them commented, "it is for the damage we can inflict on the enemy."[51]

Early in August General Barcus reorganized and reoriented the Fifth Air Force's light-bomber wings in accordance with their operational capabilities and vulnerabilities. Because they were sighting fewer Red vehicles moving at night and had fewer bombs to drop after they had unloaded their internal ordnance at the communications centers, the 3d and 17th Wings claimed only 0.97 enemy vehicles destroyed per sortie flown during July, and from combat and operational causes they lost 2.6 B-26's per hundred sorties.[52] After the 3d Bombardment Wing lost three aircraft in rapid succession, General Barcus took the wing off operations on 10 August for a period of evaluation and training. The evaluation soon convinced him that the light-bomber crews were not well enough prepared to fly at night at low altitudes, and he accordingly specified that ordinary crews would not fly combat missions at altitudes lower than 4,000 feet. At about this same time, on 4 August, Fifth Air Force operations analysts published the results of a test run against old trucks on a friendly bombing range, which demonstrated that "lone-wolf" B-26's, using any method of bombing against dispersed vehicles, had an expectation of destroying only 1.8 vehicles with each hundred bombs dropped.[53] General Barcus therefore directed that the majority of light-bomber crews would be employed in bomber-stream attacks against hostile communications centers, and, since such attacks against targets in areas not defended by MIG's could be more effectively made by day than by night, General Barcus directed the light-bomber wings to regain a capability for daylight formation attacks. A survey of the crews possessed by the two wings showed that there were enough proficient night-fliers to man two night-intruder squadrons, and these crews were accordingly segregated into the 13th Squadron of the 3d Wing and the 37th Squadron of the 17th Wing.[54] The more experienced crews in these two squadrons were exempt from the 4,000-foot-minimum-altitude restriction, and both squadrons were charged to devise more effective techniques for night-intruder operations.

Throughout the summer of 1952 Brig. Gen. Wiley D. Ganey, who had assumed command of the FEAF Bomber Command on 15 March, had been racking his brain to devise countermeasures to Communist flak, fighters, and searchlights. For more than a year Bomber Command had been making some use of electronic countermeasures, but such techniques were given added emphasis after the losses at Kwaksan on the night of 10 June. After Kwaksan, all medium-bomber units began to camouflage the undersides of their bombers with black gloss lacquer. In an expedited action General Ganey secured gun-flash suppressors from the Far East Air Logistics Force and ordered his gunners to return the enemy's fire. But the surest means whereby the old medium bombers could escape the enemy's air defenses was to attack the well-defended targets on a night when the area was shrouded by bad weather. The efficacy of timing B-29 night attacks to coincide with adverse weather was again demonstrated on the night of 30/31 July when the bombers attacked the Oriental Light Metals Company. The bomber stream received a number of firing passes from hostile fighters, but a thin

undercast confused the searchlights and allowed the bombers to escape damage. But it went against General Ganey's grain to have to depend upon bad weather for his attacks. "Given sixty-hour notification," Ganey told Weyland early in August, "60 B-29 aircraft can be placed within 1,000 feet of any target within shoran range. To limit such a force to bad weather conditions indicates that targets remaining in North Korea either are not suitable for medium bombing or that the Air Force is at the mercy of a defensive tactic discarded as outmoded...five years ago."[55]

Although many combat officers in the FEAF Bomber Command and the Fifth Air Force did not like the conservatism which was necessary to sustain the relentless impact of the air pressure strategy, the Communists revealed that the destructive strikes were hurting them without allowing them to retaliate. At Panmunjom, on 11 August, General Nam Il indicated that the Reds had heard of air pressure. The United Nations Command, the North Korean general said, had "brazenly attempted to apply the so-called 'military pressure' and carried out wanton and indiscriminate bombings of our peaceful towns and inhabitants." He warned United Nations delegates that "any so-called 'military pressure' on your side will only invite you to miserable defeat."[56] Broadcasts from Peking on 11 and 12 August charged that the "new program of blanket bombing of civilians is not aimed at any military targets." *Pravda* stated on 12 August that the United States was trying to "force on the Korean peoples unjust armistice conditions" and promised that the North Koreans were determined to "break up the new monstrous provocations of the American interventionists" and "to conduct their struggle to a full victory." Apparently the Reds were seriously concerned about civil order in North Korea. FEAF learned that top-level Communists met at Pyongyang on 18 August and resolved to reorganize their counterintelligence nets in order to maintain tighter control over the civilian population. A "usually reliable" source informed General Clark that the bombing program was having a material effect on civilian morale. Great numbers of workers, who had earlier flocked to the cities and towns, were deserting war jobs and returning to the safety of their farms and villages.[57]

Despite the mistrust of the U.S. Department of State, the psychological warfare warnings proved quite successful. Lt. Gen. William K. Harrison, senior United Nations truce talk delegate after 23 May 1952, cited the warnings as evidence that United Nations air attacks were not directed against civilians. General Weyland reported no evidence that the warning leaflets compromised air-attack plans. Instead, the audacity of the warnings of impending strikes hurt civilian morale, for it emphasized the ability of the United Nations to strike targets at will and the inability of the Red regime to ward off the blows. Reliable reports stated that whole populations of the villages and towns warned of attack fled to safety. To keep civilians at work, Red security agents diligently collected the warning leaflets and threatened punishment to anyone who read or retained them. This redounded to the credit of the United Nations Command, since the people now saw plainly that their Red masters were trying to keep them ignorant of impending disaster.[58]

4. Relating Air Pressure to Sino-Soviet Negotiations

"While we consider it probable that the Communists wish to conclude an armistice," stated the Joint Chiefs of Staff on 8 August 1952, "we see little or no indication that various factors exerting pressure on the Communists are sufficient to make an armistice a matter of urgency." Reasoning thus, the Joint Chiefs instructed General Clark to put forth no new proposals at Panmunjom and to continue to make maximum practicable use of available air strength in attacks upon all military targets in North Korea.[59] Shortly after the Joint Chiefs gave these orders signs of stress began to show in the Sino-Soviet pact. In a surprise move on 17 August, Chinese Premier Chou En-lai and a delegation of military, political, and economic officials arrived in Moscow. Few pronouncements were forthcoming in regard to the purpose of the top-level talks, but the composition of the Chinese delegation indicated that the discussions would seek military and economic aid. American intelligence thought that Chou would probably discuss the Korean war, at least its effects upon China's economy.[60]

When the Chinese Communist delegation began its discussions with Russian officials, U.S. Ambassador George F. Kennan suggested from Moscow that the visit presented an excellent opportunity to obtain an armistice in Korea. Mr. Kennan thought that anything the United Nations Command could do "to frighten" the Chinese and to increase their demands on Russia would be good. He believed that "something in the nature of an increased military threat or feint might come to good effect." The action would have to be one which would cause the Chinese to increase their demands on their Soviet ally for military and economic aid. Ambassador Kennan recommended that the United Nations Command threat should be accompanied by some sort of conciliatory gesture to indicate to the Soviets that it would not be hard to move toward a cease fire. Russia would thus have an easy alternative to acceptance of the Chinese demands for more aid.[61] General Clark agreed with Ambassador Kennan's plan, but he pointed out that he could do little more than to continue to employ airpower to impose maximum punishment on the Reds.[62]

Called upon to exert more intense pressure on the Reds, General Smart suggested to the FEAF Formal Target Committee on 21 August that the location of the target attacked and the power of the attacking force might create the proper psychological effort needed to influence the Sino-Soviet negotiations in Moscow. In order to display the might of United Nations airpower, General Smart suggested that FEAF should attack targets in far northwestern Korea, such as military installations in Sinuiju City, the partly recuperated Sui-ho hydroelectric power plant, and an important chemical plant which had been located and targeted at Namsan-ni. From a study of photography flown since the 11 July attack, FEAF target experts had located 45 additional military targets in Pyongyang City, and both General Clark and General Weyland agreed that another massed attack against North Korea's capital might cause repercussions in Moscow. General Smart furnished the Fifth Air Force with annotated photography of targets in Pyongyang and advised that the objectives ought to be

(top) Pre-strike photo of the storage center which supplied Anak airfield; (bottom) the supply center after it was hit by more than 400 bombs, August 1952.

Communist munitions factory at Nakwon.

attacked in force and with high priority and that the Navy should be invited to participate. After hearing General Smart's ideas, Bomber Command representatives agreed to bomb the Sui-ho hydroelectric plant and the Namsan-ni chemical plant when suitably bad weather promised to negate Red searchlight defenses. The Bomber Command men also announced that the B-29's could attack many of the supply dumps which the Fifth Air Force had targeted. Fifth Air Force representatives agreed to attack "sensitive" targets along the Yalu, but, in recognition of the fact that industrial targets were getting scarce, they stated that the Fifth Air Force intended to begin to inflict punishment upon Communist military personnel. Believing that the North Koreans had little to do with the continuation of the hostilities, the Fifth Air Force wanted to attack Chinese military personnel, and any concentration of as many as 500 Chinese soldiers was to be eligible for attack. Before the meeting broke up General Smart informed the committeemen that General Clark wanted three days' advance notice of any attack against a "sensitive" target so that he could notify the Joint Chiefs of the impending operation.[63]

While FEAF leaders were planning to punish the Reds in northwestern Korea, the Naval Forces Far East leaders interested themselves in other targets along Korea's borders in northeastern Korea. Long immune to air attack in the border zones of

northeastern Korea, the North Koreans built up many industrial plants close to the borders of Manchuria and Siberia. At Aoji, only eight miles from Russian territory and four miles from the Manchurian border, the North Koreans were operating at least 12 war-production factories and a major synthetic oil-processing center, which was said to be one of the major sources of gasoline for the enemy forces in Korea. In view of the military significance of Aoji and of Admiral Clark's assurance that Navy airmen could destroy facilities there without violating the borders, General Clark asked the Joint Chiefs of Staff for permission to order attacks in the area. For the strikes, the Joint Chiefs waived its rule against air or naval operations within 12 miles of Soviet territory, but they insisted that General Clark must notify the British of the impending attack and wait two or three days for them to react.[64] In addition to the attacks at Aoji, the Naval Forces Far East knew of other North Korean targets close to the Manchurian borders in northeastern Korea which were worthy of show-of-force attacks.

The massed raids against military targets in Pyongyang had the highest priority, and on 29 August an operation called the "All United Nations Air Effort" against Pyongyang marked the initiation of attacks which were designed to cause a noise in Moscow. The list of targets marked for attack read like a guide to public offices in Pyongyang and included such points of interest as the Ministry of Rail Transportation, the Munitions Bureau, Radio Pyongyang, plus many factories, warehouses, and troop billets. In order to permit turn-arounds of all attack planes, the Fifth Air Force began the assault at 0930 hours and allowed four-hour intervals between strikes so that the additional attacks took place at 1330 hours and 1730 hours. As a protective measure, Sabres and Meteors flew screens along the Chongchon before and during the thirty minutes that each attack lasted. All known flak positions were plotted, and at the H-hour of each strike pilots of the 8th and 474th Wings attacked hostile flak batteries. In addition, one flight of each attack group was briefed to hit gun positions in the group's target area. During the day most Fifth Air Force planes flew all three strikes, and the aircraft carriers *Boxer* and *Essex* sent 216 sorties to join the attacks. In all, United Nations aircraft employed 1,403 sorties in the Pyongyang raid. Bomb-damage assessment photography revealed moderate to severe damage to 31 targets, a good result since many of the targets had been somewhat large in area.[65] On the night of 30 August, the 19th Bombardment Group sent 11 medium bombers against several of the targets in Pyongyang which still required attack.[66] A few installations still remained unscathed in Pyongyang, but FEAF ruled that the value of these targets was not worth the risk involved. Within a few days the Reds increased their flak defenses from 64 to 110 heavy and automatic weapons, which, together with the dispersion of the remaining objectives, made Pyongyang a risky objective for fighter-bombers. The medium bombers could have picked off the remaining targets in night attacks, but most of the objectives were too near to camps where the Reds were holding United Nations prisoners to take a chance on bombing errors.[67]

While Pyongyang still smoldered, United Nations airmen turned their attention to targets along the northern borders of Korea. Steaming northward on 1 September, the Seventh Fleet carriers, *Essex, Princeton,* and *Boxer*

launched morning and afternoon deckload strikes to smash the synthetic oil refinery at Aoji, and the 259 sorties flown made this the largest all-Navy air attack of the Korean war. In this out-of-the-way corner of Korea, the Reds must have felt safe from air action, and the carrier airmen devastated the target with almost leisurely and completely unopposed attacks.[68] Navy fliers again tweaked the Russian bear's tail on 13 September when pilots from the *Bon Homme Richard* and *Princeton* pounded warehouses and troop billets at the North Korean border town of Hoeryong. The fleet's radars marked presumably Soviet bogies orbiting 50 miles east of the target over Siberia, but there was no local opposition other than meager small-arms fire.[69]

A foreknowledge that Communist defenses were slight permitted the Seventh Fleet to attack targets in northeastern Korea without much trepidation, but the Fifth Air Force and FEAF Bomber Command faced a far more difficult problem in northwestern Korea. Nearly half of the Red antiaircraft artillery guns in Korea were sited along the Yalu between Antung and Manpojin, and the zone was well defended by searchlights. Since they could not transgress Manchurian airspace, the Sabres would be hard put to defend daytime fighter-bomber attacks against hostile MIG's. In order to hit targets in Sinuiju City, General Barcus figured that he would have to use a full complement of Sabres as top cover for about 150 jet fighter-bombers, of which about half would be charged with flak suppression. Even with this force General Barcus feared that he would lose from six to eight fighter-bombers. In planning the shoran attack against Sui-ho General Ganey intended to take advantage of all possible countermeasures, including adverse target weather. Failing to find the desired clouds over Sui-ho on the night of 3/4 September, the airborne B-29 commander accordingly diverted the attack planned against this objective to the Choshin hydroelectric plant.[70]

Having observed that the MIG's were most active early in the month, General Barcus obtained permission to defer the Sinuiju attack until later in September and instead to attack the North Korean Military Academy, which had not been sufficiently destroyed in the earlier mission flown against it. In theory, the North Korean Military Academy was a safer target than those in Sinuiju City, but the Sabres and fighter-bombers must have doubted this on 9 September. On this day some 175 MIG's swarmed out to make a well-planned defense. Most of the MIG's battered against the Sabre screen, but some 77 of them made 12 attacks against the 82 Thunderjets as they prepared to bomb their target. The Sabres destroyed six MIG's and damaged six more of them, but the MIG's shot down three Thunderjets and forced several flights of fighter-bombers to jettison their bombs. A critique held soon after this attack disclosed several things which had gone wrong. Communications had been partly at fault, for only a few of the Sabres had known that the Thunderjets were being attacked. The Thunderjets had also paralleled the Yalu while inbound to their target. After this General Barcus ordered that the fighter-bombers would enter and withdraw perpendicularly to the Yalu whenever possible.[71]

Weather service men predicted cloudy skies over the North Korean border on the night of 12/13 September, and General Ganey dispatched his bombers to destroy the long concrete

The North Koreans are already making progress to put the Suiho power plant back into operation.

building at Sui-ho in which photo interpreters said that two generators must be again working. When the B-29 commander arrived at the target area he found clear weather instead of the cloud cover which had been predicted, but General Ganey had arranged for so many other countermeasures that the airborne commander let his bombers proceed as scheduled. Before and during the B-29 bomber stream strikes six Fifth Air Force B-26's sought to suppress searchlights with low-level fragmentation bomb attacks. The light bombers managed to knock out eight of an estimated 30 lights, but a part of the searchlights were across the Yalu and could not be hit. Fortunately, Bomber Command had also arranged that six B-29's would orbit east of Sui-ho and jam hostile radars with electronic countermeasures. Although their radars were evidently jammed, the Reds still threw up box-barrage flak which one veteran B-29 crewman said was "as good as I ever saw the Germans put up." A few bombers were successfully illuminated by searchlights, and sporadic fighter attacks shot down one 307th Wing bomber. Several other bombers were damaged by flak, but 29 Superfortresses successfully dropped their 2,000-pound semi-armor-piercing bombs to score five hits, four probables, and three near misses on the powerhouse. Many more hits in the adjacent transformer and switching yards combined with the other damages and again neutralized Sui-ho. After the mission was over, the Fifth Air Force described its searchlight-suppression effort as "unsuccessful," but FEAF concluded that the combination of electronic countermeasures and searchlight suppression had saved the old Superforts from much higher losses.[72]

In September the MIG's were so stirred up that they did not relax their efforts after strong activity in the first part of the month, but the Fifth Air Force nevertheless capitalized upon surprise and speed to make attacks deep in northwestern Korea. With strong Sabre top cover, Colonel Victor E. Warford's 58th Fighter-Bomber Wing sent 24 of its most experienced Thunderjet pilots to attack a major port of entry and supply depot in Sinuiju City on 15 September. The Thunderjets sustained no damages, and Sabres who watched overhead reported huge fires and billowing smoke rising from the target areas.[73] On 21 September, while the Sabres battled MIG's over Sinuiju and also covered the fighter-bombers, Colonel William W. Ingenhutt's 474th Fighter-Bomber Wing attacked a munitions factory at Pukchong with 41

F-84's. A few MIG's got through to make two brief and unsuccessful passes against the Thunderjets.[74]

During September 1952 United Nations air operations emphasized attacks against North Korea's borders, but the vast majority of air strikes were directed against Communist industrial remnants and troop concentrations throughout North Korea. Fifth Air Force and Navy planes hit gold, tungsten, monazite, zinc, and lead mines. Rear-area concentrations of Communist troops proved to be good targets, for the Red soldiers in rearward locations had not been much bothered by air attacks and commonly lived in villages or barracks. During the month the Fifth Air Force made 47 separate attacks against rear-area troop concentrations. Bomber Command also participated in this type of attack, and in one notable mission flown on 19 September it sent 35 heavily escorted B-29's to make a daylight formation attack against three troop and supply concentrations at Yonpo, Tongchon, and Chigyong, all near Hamhung, on Korea's east coast, where MIG's were seldom seen. Almost every night in September Fifth Air Force light bombers continued their fire raids against North Korean communications centers.[75]

As a part of the air campaign to make United Nations airpower felt in Moscow, the FEAF Bomber Command had agreed to bomb the Namsan-ni Chemical Plant, which was located on the Yalu near Sui-ho. After waiting to get bad weather, Bomber Command planes on the night of 30 September/1 October again braved the Red air defenses for an all-out shoran-bombing attack. Led by three B-29's, which first suppressed flak with air-bursting bombs, and then established a nearby orbit and jammed enemy radars with electronic gear, 45 B-29's arrived one by one and blanketed the Namsan-ni plant with bombs. Coordinating their efforts with those of the medium bombers, seven B-26's again swept in at low altitudes and managed to suppress eight out of an estimated 40 searchlights. Chaff and electronic countermeasures kept the other searchlights sweeping wildly through the murky skies, and only a few of the bombers were illuminated. Several Superfortresses were holed by flak, but the Red fighters that were aloft were unable to make any successful firing passes. This bomber strike effectively destroyed the Namsan-ni Chemical Plant, which was subsequently described as the "last of the marginal strategic-type targets in Korea."[76] In order to continue the air-pressure attacks, FEAF target planners would now have to devise yet-unthought-of target systems, for as yet the air pressure campaign had apparently failed to persuade the Reds to make peace.

"Another week has passed and you continue to reject an armistice, insisting as its price that we return to you a few thousand Chinese prisoners who are determined never again to live under Communist control at any cost." General Harrison was speaking at Panmunjom on 4 September. "North Korea is a small country, economically poor, its people have already suffered much from the two years of conflict. Its economic life is gradually being destroyed as a result of your continued use of its area and facilities for the operations and support of your military forces."[77] The eloquence of the chief United Nations truce negotiator fell on the deaf ears of obdurate Communist delegates who clung to their doctrinaire positions. "Any proposal of the so-called no-forced repatriation which

would detain war prisoners...is...what our side absolutely cannot consider under whatever circumstances," declared General Nam Il on 12 September. "No matter what your side should do inside or outside of the conference," he continued, "the Korean People's Army and the Chinese People's Volunteers will fight to the very end for the return of every single war prisoner home to lead a peaceful life."[78] Although no one knew the full details as to what had been discussed in Moscow, the United Nations air attacks had apparently failed to affect the solidarity of the Sino-Soviet alliance. As Chou En-lai departed for Peking on 16 September, the Reds issued a laconic communiqué that "important political and economic questions" had been discussed "in an atmosphere of friendly mutual understanding and sincerity." The lack of precise detail in the communiqué and the unusual demonstrations of respect for the Chinese delegates led Western commentators to speculate that the Kremlin had not met China's demands for economic and military aid. Information reaching Tokyo from Peking, moreover, indicated that Chou had sought an end to the Korean hostilities, which were draining China and hindering the initiation of her five-year industrialization plan.[79]

5. Intensified Operations Followed the Recess at Panmunjom

The armistice negotiations had failed to make any progress, and the Red delegates were using Panmunjom solely as a forum for venting scandalously false charges of germ warfare and the like. On 25 September 1952 President Truman and the Joint Chiefs of Staff accordingly directed General Clark to cause a final summary of the United Nations proposals to be made. If the Reds did not accept these terms or offer some concrete proposals worthy of consideration at the next subsequent meeting, General Harrison would declare an immediate recess of the meetings. "It is essential, of course," President Truman directed Clark, "that throughout this coming period the military pressure which you are so effectively applying against the enemy should not be lessened."[80] At Panmunjom, on 28 September, the United Nations Command presented the proposals looking toward the screening of prisoners for voluntary repatriation and recessed until 8 October.[81] On this day the Communists remained unwilling to accept anything short of forced repatriation. "I have nothing more to say," stated General Harrison. "Since you have nothing constructive, we stand in recess."[82] Military liaison officers would continue to meet at Panmunjom, and when the Reds had some constructive proposal the armistice negotiations could continue.

"Within your capabilities, you should maintain unrelenting military pressure on the enemy, particularly through air action," the Joint Chiefs had instructed Clark on 25 September. "No major ground action should be contemplated at this time."[83] In order to intensify military pressure on the Communists

following the recess in armistice talks, General Clark had been planning an amphibious demonstration which would involve redoubled activity by all forces. Since a movement of 1st Cavalry regiments from Japan to Korea was to be made, Admiral Briscoe had suggested that the troop transfers could be combined with a live amphibious demonstration which would lure Red defense forces out onto the roads where they could be attacked by gunfire and aircraft. On 13 September General Clark agreeably issued an operations plan which envisaged a joint amphibious assault at the coastal village of Kojo, midway between Wonsan and the bombline, in conjuction with an attack by the Eighth Army and an airdrop by the 187th Airborne Regimental Combat Team. D-day was to be 15 October 1952. In a letter of instructions issued on 3 October, General Clark explained that the operation was to be tactically complete—except that the amphibious landing and the airborne operation would not be carried out. Only the top-level commanders, however, knew that the operation was to be a hoax.[84]

In support of the Kojo amphibious attack, General Weyland ordered the Far East Air Forces to execute a ten-day intensified air-attack program, which, in concept, would amount to an "intensified dispersion" of effort. General Weyland asked Brig. Gen. William P. Fisher, who had taken command at Yokota on 5 October 1952, to step up Bomber Command's operations by 30 percent so as to fly about 18 sorties a night. General Weyland wanted Fisher to hit at least two targets each night between 9 and 18 October. General Fisher accordingly scheduled shoran attacks against 49 supply concentrations.[85] During these same ten days General Barcus planned a 50 percent increase in the Fifth Air Force's combat effort. General Barcus and his staff scheduled attacks against numerous diversified targets to include approximately 50 primary fighter-bomber targets such as mines, factories, radar stations, military headquarters, 40 troops concentrations, 60 communications centers, and some 500 centers of miscellaneous military activity along the main supply routes. Each day the Fifth Air Force planned to attack four primary targets and four troop concentrations with 21 to 36 fighter-bombers, some 48 centers of military activity with elements of four fighter-bombers, and six communications centers with light bombers. The flights of fighter-bombers which hit the small centers of enemy activity would also be expected to fly armed reconnaissance over enemy supply routes. Maximum use was to be made of psychological-warfare warning leaflets.[86] Brig. Gen. Chester E. McCarty, whose force had seen very little tactical employment since he had assumed command of the 315th Air Division (Combat Cargo) on 10 April 1952, concentrated C-46 and C-119 aircraft of the 315th and 403d Troop Carrier Wings at Taegu for three days of intensive paradrop training with the 187th Airborne Regimental Combat Team and drew up an operations order scheduling an airborne assault near Simpo-ri in eastern Korea.[87] Securing General Clark's approval, General Van Fleet planned a limited Eighth Army offensive, named "Operation Showdown." On the night of 13/14 October the U.S. IX Corps would launch a two-battalion limited-objective attack to seize "Triangle Hill" and "Sniper Ridge," northeast of Kumhwa.[88]

Early in October FEAF and Navy airmen banded together in strikes designed to soften eastern Korea for

the amphibious landing. Fifth Air Force and Navy airmen launched combined attacks against barracks and supplies of the Chinese 67th Army at Hoeyang on 5 October, and similar combined attacks lashed the Chinese 26th Army at Yongpyongni on 7 October. At the railroad junction city of Kowon in eastern Korea Navy pilots had long been troubled with flak, and the Seventh Fleet secured Bomber Command's assistance for an attack there on 8 October. Escorted by Banshee jets, 10 B-29's of the 98th Bombardment Wing plastered Kowon with 500-pound proximity-fuzed bombs in a daylight formation attack. Immediately following this Navy planes struck the town at low altitudes. Thanks to the effectiveness of the Superfortress flak suppression, only one hostile flak gun fired at the Navy pilots.[89] After these three days of excellent coordination arranged between Air Force and Navy officers at the Joint Operations Center in Seoul, the United Nations air forces formally began their intensified operations designed to cover the approaching amphibious assault at Kojo.

Preparations for the Kojo amphibious hoax followed the normal patterns for any amphibious landing. Joint Amphibious Task Force Seven conducted mine sweeping operations and held rehearsals on the beaches at Kangnung. At Taegu Airfield, on the four days following 9 October, 315th Air Division C-46's and C-119's conducted battalion-sized paratroop and heavy-equipment drops in the Naktong Valley. After this the 187th paratroopers were confined to their camp waiting orders. Before day, on 14 October, however, assembled troop-carrier crews were told that weather had caused postponement of the day's mission, and after nightfall that evening the C-46's and C-47's began to airlift the 187th back to Japan.[90] Northeast of Kumhwa, on the night of 13/14 October, the U.S. IX Corps launched "Operation Showdown" which sent two battalions forward to capture Communist positions on Triangle Hill and Sniper Ridge. The battalions took their objectives, but the fighting soon became a bloody seesaw contest in which the hills changed hands several times.[91] At 0300 hours on 15 October 403d Troop Carrier Wing crews were hurriedly assembled at Ashiya and told that General Clark wanted them to fly a feint. Before dawn 32 C-119's left Ashiya and crossed in tight formation to Korea, where they flew to Chorwon and let down to paradrop altitudes of 800 feet. Just before the Flying Boxcars crossed into enemy territory, they wheeled abruptly southward and returned to Taegu, where they landed and loaded more paratroopers for return to Japan.[92] On the morning of 15 October Joint Amphibious Task Force Seven—the largest naval force assembled since 1945—bore down on Kojo. After an agonizing delay caused by bad weather, the 8th Cavalry Regiment launched in landing boats at 1400 hours and headed for shore. At a point 4,000 yards from the beaches the landing craft reversed direction and returned to the transports. The Kojo amphibious hoax was completed.[93]

Charged to support the Kojo assault, Seventh Fleet pilots flew 667 sorties on 12 October and their four days of peak activity beginning that day contributed to the Navy's score of 11,004 sorties flown in October—the highest total of any month in the Korean war.[94] Unfavorable flying weather curtailed the Fifth Air Force's planned operations on seven out of the ten days beginning on 9 October, but the fighter-bombers nevertheless flew 2,938 sorties and the light bombers flew 791 sorties. In the

period Fifth Air Force pilots attacked 19 of the primary-type targets, 37 troop concentrations, 37 communications centers, and 274 military activities areas.[95] These intensified air operations just about exhausted General Barcus' list of centers which were suitable for B-26 fire raids. In this same ten-day period Bomber Command attacked 43 small and scattered targets, each with a force of four aircraft, and it attempted to harass rather than to destroy. Bomber Command had hoped to hit more targets but because of the flare-up of ground fighting it had to fly three radar-directed close-support sorties each night.[96]

When the ten days of intensified air operations incidental to the Kojo amphibious hoax were completed, United Nations commanders attempted to decide what lessons had been learned. General Clark noted that the Reds had been "genuinely afraid of our amphibious threat" but that they had mustered enough defense to show him that an actual assault against Kojo "would have been more difficult."[97] In view of the "heavy and excessive casualties" sustained by the Eighth Army in "Operation Showdown," General Clark informed General Van Fleet that "We should not unless absolutely necessary initiate another action which may be a repetition of the bloody battle for Triangle Hill and Sniper Ridge."[98] Although it sought to learn, the FEAF Formal Target Committee confessed that it was never able to discover "just what was accomplished by the intensified dispersion of effort" which had marked the air attack in the ten days following 9 October.[99] While pilot opinion differed, Air Force and Navy men agreed that the Reds had not been provoked enough by the fear of the amphibious attack to bring their troops out of their fixed defenses.

Kim Il Sung

The Reds either lacked mobility enough to react to the threat, or else they had not been fooled. According to report, Fifth Air Force crews, who generally disliked the "leisurely pace" of the war, were enthusiastic about the intensified effort and felt that more destruction had been meted out to the Reds than in the previous several months. But the commander of the *Bon Homme Richard* protested that the Kojo hoax had caused a great morale letdown among his pilots, who had taken great risks and had sustained unnecessary losses in a mistaken belief that a real landing was under way. The 315th Air Division had obtained some invaluable airborne refresher training, and Bomber Command had learned something new about its shoran bombing capabilities. In the large-scale shoran attacks it had not been obvious, but when four B-29's

Peng Te-huai

attacked small targets it was all too plain, and General Fisher noted that about half of his B-29 crews were doing most of the good bombing in his command. A need for more thorough shoran training was indicated.[100]

The Communists did not reveal their opinions of either the Kojo amphibious demonstration or of the intensified air attacks which accompanied it, but it was possibly significant that on 16 October Kim Il Sung and Peng Te-huai dispatched a strongly worded protest to General Clark concerning the recess in armistice negotiations. These two top Reds still insisted that "total...repatriation must be carried out." Replying to the Red letter on 19 October, General Clark found "nothing new nor constructive" in the proposals to warrant reopening negotiations. "It should be clear to you by now," Clark wrote, "that the United Nations Command will never agree to nor negotiate further on the basis of any proposal that would require the United Nations Command to use force to repatriate prisoners to your side."[101] With peace negotiations in recess in Panmunjom, the General Assembly of the United Nations would have to serve as the forum for debate on the Korean armistice.

6. Aerial Interdiction Continued on a Reduced Scale

The FEAF operational policy directive of 10 July 1952 shifted emphasis from all-out interdiction attacks to destruction strikes designed to make the war costly to the Communists, but General Weyland never intended to abandon interdiction attacks completely. The United Nations Command possessed aerial superiority and could most profitably wage an air-pressure campaign against the Reds, but the Communists possessed superior numbers of ground troops, who, if left unchecked by air attacks, might cause the United Nations ground forces a lot of trouble. After June 1952, however, FEAF devoted less effort to interdiction activities, and the Communists were able to make some progress in restoring the serviceability of their lines of communications. During August the key railway lines, "Able" from Sinuiju

A rail bridge near Sunchon, North Korea before B-29's of the 98th Bomb Wing dropped it on 1 September.

to Sinanju and "Baker" from Manpojin to Kunu-ri, were operational for through traffic about 87 percent of the time.[102]

Speaking for FEAF intelligence on 28 August, General Banfill saw a direct relationship between the relaxation of railway attacks and a steadily improving enemy supply situation, which, he said, was detrimental to United Nations ground forces. Hostile artillery and mortar fire, Banfill said, had increased in a direct ratio to the increased serviceability of the enemy's rail lines. United Nations troop casualties had increased in proportion to the growing volume of hostile fire. "Although rail interdiction may not prove decisive," Banfill stated, "statistical evidence indicates that immediate resumption of the rail-interdiction program is warranted."[103] At a FEAF target committee meeting on 2 September the FEAF air-targets representative repeated these same arguments and recommended that a portion of the air effort be reassigned to a rail-interdiction program. At least one river crossing should be kept unserviceable on the "Able" and "Baker" lines, he urged.[104] In response to General Banfill, General Smart commented that the relationship alleged between reduced railway interdiction and increased hostile fire was "speculative in nature." Since the destruction air operations had provoked far more propaganda outbursts from the enemy than had earlier rail-interdiction operations, Smart thought it reasonable to believe that the increased enemy fire might be a retributive reaction to the air-pressure attacks. "Goading the

enemy into eruption along much of the front with the possibility of generating truly remunerative air targets incident to a dynamic situation," said Smart, "is infinitely more conducive to...his defeat than allowing him to languish in comparative quiescence while we expend our efforts beating up supply routes." General Smart also noted that the new FEAF operations policy reduced the emphasis upon interdiction but did not prohibit such aerial endeavor.[105] At the FEAF target meeting on 2 September General Smart's representative agreed that a limited amount of air effort would have to be used to keep the Red rail lines in disrepair, and at a meeting of the FEAF Formal Target Committee on 9 September Fifth Air Force and Bomber Command representatives were told to put "some effort" on the interdiction of hostile rail lines, "but not to an extent where it detracts from the primary purpose of our program."[106]

In August 1952, when he directed Colonel Eugene B. LeBailly and Colonel Clinton C. Wasem to reorganize the 3d and 17th Bombardment Wings and to devote most of their efforts to communications-center attacks, General Barcus did not want to abandon night-intruder operations altogether. Those crews who were most proficient in night operations were accordingly segregated into the 13th Squadron of the 3d Wing and the 37th Squadron of the 17th Wing, which would continue to be night-intruder squadrons. Since General Barcus prescribed a minimum attack altitude of 4,000 feet for nearly all B-26 aircrews, and operations analysis tests indicated that a light bomber, flying alone and attacking from such an altitude, had small chance of destroying scattered and moving vehicles at night, the 3d and 17th Wings had to devise new tactics for night-intruder work. The Fifth Air Force accordingly attempted to develop a new technique which would concentrate hostile vehicles and make them more profitable targets for the fragmentation bombs which operations analysis tests indicated to be the optimum weapons against hostile vehicles.[107]

Late in August 1952 the Fifth Air Force helped the night-intruder squadrons with a cooperative roadblock plan. At last light fighter-bombers cratered selected highway intersections, and at first darkness two intruder B-26's dropped butterfly bombs and delayed-action ordnance on adjacent feeder and secondary roads. Two major and two minor blocks were usually established each night on the highway net south of Pyongyang and on the lateral road to Wonsan. Forty-five minutes following the establishment of a major roadblock, and at such intervals throughout the night, individual B-26 intruders flew armed reconnaissance missions over the isolated roads, attacking stalled motor vehicles with M-18 and M-81 fragmentation bombs. The new tactics worked well. Up to 25 vehicles were frequently found and destroyed within a roadblock area, and the September destruction claims rose to 2,167 vehicles.[108]

Seeking to perfect still more effective night attack tactics, Lt. Col. Estes B. Sherrill, 13th Squadron commander, required his pilots to write critiques after each mission. With this as a starting point, Colonel Sherrill and his executive officer, Capt. John A. Powers, drew up a new roadblock plan which was presented to a wing commander's conference on 20 September. Shortly afterward both the 3d and 17th Wings implemented Colonel Sherrill's "Hunter-Killer" plan. The intelligence and operations officers of each light-

bomber wing examined their assigned reconnaissance routes and drew up three sets of roadblock areas. Before a night's mission the "Hunter," "Killer," and flare crews were informed which set of preselected roadblocks would be used. The first "Hunter" crew reconnoitered the assigned roadblock area and determined the exact spot where an obstacle to enemy traffic would be most effective. A cross-trained navigator-bombardier aboard the "Hunter" established the roadblock with a mixed load of fire, general-purpose, and butterfly bombs. After making the block, the "Hunter" called in a flare B-26 and a "Killer" B-26 to prosecute attacks against backed-up enemy vehicles. When the last "Killer" expended his ordnance, the "Hunter" again reconnoitered the assigned route and determined where another roadblock could best be established. Having found this spot, the first "Hunter" called in a second "Hunter," who made the roadblock and started a new cycle of search and attack. These "Hunter-Killer" cycles were repeated as long as traffic remained lucrative. Employing experienced crews, especially selected for good judgment, finest techniques, and cool heads, the "Hunter-Killer" procedure paid dividends. During October 2,502 enemy vehicles were claimed as destroyed, and the night intruders were boasting a kill rate of 3.94 enemy vehicles per B-26 sortie flown.[109]

According to FEAF's instructions of 9 September, the Fifth Air Force and Bomber Command were charged to give "some effort" to interdiction strikes against the Red railway lines in northwestern Korea. Each of the commands attempted to make interdiction incidental to other operations, and neither of them achieved significant results. In September the Fifth Air Force committed "a much greater portion" of its effort to rail interdiction, but the fighter-bombers devoted most of their attention to the "Item" line between Kichang and Kowon and to the "Dog" line between Pyongyang and Sariwon. The more important "Able" and "Baker" lines were so heavily defended by hostile flak that the Fifth Air Force did not attack them. Bomber Command agreed to schedule the rail bridges on "Able" and "Baker" as secondary targets, but during most of September the B-29's did not divert from their primary targets. On the night of 27 September Bomber Command finally sent 12 B-29's on a primary mission against the rail bridges at Yongmi-dong, Huichon, and San-wang-dong, but the bombers did no appreciable damage.[110] During the intensified air operations of mid-October coincidental to the amphibious demonstration off eastern Korea, neither the Fifth Air Force nor Bomber Command gave much attention to railway interdiction. Taking advantage of the respite, the Communists speedily repaired the "Dog" rail line which the Fifth had put out of action in September. The Reds also moved in flak enough to make the Fifth Air Force reticent about attempting additional attacks on the "Dog" line. At other places the Reds seemed determined to forestall any renewed rail attacks. At Yongmi-dong, where "Able" line crossed the Taeryong River about ten miles northwest of Sinanju, the Communists already possessed three operational rail bridges, but photo reconnaissance flown on 19 October revealed that Red laborers were building a fourth rail bridge. The Communists evidently considered Yongmi-dong to be a critical bottleneck in their main rail-transportation route.[111]

7. *Close Support Was Practiced and Tested*

"During the entire time I was in command in the Far East," remarked General Clark, "the front-line infantry units and tactical air-support units worked closely together in Korea, and understood and respected each other's problems. When the foot soldier needed close air support, he got it."[112] Even though he recognized the diminished utility of close-support strikes against deeply entrenched enemy troops in the stalemated ground situation, General Weyland was determined not to stint in the support of friendly groundmen. "FEAF and Fifth Air Force," said Weyland, "leaned over backward to provide more than adequate close air support when ground forces became actively engaged, and at other times maintained a rather high level of effort on close support in order to maintain the air-ground teamwork and know-how in a state of well-oiled proficiency."[113] General Weyland must also have again justified the overgenerous allocation of close air-support effort in terms of Eighth Army reports that it was still deficient in organic artillery. "In Korea," General Van Fleet stated in April 1953, "we have only 25 percent, approximately 25 percent or less, the number of guns we had per division in France."[114]

In the summer of 1952 the United Nations ground forces and the Communist field armies maintained an active defense of front-line positions which had been dug deeper and deeper into the earth. In June, at the western end of the battleline, the Eighth Army staged several hard-fought attacks to wrest forward positions from the enemy. Each time the Reds invariably launched counter-attacks against the newly won outposts. In the west-central sections of the front lines in July the Communists launched attacks which captured Hill 266 ("Old Baldy") after a battle that saw the land mass change hands several times. These intensified outpost attacks caused no major changes in the line-of-ground contact, but they marked the sharpest fighting so far that year. In June and July FEAF planes accordingly flew 1,893 and 2,057 close-support sorties. In these same months 1st Marine Air Wing pilots flew 897 and 731 close-support sorties, and friendly foreign air units provided an additional 114 and 98 close-support sorties.[115] When cloud cover thickened along the battleline after mid-June, FEAF used MPQ-2 and MSQ-1 bombing director radars to place close-support bombs. During June the three tactical air-direction posts controlled aircraft on 779 bomb runs and directed 1,606 tons of bombs against enemy front-line positions. In a round-the-clock effort beginning at daybreak on 29 June, when the fighter-bombers were grounded by weather, the tactical air-direction posts controlled 128 B-26 sorties in close support of friendly ground troops.[116] As low clouds continued to blank out the front lines in July, the radar controllers worked day and night to guide 1,221 bombing runs and 2,388 tons of close-support bombs. Night-flying B-26's and B-29's provided the bulk of these missions, but Mustang flights of the 18th Fighter-Bomber Wing flew formations of fours and salvoed their ordnance on the order of the ground controller.[117]

Heavy rains brought United Nations and Communist outposts battles to a virtual standstill after 25 July, but General Van Fleet nevertheless ur-

The path of a high-velocity rocket from the release point to within a few feet of its target. The Pantherjet was called to the area by a Mosquito controller.

gently requested a maximum B-29 effort to be flown in front of the U.S. IX Corps and the ROK II Corps on the nights of 31 July and 1 August. General Van Fleet argued that the Eighth Army had plotted the locations of many lucrative supporting targets and that the Reds had been hurt by the heavy rains and would be more vulnerable to air attack than at any time during the several months past. General Clark would not order the diversion of the medium bombers on such a slender justification, but General Barcus allocated a maximum B-26 support effort to the IX Corps and General Weyland committed three B-29's each night for radar-directed bombing.[118] This radar-directed bombing effort contributed to August's total of 1,078 tons of bombs dropped by this medium, but with improving weather the bulk of close-support effort was again furnished by fighter-bombers. In support of ground action generally characterized by numerous clashes of up to battalion-sized troop units, and a successful United Nations recapture of "Old Baldy," FEAF planes flew 1,836 effective close-support sorties, while attached Marine and friendly foreign units flew an additional 1,466 sorties, to swell the monthly total to 3,302 sorties.[119] In this same month, primarily for training, Admiral Briscoe sent his carrier-based pilots back into the close-support business and furnished a daily average of 12 air-support sorties to friendly ground forces at the eastern end of the battleline.[120]

Drenching rains again halted ground fighting late in August, but as September brought clear skies the Reds renewed attacks against the Eighth Army's outposts. The principal ground fights simmered on Capitol Hill and Finger Ridge, where United Nations forces remained in control. FEAF

planes flew 1,797 close-support sorties, while Marine, South Korean, and South African aircraft flew 1,111 close-support sorties, to bring the monthly total of such effort to 2,908 sorties.[121] Early in September Admiral Briscoe proposed that his carrier air groups should be employed across the entire Eighth Army front where needed, and he asked that limited numbers of carrier airmen should fly close-support strikes under Marine ground controllers. FEAF readily agreed with both of these proposals.[122] In September, as in the summer months, the close air support afforded by United Nations pilots was substantial in volume, but it was seldom directed against any really lucrative targets. The Communists always launched their outpost attacks under the cover of darkness and nearly always completed their raids before dawn, at which time they were usually safe and secure against air attacks, deep within their tunnels, caves, and bunkers.

In preparation for the Far East Command amphibious demonstration off eastern Korea early in October, the Fifth Air Force and Task Force 77 executed front-line air attacks which were a mixture of close and general air support. Working against Red troops who had long felt safe from air attack because of the closeness of their positions to the neutral ground at Kaesong, the Fifth Air Force between 8 and 25 October executed "Operation Red Cow." In this operation Mosquito controllers carefully directed the efforts of 105 fighter-bomber sorties against 24 troop and artillery targets. The fighter-bombers hit enemy positions close to the main line of resistance and the neutral zone.[123] On 9 October Admiral Clark began to employ massed carrier air flights in "Cherokee" strikes against prebriefed targets in front of friendly ground positions. The targets were normally designated by Eighth Army corps and were usually supply dumps, personnel bunkers and artillery positions. A Fifth Air Force Mosquito assisted the Navy pilots to locate their targets and performed post-strike damage assessment. The first Cherokee strikes were flown against targets within the bombline, and they consequently employed normal close-support control procedures. Since it was difficult to place more than eight aircraft on a target in a short time when such control procedures were employed, the Seventh Fleet soon began to direct its Cherokee strikes at general-support targets beyond the bombline.[124] To support the renewed ground operations taking place in the U.S. IX Corps' area, General Weyland made up to three B-29's available for radar-directed close-support missions each night in the period 10 through 16 October.[125] During the month, moreover, the Fifth Air Force and its attached units flew a total of 4,488 close-support sorties, of which 2,217 were in support of the IX Corps "Operation Showdown" fight at Triangle Hill and Sniper Ridge.[126] On 21 October the IX Corps commander messaged his "grateful thanks" for the Fifth Air Force's "magnificent help." The air support was timely and effective, he said. "The courage of the fliers and the effectiveness of their combat action against enemy ground targets," he added, "were magnificent to those of us who observed them."[127]

Callous to the slaughter of their troops, Communist field commanders pressed attacks against Sniper Ridge and Triangle Hill early in November and finally regained possession of the latter terrain mass. In support of the U.S. IX Corps and other Eighth Army troops, the Fifth Air Force flew 2,374

close-support sorties and its attached units flew 1,172 additional close-support sorties during November.[128] Ground officers testified that this air support gave a "tremendous lift" to the infantry. On 5 November, for example, Maj. Gen. J. C. Fry, commander of the U.S. 2d Infantry Division, commented on the effectiveness with which a 58th Group flight of Thunderjets destroyed a Chinese gun position with a low-level napalm strike. Fry reported that his men said "It takes real guts to go in and do that job."[129] Enemy artillery and mortar fire continued to bombard United Nations outposts on Sniper Ridge, and on 22 November 1952 Maj. Charles J. Loring, Jr., a flight leader of the 8th Wing's 80th Fighter-Bomber Squadron, led his four-plane element against a Red gun position which was hazarding friendly ground troops. In pressing the attack, Major Loring's F-80 aircraft was hit and crippled. Deliberately, then, Major Loring turned and dived his plane into the gun emplacement, destroying the target and killing himself. For his selfless and heroic action in eliminating a dangerous threat to United Nations ground forces Maj. Charles J. Loring, Jr., was awarded the Congressional Medal of Honor.[130]

In the last two years of the Korean war, while the ground combatants were fighting from prepared emplacements which were reminiscent of the trench warfare of World War I, fully 30 percent of all United Nations offensive air strikes were employed in close support of friendly ground troops. In Europe, during the bitterly fought ground campaigns of World War II, approximately 10 percent of Allied tactical air effort had provided close support to friendly ground armies.[131] Despite the magnitude of close support in Korea, some officers of the Eighth Army were dissatisfied with the Army-Air Force system for air-ground operations. During the autumn of 1952 General Clark accordingly directed some far-reaching tests and experiments designed to "perfect" the approved system.

The genesis of the Far East Command air-support tests went back to 17 December 1951, when General Van Fleet had visited General Everest to explain that his subordinates were dissatisfied with the Army-Air Force system of air-ground operations. General Van Fleet first talked about the way in which the Eighth Army was organized for combat. So long as he kept within the Eighth Army's plan, General Van Fleet explained that each of the corps commanders was largely autonomous in his area of responsibility. Each controlled all forces that he required for combat—except his air support. Van Fleet proposed that some air—how much he was not sure, but something like a squadron of fighter-bombers—should be assigned to each corps. Such an assignment would eliminate, Van Fleet said, the "continual competition between divisions and corps for close support." General Van Fleet admitted that the three squadrons so committed would not offer the same quantity of air support that the Eighth Army was accustomed to receive, but he thought that the reduction in effort would be more than compensated for by the satisfaction of the corps commanders in having something they could count on and run themselves. General Everest turned thumbs down on the proposal, which he knew to be unsound and contrary to established procedures.[132] On 20 December 1951 Van Fleet nevertheless made his proposals official in a letter to General Ridgway. He recommended that the

Eighth Army be permitted to assume operational control over three squadrons of Marine aircraft, one of which would be allocated to each of the three corps commanders. Operating from airfields near the corps headquarters, the Marine squadrons would fly close-support sorties and would also attack "close" interdiction targets which lay within 40 miles of the front lines. Army personnel—field artillery observers wherever possible—would control the air-support strikes. The Eighth Army would monitor the employment of the squadrons and divert them when necessary to the support of other corps or make them available to the Fifth Air Force if need be. The Eighth Army would also expect additional close support from the Fifth Air Force in times of major ground attacks.[133] General Ridgway evidently took no action on General Van Fleet's proposals.

With the arrival of General Clark in the Far East, Eighth Army officers who desired to establish a *de facto* Army air force must have taken heart, for, as Chief of Army Field Forces, General Clark had gone to lengths to describe the kind of air support that the Army wanted. At a Tokyo briefing on 1 July 1952, however, General Clark heard General Van Fleet's plan to employ the Marine Air Wing exclusively in support of the Eighth Army and announced that such an undertaking could not be favorably considered. General Clark later explained that he had not come to the Far East to aggravate any differences of opinion between the Army and Air Force. "With a specific job to do," he said, "I had to maintain an air-ground team working as efficiently as possible." General Clark also expressed confidence in the *Joint Training Directive for Air-Ground Operations* which described the Army-Air Force system for air support. This directive, Clark said, was based on a vast reservoir of experience amassed on all fronts and representing the composite view of senior officers who had had the longest and most responsible experience in close support during World War II. General Clark nevertheless directed that the Far East Command should "tackle objectively the existing problems of close air support with a view toward developing and improving procedures in the implementation of current air-ground operations doctrine."[134]

When he had completed a review of the particulars of the Eighth Army discontent with close air-support procedures on 11 August General Clark issued a command letter prefaced by his "considered opinion" that no far-reaching or drastic changes which were contrary to existing doctrine ought to be attempted, based solely on the often-unique conditions, prevailing in Korea. Instead, Clark instructed his force commanders to study their positions and to direct their efforts "toward perfecting the present system." In attachments to the long command letter, General Clark indicated 13 areas wherein the efficiency of the existing system might be improved, and outlined three progressive "experiments" looking toward the study and improvement of the existing system.[135]

The initial areas for investigation and the first phase of the experiments outlined by General Clark were generally concerned with additional air-ground training and were readily accepted for implementation by Generals Weyland, Van Fleet, and Barcus. An immediate result of General Clark's interest was to increase enrollment of ground officers in the Fifth Air Force's air-ground operations course at Seoul. In order to orient air officers in Army

problems, General Barcus also began to send groups of 15 pilots on three-day tours at the front lines beginning on 15 September. At Johnson Air Base in Japan, after 27 October, the Far East Air-Ground Operations School began to receive larger quotas of Eighth Army and Fifth Air Force officers for its week-long indoctrination program. In Korea a traveling Eighth Army-Fifth Air Force indoctrination team began to visit Eighth Army units in the field on 29 October. When the team completed its tour on 19 November, it had made 15 presentations to 530 key command and staff officers of the Eighth Army. These periodic briefings on the nature and functioning of the air-ground system proved so beneficial that General Barcus and Lt. Gen. Maxwell D. Taylor, the Eighth Army commander after February 1953, agreed that the traveling indoctrination team would continue to visit each American division and corps at least once every four months.[136]

Several of the fields for improvement outlined by General Clark merely recognized subjects which were already under investigation. One of these fields concerned artillery flak suppression for close air-support strikes. The Reds had built heavy concentrations of automatic weapons along their front lines, and the Fifth Air Force had noted that for several months its losses and damages were heaviest during close-support strikes. As a matter of custom, the Eighth Army held up its artillery fire during air strikes lest friendly shells destroy aircraft. No one had apparently studied whether enemy ground fire, if not neutralized by friendly artillery fire during an air strike, might not actually present a greater danger to friendly aircraft than would the continuation of friendly artillery fire. Beginning at a meeting in Seoul on 23 July and continuing in accordance with General Clark's directive, the Eighth Army and Fifth Air Force perfected a procedure whereby close-support flight leaders might call for proximity-fuzed flak-suppression fire against enemy gun positions before they attacked ground targets. As perfected over a period of several months, this artillery flak suppression was described as "highly successful," but no one could know its applicability in a war of ground movement.[137] Recognizing that the Mosquito controllers were extremely vulnerable to hostile ground fire and would be anachronistic in a major war, the Fifth Air Force began experiments with a "pathfinder" fighter-bomber technique on 20 July. The pathfinder flight of two experienced pilots left the tactical airdrome ten minutes ahead of the main fighter-bomber strike, reconnoitered the assigned target, and subsequently marked the objective for the fighter-bombers by making the first attack. After tests in January 1953, the 8th Fighter-Bomber Wing recommended that pathfinder aircraft should be used on all large-scale close-support strikes.[138] In view of the disagreements between air and ground officers as to what constituted a valid target for MPQ-2 or MSQ-1 bombardment, General Clark invited investigation and report. This investigation had to do with the inherent accuracy of this bombing system, for the Eighth Army frequently wanted night-flying bombers to hit pinpoint targets such as enemy artillery positions. Even before Clark's directive, a Fifth Air Force evaluation project called "Pinpoint" had indicated that the circular error probable of ground-radar directed B-26's was 1,177 feet. Subsequent study of ground-radar directed B-29's revealed that these larger planes had an average circular error probable of 1,300 feet. General

Planes on the deck of the USS *Essex* wait for a break in the weather *(Courtesy U.S. Navy).*

Barcus and General Taylor therefore agreed that only relatively large-area targets such as supply and personnel concentrations were suitable targets for MPQ-2 or MSQ-1 attack.[139]

Generals Weyland, Van Fleet, and Barcus agreed readily enough to General Clark's proposals for increased air-ground training and for specific investigations, but each found something objectionable with the second and third phases of the air-support experiments. In the second phase General Clark wanted to allocate 50 to 100 air-support sorties to the exclusive use of a corps commander in various types of air strikes to be requested through the Joint Operations Center. The strikes would be run against targets which could be viewed by friendly ground troops. Generals Barcus and Weyland objected to the commitment of one-third of the Fifth Air Force's capability to an endeavor in which ground troops would witness nothing more than a demonstration against targets of little importance while the Fifth Air Force would suffer losses and damages and a substantial diversion from its air-pressure attacks. In the third phase of the experiments General Clark proposed to allocate "mission control" of one or more fighter-bomber squadrons to a corps commander for a definite period of time. General Weyland flatly called this phase "a regression which is contrary to established doctrine." Strangely enough, since he had earlier urged just such an arrangement, General Van Fleet now pointed out its hazards. Weather might keep a designated squadron grounded on its home airfield when the corps needed it, while other squadrons at other airfields might be able to fly. Van Fleet also recognized that aircraft loss and damage rates were running highest on close-support missions, and he suggested that any squadron specially designated for nothing but close-support missions

would soon lose its combat effectiveness. In view of the objections to his proposals, General Clark instructed Generals Weyland and Van Fleet to recommend a series of experiments which would provide air and ground personnel with the experience they required to conduct air-support strikes in a manner prescribed by current doctrine.[140]

The Fifth Air Force and Eighth Army prepared plans for a modified air-ground operations experiment, and General Clark approved them on 24 November. Beginning on 26 December 1952 and concluding on 14 February 1953, the Fifth Air Force employed the 8th, 58th, and 474th Fighter-Bomber Wings in operational demonstrations with each American division in Korea. Each daylong exercise included elaborate planning and briefing phases attended by key officers of the division whose personnel would witness the strikes and of the fighter-bomber wing which would fly the attacks. On the day of the demonstration, the Fifth Air Force tactical air wing attacked a prebriefed target with 24 aircraft, a second target with a strip-alert flight of eight aircraft, and a third target with an air-alert flight of four aircraft. So far as Air Force personnel were concerned, these demonstrations produced next to nothing of value. The planning phase was normal and routine for air personnel and the front-line briefings were interesting but inessential for a successful accomplishment of a mission. The Fifth Air Force had hoped to learn something from the 24-aircraft close-support strikes, and it did learn that this many planes could not be directed against pinpoint targets in close proximity to friendly ground troops within a three-minute period required for maximum shock effect on the enemy.[141]

On several occasions while the demonstrations were in progress air officers protested the inadvisability of risking the lives of friendly personnel for the sake of training, and on 25 January 1953 one of the experiments caused violent repercussions in the United States. On this day the 7th Infantry Division was supported by the 58th Fighter-Bomber Wing in "Operation Smack." To add realism, the 7th Division decided to combine the air strikes with a daylight raid against enemy positions on "T-bone Hill." As customary in maneuvers, the 7th Division issued a stiff-backed operations order to observers, which was labeled as the "scenario." Through a combination of circumstances, however, the two infantry platoons which attacked suffered 64 casualties and captured no prisoners. The Department of Army explained the affair to the satisfaction of a congressional committee, but American newspapers raised the cry that American lives had been needlessly lost in a demonstration viewed by high-ranking officers.[142] General Clark's air-ground operations experiment thus closed on a somewhat sour note, but the official view was that it "had proved of considerable value in reaffirming the basic principles set forth in established doctrine."[143]

An F-84 returns to home base.

17. *Air Reconnaissance, Transport, and Rescue Support the United Nations Forces*

1. Air Reconnaissance Systems in Action

During United Nations Command campaigns in Korea aerial reconnaissance was of even greater value than it had been in previous wars, and it was the most valuable means of obtaining intelligence of enemy activities. Aerial reconnaissance was critically important to the outnumbered United Nations ground forces. "It is the one positive means by which we are able to study the enemy's back yard," explained an Eighth Army officer. "Its relative importance cannot be overrated—we have to have it."[1] Photographic reconnaissance was vital to United Nations air forces. It allowed FEAF to keep abreast of the Communist air order of battle, not only within North Korea but at the Manchurian airfields across the Yalu. It permitted FEAF to attack Red airfields within Korea when they were nearing a serviceable status, thus permitting an economy of force. Oblique photos of Antung and Ta-tung-kou airfields provided a wealth of information about the characteristics of the hostile air force, such as the length of runway which a MIG required for operations. Continuous aerial surveillance allowed photo interpreters to plot the changing locations of hostile flak batteries. Photographic reconnaissance also provided the basic information for air-objective folders and target dossiers used in all preplanned air strikes. Finally, bomb-damage assessment photography afforded air units a means of evaluating the success or failure of their tactics and techniques.[2]

At the end of World War II everyone acknowledged the importance of aerial reconnaissance, but in the years before 1950 USAF "economy" programs had severely curtailed the development of air-reconnaissance systems—aircraft, cameras, and skilled technicians—so that these systems had not been able to keep pace with the requirements of a jet air age. In the spring of 1949 USAF had inactivated all of its tactical reconnaissance organizations except the equivalent of one group (two squadrons in the United States and one in the Far East). Skilled personnel of the inactivated organizations had either returned to civilian status or had been scattered throughout the Air Force. When the fighting began in Korea, FEAF did not have a reconnaissance system. Its badly under-strength and poorly equipped reconnaissance units were a "series of dangling and disconnected minorities." The 31st Strategic Reconnaissance Squadron had RB-29's at Kadena, the 8th Tactical Reconnaissance Squadron flew RF-80A aircraft from Yokota, the provisional 6204th Photo Mapping Flight possessed two RB-17's at Clark Air Force Base, and the 548th Reconnaissance Technical Squadron was based at Yokota and kept detachments at Kadena and Clark.[3]

Because of the dubious economy which had severely curtailed reconnaissance aviation between wars, FEAF was compelled to use what it had while it rebuilt a reconnaissance establishment. Sending a detachment to Itazuke within hours after the start of the war, the 8th Tactical Reconnaissance Squadron moved to this southern Japanese airfield by 9 July to provide photo-reconnaissance requirements of the Fifth Air Force and Eighth Army. The 8th Squadron's negatives had to be

ferried up to Yokota to the 548th Reconnaissance Technical Squadron for mass reproduction and interpretation. This worked fairly well when flying weather was good, but when weather was bad, which was often, photo-reconnaissance products might not reach requesting agencies for as long as a week. Conveyed by air and water from the United States, the 162d Tactical Reconnaissance Squadron (Night Photography) and the 363d Reconnaissance Technical Squadron reached Itazuke late in August 1950. On 3 September 1950 the Fifth Air Force activated the 45th Tactical Reconnaissance Squadron at Itazuke, but this visual reconnaissance organization would not receive its RF-51 aircraft until November 1950. To provide a headquarters organization for its reconnaissance squadrons, the Fifth Air Force activated the 543d Tactical Support Group at Itazuke on 26 September 1950.[4]

When it established its units at Taegu Airfield during October 1950, the 543d Tactical Support Group found that its status and deployment were unsatisfactory. Instead of being properly assigned to the Fifth Air Force directly, the 543d took its orders from the 6149th Tactical Support Wing at Taegu. Located in a school compound in Taegu City, the 363d Squadron met delays in receiving photographic film from the air units at Taegu Airfield. The 162d Tactical Reconnaissance Squadron, which was expected to use artificial illumination to take night photos, met difficulties from a fairly high dud rate among the flash cartridges used in its newly developed night photographic system.[5] In December 1950 the 45th Tactical Reconnaissance Squadron was just beginning to provide needed visual reconnaissance services, and the 543d Group was finding solutions to some of its other problems, when the Chinese Communist attack forced a withdrawal of all but advanced echelons of the 543d Group and its squadrons to Tsuiki and Komaki Air Bases in Japan.[6]

Armament technicians insert the nose fuses into photo-flash bombs used on RB-26 night reconnaissance missions.

Recognizing that the Fifth Air Force needed help in organizing the tactical reconnaissance wing that it required, General Stratemeyer asked for Colonel Karl L. ("Pop") Polifka, one of the USAF pioneers in the field of aerial reconnaissance, and Colonel Polifka was attached to the 543d Tactical Support Group on 24 January 1951. As a result of Polifka's work, the 67th Tactical Reconnaissance Wing was activated effective on 25 February 1951, with direct assignment to the Fifth Air Force. A concurrent change in designations gave the wing the following tactical units: 67th Group (543d), 12th Tactical Reconnaissance Squadron (162d), 15th Tactical Reconnaissance Squadron (8th), the 45th Tactical Reconnaissance Squadron, and

the 67th Reconnaissance Technical Squadron (363d). During March 1951 echelons of these organizations were located at Taegu Airfield. The reconnaissance wing was beginning to function as an organization should, when, on 1 July 1951, Colonel Polifka was shot down in an RF-51 at the front lines and died in action. But Colonel Polifka had pointed the way, and by 22 August 1951 the 67th Wing and its squadrons established themselves at Kimpo Airfield, thus clearing out rear-echelon remnants from Tsuiki and placing the whole establishment at one base for the first time in its history.[7]

During much of its early history the 543d Group's operations had been anything but systematic. In January 1951 the group complained of "the many telephone calls, at all hours of the night...in regard to missions" and observed that "everyone wished to have a personal rundown as to the results of each sortie."[8] As he organized the 67th Wing, Colonel Polifka worked with Fifth Air Force intelligence to provide regular procedures. Special requests for photo coverage followed a normal channel to the Fifth Air Force, where they were incorporated in the daily operations order or else were telephoned directly to the 67th Wing. Requests of Eighth Army units for special photo cover were screened and consolidated in division and corps G-2 Air offices and were forwarded to the Eighth Army G-2 Air in the Joint Operations Center, who passed them to the Fifth Air Force reconnaissance officer. The Army requests were either incorporated in the daily Fifth Air Force operations order or were telephoned directly to the 67th Wing, according to their urgency. Most reconnaissance, however, was of a periodic and continuing nature, or was handled in automatic fashion. The 67th Wing maintained periodic surveillance of enemy airfields in Korea, the main supply routes, and other important military targets. It automatically flew bomb-damage assessment photography of targets ordered attacked in Fifth Air Force operations orders, either completing the mission within three days or canceling it. Consistent with the tactical situation, the 67th Wing flew large-scale front-line block coverage photography which was automatically delivered to the Eighth Army. The 45th Squadron also maintained RF-51 patrols over sectors of responsibility extending 15 to 20 miles forward of each corps. The visual reconnaissance pilots reported sightings directly to the corps fire-support coordination centers, and these "Hammer" aircraft also directed friendly fighter-bomber strikes against some of the targets they located.[9]

According to agreements between the U.S. Army and the Air Force undertaken in 1946, the Army was supposed to manage the interpretation and quantity reproduction of photography flown for it by the Air Force. The *Joint Training Directive for Air-Ground Operations* provided that a Joint Photo Center, located at the reconnaissance airfield, would comprise on the air side a reconnaissance technical squadron and on the ground side an engineer photographic reproduction and distribution organization and Army photo interpreter teams. Once the Air Force developed, titled, and made five prints of each negative on photography requested by the Army, the Army photo interpreters were expected to provide necessary interpretation and the engineer organization was supposed to reproduce desired quantities of the photographs and deliver them to ground units.[10] The Eighth Army knew its responsibilities, but it was unable to

secure any photographic technicians until February 1951 and then it received only 86 men who were organized into interpreter and reproduction detachments. Using the Army technicians, the Fifth Air Force organized what was erroneously called a Joint Photo Center at Taegu, wherein the Army detachments were integrated with Air Force personnel in the interpretation and reproduction functions. Up until February 1951 the Air Force handled all quantity reproduction of photography for the Eighth Army.[11] Because it was unable to interpret or reproduce aerial reconnaissance photography in requisite amounts, the Eighth Army was unable fully to exploit the 67th Wing's ability to fly reconnaissance for it. In the ground campaigns of 1950 and 1951 the Eighth Army should have had daily front-line photo cover of enemy-held territory to a depth of 10,000 yards, but such cover was flown only in special "blocks" because the Army could not interpret larger amounts. The Eighth Army also discouraged its subordinate units from submitting many requests for special photo coverage. The delivery of requested photography to battalions and regiments was frequently so slow that in fluid conditions these forward units often overran the territory they wanted to study before they received photographs of it.[12]

Operating against virtually no opposition over North Korea in the first months of the Korean war, FEAF reconnaissance planes could fly far more photography than could be interpreted or reproduced for mass distribution. Gradually, however, the Communist air defenses took effect, and the USAF again learned the lesson that it could not operate second-rate reconnaissance planes against even passably adequate air defenses with much satisfaction. When Communist MIG-15 jet fighters appeared over North Korea, the old RF-80A photo aircraft was hopelessly outclassed. Redlined at .8 mach, the reconnaissance version of the old Lockheed jet fighter was a good 200 miles an hour slower than the MIG. Without heavy Sabre escort, the RF-80's were unable to operate in MIG Alley. When Communist flak defenses increased, the RF-80's began to encounter another problem which defied solution. The Lockheed jet photo plane's cameras and magazines had been designed for the speeds of conventional planes, and, in order to secure large-scale photographs with the overlap for stereoscopic viewing, an RF-80 had to throttle down over a target or along a flight line, making itself an easy mark for flak or fighters.[13] The RF-51's were also hazarded by enemy flak. Expected to operate its RF-51 planes on hour-and-a-half flights over the enemy's front lines at altitudes ranging upward to 4,000 feet, the 45th Tactical Reconnaissance Squadron was hard hit by enemy ground fire. After five RF-51's were lost to enemy ground fire, the 45th Squadron in February 1952 set a minimum altitude of 6,000 feet for its visual reconnaissance missions, and added a wingman who flew some 1,000 feet higher and called out ground fire.[14] Understanding the need for higher-performance reconnaissance planes in Korea, USAF intended to equip the day photo squadron of the 67th Wing with RF-84F aircraft, a swept-wing version of the Thunderjet fighter. From time to time USAF posted dates when the RF-84F's would arrive in Korea, but for various reasons these planes were never ready for combat while the hostilities continued in Korea.[15] As an interim solution until RF-84F's were ready, USAF allowed FEAF to modify

RF-86A

six F-86A aircraft for photo reconnaissance. Done in a hurry after October 1951, and consisting of a camera mounted parallel to the longitudinal axis of the Sabre with a mirror arrangement to secure vertical coverage, the photo-modified Sabre never secured adequate quality photography. The RF-86A's were nevertheless able to operate in MIG Alley with a minimum amount of Sabre escort.[16]

Unable to get more modern reconnaissance planes, the Fifth Air Force recognized in the spring of 1952 that the 15th and 45th Tactical Reconnaissance Squadrons would take emergency measures to continue to operate. Purely as an expedient, Colonel E. S. Chickering, the 67th Wing's commander, worked out a plan whereby some RF-80's were transferred to the 45th Squadron and both the 15th and 45th Squadrons received a number of F-80C fighters which had been released by the conversion of the fighter wings to more modern aircraft. At first the F-80C's flew wing for RF-80A planes, but eventually 67th Wing technicians were able to replace the old fighter's guns with a single vertical camera. The F-80C, moreover, turned out to be adequate for visual reconnaissance. In the autumn of 1952, when it was evident that the two squadrons could use the F-80C's, the 67th Wing began to cross-train the 15th and 45th Squadrons for identical visual and photo missions. Following this, the 67th Wing's authorization of RF-80A's and RF-80C's was equally divided between the 15th and 45th Squadrons, with the former being authorized five RF-86's in lieu of an equal number of RF-80A's.[17] Although the 67th Wing patched up its day reconnaissance capability, the Fifth Air Force continued to possess far fewer day photo planes than it needed. Fortunately, the Fifth Air Force possessed coordination control over Marine Squadron VMJ-1, whose ten F2H-2P Banshee photo-jet aircraft were based at Pohang Airfield and were able to supplement the slim capabilities of the 67th Wing. When engaged in high-priority tasks, these Banshees landed at Kimpo at the conclusion of their missions and gave their film to the 67th Reconnaissance Technical Squadron. Lower priority missions returned to Pohang, where the film was processed by a Marine laboratory.[18]

When the Korean war continued and enemy air defenses grew, the 12th Tactical Reconnaissance Squadron knew more difficulties as it operated its RB-26 aircraft over North Korea. The usual night-reconnaissance missions flown by this squadron were routine surveillance sorties which averaged about three hours in duration and normally included photography of prebriefed objectives along the route.

Successful accomplishment of these night-reconnaissance missions depended upon precise navigation and the reliability of the artificial illuminants carried aboard the RB-26's. When in transit to the Far East in 1950, the RB-26's had been equipped with a new A-3 cartridge-ejection illumination system which employed A-14 magazines and M-112 flash cartridges. This new system gave the 12th Squadron a lot of trouble. The first lots of cartridges were defective, and, when more dependable consignments were received, the increased use of the system caused wear malfunctions of the magazines. The fundamental defect of the system, however, was that the planes using it had to fly at 3,000-foot altitudes, which was not high enough to be safe against terrain obstacles and enemy ground fire. For this reason the 12th Squadron abandoned the cartridge-illumination system in May 1952. During the periods when the cartridge system had been out of order, the RB-26's employed M-46 photoflash bombs for illumination, and with the discontinuation of the cartridge system the 12th Squadron exclusively employed photoflash bombs. The combination of the light intensity of the M-46 bomb and the night cameras which the RB-26's carried gave good results in terms of photo quality and scale when the night photo planes maintained altitudes of 7,000 to 8,000 feet. As a standard procedure, therefore, the 12th Squadron's crews habitually operated at these altitudes.[19]

Before they could photograph objectives at night, the RB-26 crews of the 12th Tactical Reconnaissance Squadron had to find their targets, and the 67th Wing frankly admitted that many times night-flying crews were unable to photograph deserving objectives because they could not locate them in the dark. For precision navigation, the RB-26's carried shoran, but they were unable to receive the shoran beams when flying north of the bombline at altitudes of 7,000 to 8,000 feet. In order to employ shoran, the RB-26's wanted to be able to secure photography from higher altitudes. Their first problem was that the M-46 photoflash bomb did not provide sufficient illumination at altitudes higher than 8,000 feet, but in the autumn of 1950 the 12th Squadron received new and more powerful M-120 photoflash bombs which gave enough light for effective night photography from altitudes of up to 25,000 feet. Provided the 12th Squadron could obtain night cameras with longer focal lengths which would permit adequate scale photography, the RB-26's could operate at the higher altitudes where they could secure shoran guidance. Armed with the new photoflash bombs, the 12th Squadron attempted to operate at about 14,000 feet, but, despite much experimentation, the RB-26's never found a night camera which would serve its purposes. As a result, the RB-26 crews continued to operate at the altitudes which were optimum for photography but which denied them the advantages of shoran.[20]

The experience of the FEAF Bomber Command with photographic reconnaissance roughly paralleled that of the Fifth Air Force. At its organization Bomber Command assumed operational control over the 31st Strategic Reconnaissance Squadron, which was returned to the United States in a paper transaction and replaced by the 91st Strategic Reconnaissance Squadron (Medium), effective on 16 November 1950. Located at Yokota Air Base after December 1950, the 91st Strategic Reconnaissance Squadron used its RB-29 aircraft to perform targeting and

bomb-damage assessment photography desired by Bomber Command and special missions ordered by FEAF.[21] Early in the Korean war the RB-29's operated over North Korea with impunity, but on 9 November 1950 the MIG's damaged one of the Superfort photo planes so badly that it crashed on landing at Johnson Air Base. In an effort to maintain its reconnaissance capability in the face of the MIG jets, Bomber Command on 31 January 1951 took control of Reconnaissance Detachment A, 84th Bombardment Squadron, which had brought two light jet RB-45 aircraft to the Far East for tests. Attached to the 91st Squadron, the RB-45 crews managed to outrun and outmaneuver the MIG's for several months, but on 9 April 1951 four of the Red fighters got on the tail of an RB-45 and pursued it until they discharged all their ammunition—amazingly enough without securing any hits. Meanwhile, the RB-29's had been operating into MIG Alley at their own hazard. The continued growth of MIG forces caused FEAF to place MIG Alley off-limits to all unescorted Bomber Command planes on 1 June 1951. Rather than commit eight to 16 fighters to the escort of bomber-type reconnaissance planes, the Fifth Air Force at once arranged for the 67th Wing to accomplish targeting and assessment photography for Bomber Command in northwestern Korea. After October 1951 RB-29's were no longer allowed to enter northwestern Korea, even with escort, but the RB-45's could still enter the MIG-infested area if they had jet fighter escort. After another harrowing experience on 9 November 1951, when an unescorted RB-45 was intercepted by nine MIG's near Haeju, only to escape because of remarkably poor Communist gunnery, FEAF restricted the RB-45's from daylight penetrations into the sensitive areas of northwestern Korea.[22]

After the middle of 1951 Bomber Command generally obtained adequate reconnaissance from the 67th Tactical Reconnaissance Wing, but the arrangement did not give complete satisfaction. Especially during periods of marginal weather, the 67th Wing was often unable to perform bomber reconnaissance as rapidly as Bomber Command desired. The medium bomber wings needed bomb-damage assessment photography as quickly as possible after a strike so that they could repeat it if necessary, before the enemy strengthened his target defenses. In order to be ready to attack targets which suddenly appeared, Bomber Command needed faster targeting photography than the 67th Wing often provided. For these reasons Bomber Command directed the 91st Squadron in January 1952 to convert to night operations and to prepare to reassume responsibility for bomber reconnaissance in northwestern Korea. Tests soon showed that the RB-45's could not be used for night photography because they buffeted too badly when their forward bomb bay was opened to drop flash bombs. From here on out the jet reconnaissance bombers would be used for reconnaissance trips to northeastern Korea, where MIG's seldom were sighted. As the 91st Squadron began to try to convert its RB-29's to night photography, each problem encountered appeared to be individually solvable, but when the problems were met in a system they reacted together to produce new difficulties, almost in geometrical progression. For safety's sake and to receive shoran guidance over northwestern Korea, the RB-29's had to operate at altitudes above 20,000 feet. From such heights the M-46 photoflash bomb did not afford suffi-

cient illumination and the standard night cameras could not secure photography of a scale large enough for photographic interpretation. In July 1952 the 91st Squadron received the M-120 photoflash bombs which were powerful enough for its purposes, but in spite of almost every conceivable experiment the 91st Squadron never secured a long focal-length camera installation which would allow it to perform dependable large-scale photography at night. "With equipment available within this organization," stated Lt. Col. Vincent M. Crane, the 91st's commander, "the capability to take high-altitude large-scale night photography with consistently acceptable results does not exist."[23]

According to Strategic Air Command procedures, B-29 strike crews secured strike photography of the targets they bombed in order to reveal the effectiveness of the effort. When they began to fly at night in October 1951, the Bomber Command crews had even greater need for strike photography because they could no longer visually observe and report the results of their missions. At first the bomber wings attempted to use their standard day cameras in an "open flash" arrangement to secure strike photographs from illumination provided by M-46 photoflash bombs. These cameras produced pictures of a desirable scale, but the negatives displayed much image motion. First to realize that largeness of scale was not so important in strike photography as was the clearness of picture, the 98th Wing pioneered in the employment of standard short-focal-length night cameras, whose photoelectric shutters were tripped by the light of M-46 flash bombs. In the autumn of 1952 Bomber Command standardized on the employment of standard night cameras and M-120 photoflash bombs for strike photography. The improvisation did not produce consistently satisfactory results, and the scale of the photography was too small for photographic interpretation, but the strike photos were usually good enough to permit mission assessors to estimate the success of a strike and the proficiency of an aircrew. In some cases, where bomb damage assessment photography was not rapidly accomplished by the 67th Wing, the B-29 strike photos often indicated whether a quick follow-up strike might be needed.[24]

Deficient in photographic aircraft, plagued by technical problems, and charged to provide strategic reconnaissance in addition to its regular mission, the 67th Tactical Reconnaissance Wing consistently met the requirements laid upon it up until June 1952. Recognizing its token contributions to the Joint Photo Center, the Eighth Army had arbitrarily limited its photo requirements to 1,229 negatives and 5,000 prints a day, and this limitation had lightened the 67th Wing's burden. In July 1952, however, the Eighth Army obtained its long-awaited 98th Engineer Aerial Photo Reproduction Company. Stationed in Seoul, the engineer company gave the Eighth Army a planned capability for handling 5,900 negatives and making 25,000 photographic prints each day. If the ground fighting broke out again in Korea, the Eighth Army estimated that it would require 4,900 negatives a day, but as long as the static ground front prevailed the Eighth Army wanted the Fifth Air Force to provide 3,600 negatives each day.[25] Most of the Eighth Army's expanded photographic requirement was for vertical mosaic surveillance photo cover of the enemy's territory behind his front lines.[26] Recognizing in August that the 67th Wing would be

Colonels Edwin S. Chickering (seated) and Russell A. Berg review aerial photographs at the 67th TWRg in Korea.

hard-pressed to accomplish the expanded requirements for surveillance photography along the Eighth Army's abnormally long front, the Fifth Air Force attempted to effect better economies in the use of available photo aviation. At the suggestion of the Fifth Air Force, the Eighth Army agreed to cooperate in the establishment of a Reconnaissance Branch in the Joint Operations Center, an agency which was mentioned in official air-ground doctrine but which had not been established in Korea. As organized early in September 1952, the Reconnaissance Branch of the Joint Operations Center did little more than centralize the exercise of various duties previously accomplished by other agencies, but the centralized control of the requests for and the scheduling of reconnaissance missions resulted in surprising economies. Following a review of recurring photo-target lists by the Reconnaissance Branch, for example, Bomber Command agreed to delete its requirements for continuing surveillance over many targets at which the enemy had long been inactive.[27]

At a joint reconnaissance conference held in Seoul in August, Fifth Air Force officers worked out an amicable arrangement for the accomplishment of the Eighth Army's surveillance photography. In a war of fluid ground movements the Fifth Air Force accepted the concept that front-line photo cover to the depth of 15 miles within enemy territory ought to be flown daily, as should deep cover of approximately 10 percent of the Army's area of responsibility farther behind enemy lines. The

ground war was not active, however, and the 67th Wing could not cover the Eighth Army's long front lines so often. The Fifth Air Force accordingly agreed to fly front-line cover once a week. In addition to the front-line cover, the Eighth Army's corps were interested in another band of enemy territory running from the 15-mile line to a depth of 30 miles behind the main line of resistance. The Fifth Air Force agreed to fly corps area photo cover three times monthly. For its own part, the Eighth Army claimed an interest in everything from the front lines to the Yalu, but it was willing to settle for photo cover over hostile territory northward from the battlelines to the main supply route connecting Pyongyang and Wonsan. The Fifth Air Force agreed to cover the army area of interest as often as practicable, which turned out to be once every ninety days.[28] Because the 67th Wing could not practically fly all front-line or corps cover in a given day and because some sections of the Eighth Army's front were more vulnerable to enemy attack than others, the Fifth Air Force and Eighth Army agreed to continue to employ block-cover scheduling. The 30-mile zone of enemy territory was subdivided into two tiers of territorial blocks, each about 15,000 meters square. The result was 27 blocks, each of which could be normally photographed at a scale of 1:6,000 or 1:7,000 by a single RF-80 sortie. The Eighth Army G-2 Air in the Joint Operations Center determined the priority in which the blocks would be covered, making his decisions in context with enemy activities.[29] Approximately 30 percent of the Fifth Air Force's photo capability was committed to the front-line and corps surveillance cover on the schedules agreed upon, and the decision not to fly photo cover more frequently was a calculated risk necessitated by a shortage of reconnaissance capabilities.[30]

Even though these arrangements were amicably negotiated, Fifth Air Force and Eighth Army officers soon began to dispute two separate problems concerning photography. One dispute arose from the Eighth Army's rigid requirement for 3,600 photo negatives a day, regardless of weather or the length of daylight. With the beginning of the short days of winter, the Fifth Air Force asked the Eighth Army on 1 November 1952 to reduce its negative requirement to 2,400 a day. The Eighth Army's G-2 Air was willing to accept the fact that the Fifth Air Force could provide only 2,400 negatives a day but insisted that the requirement for 3,600 negatives remain unchanged. Acting on its own for planning purposes, the Fifth Air Force reduced the number of negatives to be delivered to the Eighth Army to 2,400 a day, and during November it actually provided an average of 2,000 negatives a day to the Eighth Army.[31] The second matter of dispute had to do with the scales of photography which were to be considered as acceptable for photographic interpretation. The Fifth Air Force accomplished the Eighth Army's surveillance cover at scales of 1.6,000 or 1:7,000, which was the same scale the Air Force used for target photography. In World War II such scales as these had been the optimum size for photographic interpretation, but jet photo aircraft in Korea flew too fast for their cameras, and most photography was marred by a slight image motion blur. Air Force photo interpreters had learned to live with the problem, for slightly blurred photography was better than none. In September 1952 Eighth Army interpreters incorrectly assumed that larger image sizes would improve

their visual acuity and suggested that they would like to have 1:3,000 scale surveillance photography.[32] Confronted by a loss and damage rate which was high for reconnaissance aircraft in October 1952, General Barcus issued the rule that reconnaissance crews would fly at altitudes of not less than 9,000 feet when within 30,000 yards of the front lines and at heights of not less than 12,000 feet over any heavily defended target. Under this rule Marine Banshee jets, which mounted a 24-inch oblique camera, could still take a few of the oblique photographs that the Eighth Army wanted from high altitudes, but Fifth Air Force planes were no longer able to accomplish Army requests for large-scale special photography or oblique photography, since most of these photo objectives were along the front lines. On 1 November the Fifth Air Force accordingly notified the Eighth Army that "only in rare instances...with ample justification" would it accept requests for 1:3,000-scale photography or low-level obliques within 30,000 yards of the front lines.[33]

After much discussion Fifth Air Force and Eighth Army officers cleared up some of the controversy, though not to the complete satisfaction of either side. Instead of arbitrarily defining its requirements in terms of so many negatives a day, the Eighth Army agreed to submit valid and justifiable requests for aerial reconnaissance to the Reconnaissance Branch of the Joint Operations Center, where final acceptance or rejection would be made. In a compromise concerning photographic scales, the Fifth Air Force agreed to fly front-line cover every fourth week and corps cover once a month at a scale of 1:5,000. At other times the scale would normally be 1:7,000. In the front-line areas, where reconnaissance planes were exposed to heavy ground fire, the Fifth Air Force could not ordinarily agree to accept requests for photos in scales larger than 1:4,000 or for oblique photographs which would require flight altitudes of less than 9,000 feet. In the event of a ground emergency, the Fifth Air Force promised to review all these operational restrictions. The Eighth Army tacitly agreed to all these policies, but the G-2 Air consistently continued to request more photo sorties than the Fifth Air Force could fly. And the G-2 also continued to request low-level oblique photography, explaining that he did not wish to discourage field commanders from seeking such photography as they needed.[34]

Despite the fact that the 67th Tactical Reconnaissance Wing was handicapped by the failure of USAF reconnaissance systems to keep pace with the requirements of a jet air age, it nevertheless far outstripped all existing reconnaissance performance records. In Europe during World War II the highest number of sorties flown in any month by a Ninth Air Force reconnaissance group was 1,300 in April 1945. In Korea the 67th Group flew 2,400 sorties in May 1952. From D-day to VE-day in Europe, the sortie rate of the average Ninth Air Force reconnaissance group was 604 sorties a month, but in the 12-month period of April 1952 through March 1953 the 67th Group averaged 1,792 sorties per month. In these same comparable periods the photo group which supported the Third U.S. Army in Europe made 243,175 negatives, while the 67th Group in Korea made 736,684 negatives. Since the 67th Wing accomplished far more reconnaissance than did similar units in World War II, it would be logical to assume that it more than satisfied requirements laid upon it.

A C-124 Globemaster soars past Mount Fuji, Japan.

Such, however, was not true. In March 1953, for example, the Fifth Air Force furnished the Eighth Army with 64,657 photographic negatives representing a several-time coverage of 129,314 square miles of Korean soil, and yet the Eighth Army counted its requests as being only 75 percent accomplished. Thus, while reconnaissance units in Korea flew more sorties and accomplished more photography than ever before, a still larger amount was requested. At the end of the Korean war, moreover, Eighth Army representatives said that reconnaissance requirements would be even greater in future wars. Calculating requirements on the basis of a 75-mile front and a 1:5,000 scale, Eighth Army planners stated that a field army would require 5,000 photographic negatives a day in defensive situations and 6,000 negatives a day during offensives. After examining these requirements, FEAF doubted that the national resources could sustain such an immense reconnaissance effort in a future global conflict, unless other forces could be reduced proportionately with the increased expenditure for reconnaissance.[35]

2. Flexible Air Transport Sustained Combat in Korea

As employed in Korea, the FEAF Combat Cargo Command and the 315th Air Division represented a new concept in transport aviation—one fleet of cargo planes was to be sufficiently flexible to handle airborne assault and air-dropped resupply as well as airlanded movements of cargo and personnel. Maj. Gen. William H. Tunner and his staff officers brought the concept to Japan when they organized the FEAF Combat Cargo Command (Provisional) on

26 August 1950. After the provisional organization proved its merit, it was replaced by the regularly constituted 315th Air Division (Combat Cargo) on 25 February 1951. With the passing months command of the 315th Air Divison devolved successively upon Brig. Gen. John P. Henebry (8 February 1951), Colonel Cecil H. Childre (26 February 1952), and Brig. Gen. Chester E. McCarty (10 April 1952),* but the basic organizational concept of the theater airlift effort did not change. Each of the commanders was dedicated to the principle that given direct responsibility to the theater air commander and continuous centralized control over subordinate transport units, a single airlift command with one fleet of aircraft could successfully carry out all airlift missions. Centralized control and responsibility and flexible airlift were the answer to reliable and adequate air transportation.[36]

Under the Far East Command air-transport control and priorities system established in August 1950 and continued throughout the war, whereby the Far East Command Joint Air Priorities Board allocated airlift capacity to using commands in tonnages and the Joint Airlift Control Organization (JALCO) made known the priorities of air-transport movements,† the 315th Air Division was not concerned with the allocation of its airlift capabilities, or with the designation of priorities for the movements of individual shipments of men or materiel. But the 315th zealously maintained its responsibility for determining how it would most efficiently execute its assigned tasks. Organizational actions within the 315th varied according to the transport task being performed, but all missions were closely scheduled, controlled, and reported. The 315th's Transport Movement Control section functioned as a nerve center which directed the movement of all transport aircraft. Other headquarters sections assisted in planning and ordering missions, but Transport Movement Control monitored and controlled all airlift operations. If a day's operations did not proceed as scheduled, the duty officer in Transport Movement Control made decisions to change the plans. When unforeseen circumstances, such as unfavorable weather, interrupted cargo lifts, the Transport Movement Control duty officer made immediate readjustments after consultation with the Army or Air Force coordination officer in JALCO. Transport Movement Control possessed communications which permitted it to reach aircraft in flight or on the ground in Korea and to divert them where they were needed.[37]

Centralized scheduling and continuous control permitted the 315th Air Division's small fleet of transport aircraft to accomplish what may well have been "the greatest airlift." During the Korean hostilities the 315th Air Division and its predecessor command employed an average of 210 possessed transports (of which an average of 140 were kept combat ready) and flew 210,343 sorties. These sorties lifted 307,804 medical air-evacuation patients, 2,605,591 passengers, and 391,763 tons of air freight. Altogether, the 315th Air Division and the FEAF Combat Cargo Command flew 15,836,400 ton miles and 128,336,700 passenger miles.[38] The concept of flexible air transport stood the 315th Air Division in good stead as it managed the changing transport tasks presented to it during the Korean

*General McCarty was promoted to Major General on 23 June 1953.
†*See* Chapter 5, pp. 154-156.

Personnel boarding a C-119 at the Air Logistic Force's 6148th Depot Wing in southern Japan for the trip to Korea.

hostilities. As a general rule, the major work of the 315th Air Division was to transport airlanded cargo and personnel to and from Korea and Japan.* Whenever possible, the 315th Air Division attempted to schedule two-way traffic with Korea. Thus transport aircraft which laid down air cargo at Korean airfields lifted air-evacuation patients back to hospitals in southern Korea or in Japan. During the months of heaviest ground fighting medical air evacuation casualties dominated the outbound passenger lists, but with the beginning of the truce talks in July 1951 casualties took a sharp drop and the outbound transport space was utilized for an expanded rest and recreation troop movement to Japan. The Eighth Army had instituted "Operation Relax" on 30 December 1950, whereby some 200 battle-fatigued men were given five-day passes to Japan each day, and FEAF inaugurated a similar program for its people in Korea on 19 January 1951. The Far East Command standardized the "R&R" program on 18 September 1951, when it ordered that "packets" of 46 persons with an officer or noncommissioned officer in charge would be airlifted. During 1952 the "R&R" traffic amounted to a substantial portion of all persons airlifted, and by the end of June 1953 the 315th had lifted 800,000

*Effective on 1 May 1951, the 315th Air Division reassumed the responsibility for operating the scheduled interisland flights in the Far East, which had been taken over temporarily by the Military Air Transport Service in July 1950. These flights connected Japan with Iwo Jima, Guam, Okinawa, Formosa, and the Philippines.

"R&R" passengers between Korea and Japan—enough people to populate a city the size of Boston, Massachusetts.[39]

In addition to its scheduled flights which lifted cargo and passengers, the 315th Air Division airlifted entire Army and Air Force tactical organizations and their equipment. Observing early in the war that unit air movements were nearly always emergencies, the 315th Air Division prepared a uniform plan for air movement and sent out instructional teams to lecture and to assist units in preparing air-mobility plans. A comprehensive booklet, entitled *Here Today—Gone Tomorrow*, was distributed in the Far East Command. Although experience showed that Air Force and Army tables of unit equipment were not completely suited to air movements, the 315th nevertheless managed some highly effective unit movements. An outstanding example was the 315th's "off-the-cuff" movement of the 187th Airborne Regimental Combat Team from Ashiya and Brady airfields to Pusan East Airfield (K-9), whence the paratroopers went by landing ship to quell rioting prisoners of war at Koje-do. Alerted at 0900 hours on 16 May, the last of 160 transport planes landed at Pusan at noon on 17 May 1952, completing a lift of 2,361 persons and 889.1 tons of equipment, including mortars, vehicles, weapons, and ammunition. The largest single airlift of an Air Force unit extended over a three-week period beginning on 8 July 1952, when the entire 474th Fighter-Bomber Wing was moved by air from Misawa Air Base in northern Japan to Kunsan Airfield (K-8) in western Korea.[40]

The tactical situation in Korea made for periodicity in movements of air-dropped and airlanded supplies to Korea—the former being more important in fluid ground warfare and the latter being more reliable and always practiced when the tempo of ground fighting permitted. Although supply from the sky for fighting ground troops was not new, the Korean battles of 1950 and 1951 required the greatest airdrop resupply operations in history. Successful accomplishment of drop techniques allowed the 315th to assert: "Air drops have replaced the glider. We drop anything by parachute that can be loaded into a glider with less ... loss of life and equipment." At Ashiya the 2348th Quartermaster Airborne Air Supply and Packaging Company and the successor 8081st Army Unit packaged, loaded, and lashed; and provided the trained "kickers" who ejected the cargo over drop zones in Korea. As the 315th was free to admit, airdrops were not always "a big, howling success." A 10 percent loss of airdropped supplies was assumed, but the 315th calculated actual losses at something less than 3 percent. One of the major problems in airdropping supplies was poorly marked or inaccessible drop zones. No small part of these troubles was caused by the ground troops' lack of training in airdrop procedures. Late in June 1951 a 315th liaison party visited Eighth Army battalions and briefed personnel responsible for selecting and marking drop zones. The 315th Air Division also prepared a pamphlet, entitled *Supply from the Sky*, which was of educational value to the ground units. This training, however, came too late to be of great value, for with the beginning of the truce talks in July 1951 the 315th Air Division received few calls for air-dropped supplies. In order to maintain its proficiency, the 315th continued to fly each month a few "Aching-Back" supply drops, which delivered supplies to isolated Fifth Air Force radar

C-119's drop paratroopers of the 187th Regimental Combat Team during a simulated assault on a Korean drop zone.

stations and shoran beacon units.[41] The periodicity of the airlanded and air-dropped supply requirements ultimately indicated the need for some reorganization of the 6127th Air Terminal Group, which loaded and unloaded airlanded cargo, and the 8081st Army Unit, which loaded, lashed, and kicked airdropped cargo. When one of these organizations worked hardest, the other had reduced responsibilities, and General Henebry urged that the Air Force ought to develop an aerial port squadron which could perform all necessary airlift functions. After maneuver tests in the United States, the Army and Air Force agreed on 23 December 1952 that the Air Force should load and eject airdropped cargo. Well after the end of Korean hostilities, on 8 February 1955, the 6127th Air Terminal Group was replaced by a new-type 7th Aerial Port Squadron.[42]

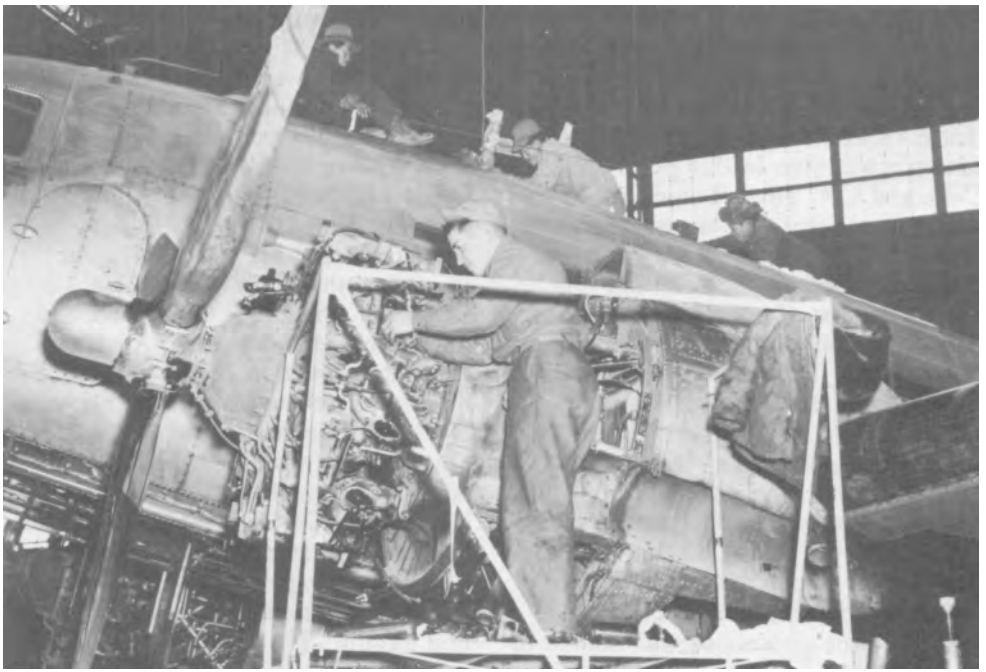
The real test of the validity of the 315th Air Division's concept of flexible airlift came when it twice engaged in airborne assault operations in Korea—the airborne attack at Sukchon-Sunchon in October 1950 and at Munsan-ni in March 1951. Prior to Korea most airborne leaders believed that airborne operations required a joint airborne headquarters with operational control over attached airborne and troop-carrier units. Such a concept—which visualized that air and airborne units should live, train, and operate together for long periods of time—was too expensive of a scarce air-transport effort to be followed in Korea. The successful management of the airborne assault missions in Korea was primarily attributable to an always harmonious relationship between the 315th Air Division and the 187th Airborne Regimental Combat Team. A permanent exchange of liaison officers linked the two headquarters, and small-scale

airborne training was constantly under way except when the 187th was fighting in Korea. For the execution of airborne attacks the 315th Air Division learned that it required a minimum of 72 hours' advance warning. In this period C-119, C-46, and C-47 aircraft stood down for maintenance and then marshaled at the forward airfield from which the operation would be launched. Within this same period staff planners of the 315th and 187th drew up necessary operations orders. The 315th also arranged for such combat support as was required from the Fifth Air Force. Since only some of its planes were needed for the airborne operation, the 315th continued its larger planes on air-transport tasks during the several days required to launch and resupply the airborne troops. While its experience with airborne operations was limited to the airlift required to lift, drop, and resupply a single airborne regimental combat team, the 315th Air Division was confident that its flexible procedures could be "successful where airborne units of army size and a considerable number of transport groups are employed."[43]

The concept of flexible air transport enabled one small fleet of air transports to accomplish all theater airlift tasks, but the 315th Air Division nevertheless long knew the consequences of the hurried deployments of a heterogeneous collection of troop-carrier units to the Far East in 1950, some permanently and some supposedly for a short stay of temporary duty. At its activation in January 1951 the 315th Air Division assumed command or control over Colonel Troy W. Crawford's 374th Troop Carrier Wing, with two squadrons of C-54's at Tachikawa; Colonel Frank Norwood's 61st Troop Carrier Group, with three squadrons of C-54's at Ashiya;* Colonel John R. Roche's 437th Troop Carrier Wing, with four squadrons of C-46's at Brady Air Base; Colonel Richard W. Henderson's 314th Troop Carrier Group, with four squadrons of C-119's at Ashiya Air Base; and the 374th Wing's 21st Squadron which flew C-47's and was for the moment at Itazuke Air Base. Upon its arrival on 26 November 1950 the Royal Hellenic Air Force Flight No. 13 had been attached to the 21st Squadron, as would be the Royal Thai Air Force Detachment for a time when it arrived on 24 June 1951.[44]

The deployment of the 315th Air Division permitted a maximum utilization of the varied characteristics of its unit aircraft. The C-54's performed most efficiently on long hauls and were the major personnel and cargo carriers and air-evacuation planes. At Tachikawa the 374th Wing was able to airlift the men and supplies pouring into Haneda International Airport and the port of Yokohama. At Ashiya the 61st Group was near the Kokura general depot, from which large quantities of combat materiel were lifted to Korea. The C-119's were the planes best fitted for airborne and airdrop operations, and their roomy and rear-loading cargo compartments could accommodate bulky loads with ease of handling. At Ashiya the 314th Group was near the Kokura depot and the home camp of the 187th Airborne Regimental Combat Team. The old C-46's could haul cargo and personnel and were able when need be to drop paratroopers or parasupply bundles. At Brady the 437th

*Hurriedly dispatched to Japan in December 1950, the 61st Group brought two of its own squadrons and the 4th Squadron which belonged to another group. This anomalous situation was remedied on 16 November, when the 4th Squadron's designation was returned to its parent group and the 14th Squadron's designation was transferred to Japan.



A C-47 undergoes a 2000-hour inspection at a repair hangar of the 18th Fighter Bomber Wing in Korea.

Wing was near its sources of cargo. The ancient C-47's of the 21st Troop Carrier Squadron customarily hauled cargo to the small combat airstrips of Korea. Employed where it was needed, the 21st "Kyushu Gypsy" Squadron during 1951 alone was located at Itazuke, Tachikawa, Taegu, Kimpo, and Ashiya.[45] Each aircraft type possessed by the units of the 315th Air Division had special characteristics, and by its unit deployment the 315th attempted to locate the various aircraft types for the most efficient performance of what they could do best.

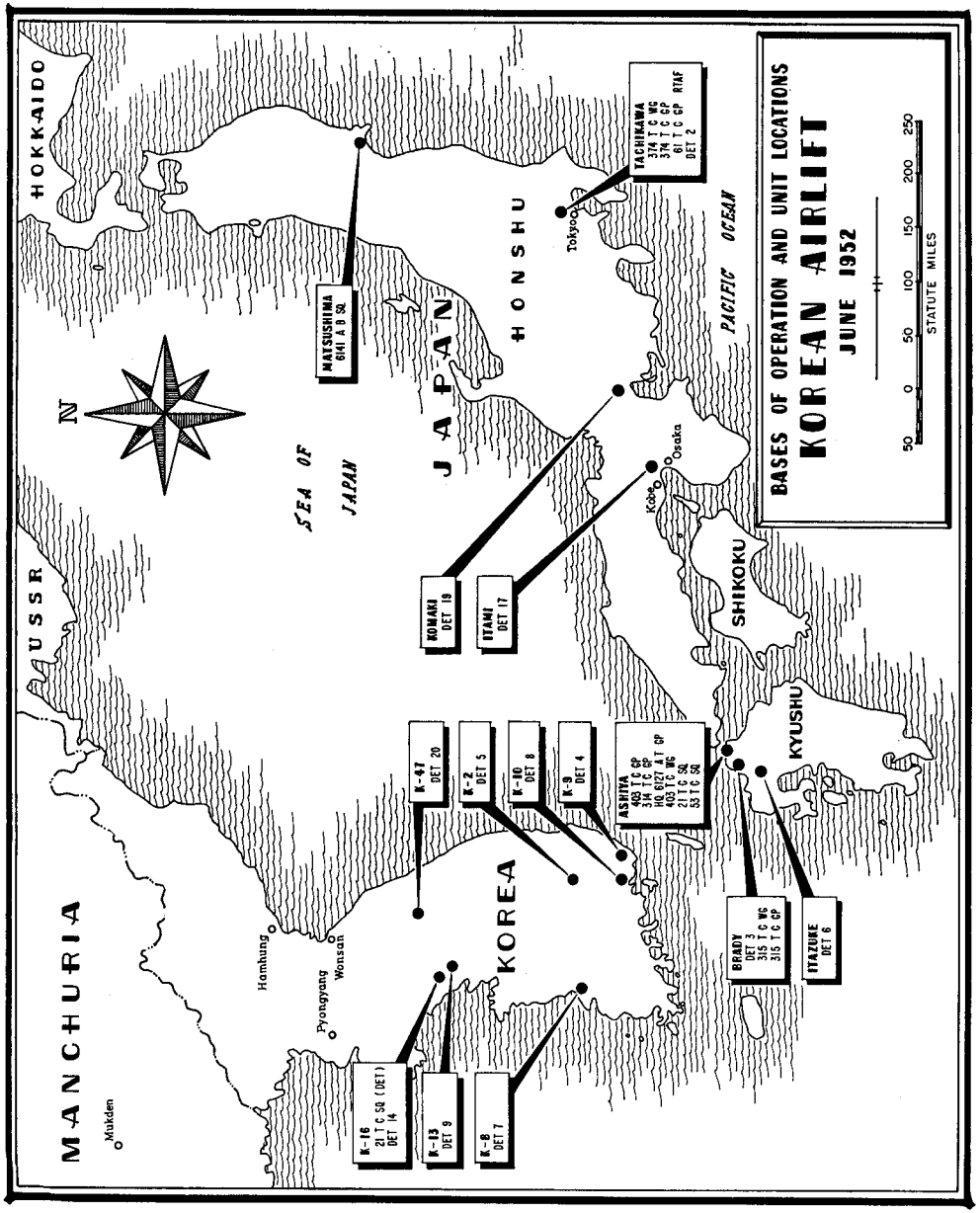
Looking back at the Korean war, General McCarty remarked that the needs of flexible theater air transport could have best been served if the 315th Air Division had possessed specially designed "all-purpose theater-airlift type" aircraft which could have performed any theater airlift task and could have been easily diverted from one task to another.[46] During 1951 and 1952 the 315th Air Division sought solutions for problems arising from its several types of aircraft and the logistical support available for these aircraft. Initially established as an operational headquarters, the FEAF Combat Cargo Command lacked logistical capabilities, and the 315th Air Division long suffered the consequences. At Ashiya Air Base the 6122d Air Base Group provided services to the 61st and 314th Troop Carrier Groups. With only 704 troop spaces, in its table of distribution, the air-base group maintained a base with a population approaching 5,000 men. After General Henebry long argued the case FEAF eventually allowed a redesignation creating the 6122d Air Base Wing

at Ashiya effective on 5 November 1951, but the new organization continued with the same manning as the group had because FEAF could authorize no additional personnel.[47] The deficient logistical support structure at Ashiya combined with insufficient USAF supply-support programming to send the serviceability rate of the C-119 Flying Boxcars plummeting downward. The loss of more and more C-119's from the airlift reduced the 315th's capability for air-assault operations. From the beginning of its employment in Korea, despite its augmentation with a fourth squadron, the 314th Troop Carrier Group had never possessed strength enough in C-119's to launch the 187th Airborne Regiment in one lift.[48]

Aside from the logistical concerns of his command, General Henebry pointed out in April 1951 that he was operating old-type transport aircraft. He argued that if he had more modern aircraft with larger load capacities, he could accomplish his mission with fewer planes, crews, and less congestion of the crowded airfields in the Far East. In order to test Henebry's hypothesis, USAF ordered the Air Proving Ground Command to send a giant Globemaster C-124 to Japan for service tests. Beginning on 27 September 1951, the C-124 made 26 flights to and from Korea, carrying an average cargo load of 34,400 pounds, or double the maximum carried on the same runs by C-54's. When the results of these tests seemed favorable, Henebry asked USAF to hasten the conversion of the 374th Troop Carrier Wing from C-54's to C-124's, which was already programmed to occur in the autumn of 1952.[49]

In October 1951 USAF proposed a troop-carrier reorganization plan which sought to meet many of the 315th Air Division's unit organizational problems. In order to provide a wing-base structure for Ashiya Air Base, USAF proposed to trade a new C-119 wing for the 61st Troop Carrier Group. With two C-119 groups, each with three squadrons, the 315th Air Division would be able to handle the 187th Regiment in one lift. At Ashiya the C-119 wing structure would support both C-119 groups. As Henebry wished, USAF agreed to speed the conversion of two squadrons of the 374th Troop Carrier Wing to C-124 aircraft by beginning the transfers of planes in May 1952. When this proposition matured into a plan, it was changed in a few respects. The 403d Troop Carrier Wing, which had been recalled to federal service at Portland, Oregon, on 1 April 1951, would be transferred to the theater less aircraft, and it would initially share the aircraft held by the 314th Group. The latter's group's extra 37th Squadron would be returned to the USAF on paper, and the two C-119 groups would each be authorized three squadrons with a total of 48 C-119's as unit equipment. In order to keep one C-54 squadron in the Far East, USAF agreed that the 374th Wing could retain one of the 61st Group's squadrons which would be redesignated as the 21st Squadron. The old 21st "Kyushu Gypsy" squadron would be replaced by a table of distribution unit which would continue to fly C-47 aircraft. Beginning in the spring of 1952, the reorganization would be effected over a period of several months.[50]

The reorganization of the 315th Air Division's subordinate units began on 10 April 1952, when Brig. Gen. Chester E. McCarty, who had commanded the 403d Wing since its recall to federal service, assumed command of the 315th Air Division. At Ashiya Air Base Colonel Philip H. Best discontinued the


BASES OF OPERATION AND UNIT LOCATIONS
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MATSUSHIMA
6141 A B SQ
TACHIKAWA
374 T C WG
374 T C GP
61 T C GP RTAF
DET 2
KOMAKI
DET 19
ITAMI
DET 17
ASHIYA
HQ 6127 A T GP
374 T C GP
HQ 6127 A T GP
403 T C WG
21 T C SQ
53 T C SQ
K-47
DET 20
K-2
DET 5
K-10
DET 8
K-9
DET 4
K-16
21 T C SQ (DET)
DET 14
K-13
DET 9
K-8
DET 7
BRADY
DET 3
315 T C WG
315 T C GP
ITAZUKE
DET 6

6122d Air Base Wing on 14 April 1952 and simultaneously assumed command of the 403d Troop Carrier Wing, which comprised personnel of the 403d Group transferred physically from Portland and personnel and equipment of the 314th Group which was already in the theater. Since Colonel Best had been named to attend the Air War College, Colonel Maurice F. Casey, Jr., took command of the 403d Wing on 15 May 1952, and immediately attacked the problem of restoring the faltering operational capabilities of the Flying Boxcars.[51] Colonel Casey's task was not enviable, for only 28 out of 71 C-119's were in commission during June 1952 and none of these planes were counted to be actually safe for flying. Stern measures being required, General Weyland on 19 June informed General Clark that the Boxcars would have to be relieved from all routine airlift employments. Although FEAF and the 315th Air Division had long urged remedial action for the C-119 situation, the collapse of these aircraft finally brought strong logistical support. The USAF Air Materiel Command prodded manufacturers who had been delinquent in delivering spare parts and expedited deliveries of the needed spares to Japan. The USAF Tactical Air Command provided deliveries of serviceable and newer model C-119's, permitting the 403d Wing to return some of its "maintenance hogs" to a newly opened modification center in Birmingham, Alabama, for complete reconditioning. On 2 September 1952 Colonel Casey announced the beginning of a month-long "Operation Get Ready" which he hoped would put a standard 75 percent of the wing's aircraft in commission. Spurred by this challenge, the 403d Wing got its in-commission rate up to 60.2 percent in September, and the growing airlift capabilities allowed Colonel Casey on 12 September to release the 53d Troop Carrier Squadron whose C-54's had been the main airlift capability out of Ashiya during the summer, for return to the United States with the 61st Group. In October 1952 the 403d Wing was able to participate in the airborne feint which was a part of the United Nations Command amphibious demonstration off eastern Korea.[52]

The Flying Boxcar C-119's continued to present logistical and operational problems, but these planes never again lost their airlift capabilities. On 1 January 1953, when the reservist 403d Wing was relieved from the federal service and replaced by the 483d Troop Carrier Wing, Colonel Casey still possessed 46 of the original C-119's which had come to Japan in 1950. Many of these planes were now so decrepit that they contributed little to airlift capabilities. As a class, moreover, the Flying Boxcars continued to be temperamental aircraft. Because of landing-gear weaknesses, the C-119's were not allowed to lift more than six tons of cargo to Korea. Propellers, like landing gears, were weak articles on the C-119's, for they had hollow steel blades which developed infinitesimal cracks and then failed in flight. As a result of a sweeping investigation held following the loss of a C-119 in March 1953 because of propeller malfunctions, General McCarty decided to bar C-119's from carrying passengers, but he allowed them to continue to haul cargo and to engage in airborne training with paratroopers, who knew how to parachute to safety if they had to do so. Benefiting from a favorable receipt of replacement C-119's, the 483d Wing attained its unit-equipment allocation of 96 C-119's in April 1953. With improving supply support and the receipt of newer C-119's as replacements, more-

Seven tons of fresh fruit will be loaded into this C-119 for delivery to frontline units in time for Christmas, December 1952.

over, the 483d Wing's technicians were able to check many minor discrepancies before they could grow to major proportions. During the first half of 1953 the 483d Wing kept 67.2 percent of its aircraft continuously in commission, and in June 1953 it had 78.8 percent of its C-119's in commission.[53]

At Tachikawa Air Base Colonel C. W. Howe began the conversion of the 374th Troop Carrier Wing to C-124 Globemasters, and Colonel J. W. Chapman, who became wing commander on 9 August 1952, completed the job. Preparatory to the conversion, the 61st Troop Carrier Group moved with its 15th Squadron from Ashiya to Tachikawa on 26 March, in order to continue the airlift while the 374th Group's two C-54 squadrons stood down during conversion. The 374th Wing used the six C-124's it received in May 1952 for transition training and assigned the seven it received in June to its 6th Troop Carrier Squadron. General McCarty piloted the first operational Globemaster flight from Japan to Korea on 3 July, and by 25 August these huge planes were scheduled on a one-per-day flight between Tachikawa and Korea. At the end of September the 374th Wing had 26 C-124's and was up to unit equipment plus combat support strength. According to agreement, the 61st Group and its 15th and 53d Squadrons began to phase its C-54's out of the airlift on 1 November and were officially relieved for return to the United States on 21 November. Remaining at Tachikawa, the 14th Squadron was redesignated as the 21st Squadron on 1 December 1952,

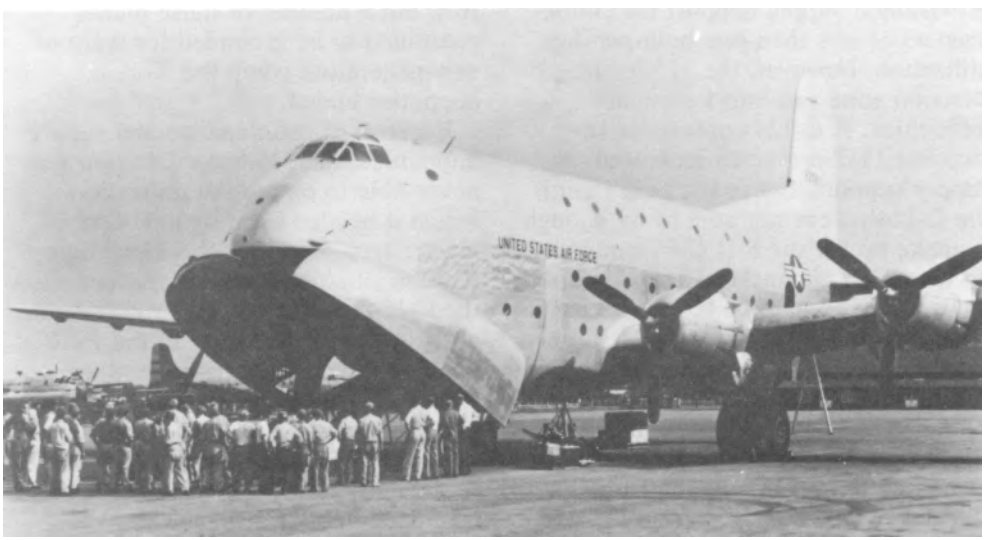
at which time the 6461st Troop Carrier Squadron was organized at Ashiya to receive the personnel and equipment of the Kyushu Gypsy Squadron.[54]

When it asked for two squadrons of C-124A Globemasters, the 315th Air Division had been willing to pioneer into the unknown. The giant aircraft was designed to gross 175,000 pounds on takeoff, but only Kadena Air Base could handle such a load weight in the Far East. Fearing damage to its fields, the Fifth Air Force would allow the C-124's to land only at Kimpo, Taegu, Suwon, and later Osan-ni. In order to keep the Globemasters off its more important tactical fields, the Fifth Air Force employed its aviation engineers and built a heavy-duty runway especially for combat cargo operations at the Seoul Municipal Airfield (K-16). This project was completed on 27 October 1952. Even when limited to a landing weight of 160,000 pounds, the 315th Air Division figured that the Globemasters, given five hours a day utilization, would markedly increase its airlift capabilities. Since USAF had provisioned supply support for Globemasters at less than one-hour-per-day utilization, however, the 315th Air Division soon ran into logistical difficulties. A C-124 conference in October 1952 promised increased supply support, but in the next month the C-124's were not able to fly enough to make up for the lost C-54 capability on the cargo channel between Tachikawa and Korea. As a result, excess air freight from Tachikawa was shipped by rail express to the air terminals in southern Japan and lifted to Korea by C-119's and C-46's. In December 1952 Globemaster supply support was beginning to improve, when suddenly the newer C-124's assigned to the 22d Squadron developed leaks in their gasoline tanks and had to be grounded for repairs. Pending the completion of this work on 17 February 1953, the 6th Squadron used the grounded squadron's personnel and supply support and flew its planes overtime to make up for the lost effort. Everything now went well until 29 May, when a Globemaster's number-two engine caught fire in flight. On 11 June another Globemaster had a fire in one of its engines. General McCarty asked the USAF Air Materiel Command to send out a team to investigate the fires, which were apparently caused by faulty generators. No one realized it but these generator fires portended what would be history's worst air disaster up to the time. On the evening of 18 June 1953 a 22d Squadron Globemaster lost power from an engine on takeoff and spun into the ground, killing all 129 passengers and crewmen. Once again a generator had failed and had fired an engine. After this crash at Tachikawa, Colonel Chapman immediately grounded all C-124's. Following a rigid examination by inspectors, most C-124's were released for flight on 8 July, but a number of these planes continued to be grounded for want of new generators when the Korean hostilities ended.[55]

Because of maintenance and supply difficulties, the 315th Air Division was never able to obtain the utilization which it needed from its new Globemaster transports. At this same time Korean situational factors did not allow the C-124's to develop their maximum airlift potential. Because of the Fifth Air Force's restrictions on landing weight, the C-124 could carry a maximum potential payload of only 36,000 pounds. Because of these same restrictions, most of the Globemaster flights terminated either at Seoul Municipal (K-16) or Taegu (K-2) airfields. As a matter of practice the Korean airlift

sought expeditiously to deliver critical items, and backlogs of cargo seldom developed. Under this circumstance the Globemasters had trouble filling up with 18 tons of permissible cargo. In the interest of flying safety, moreover, General McCarty standardized passenger loadings on the C-124's at 120 persons, well short of the number of people they could have carried. Globemaster payloads accordingly averaged only 24,346 pounds per flight between November 1952 and April 1953. Since most Globemaster flights terminated at Seoul or Taegu, while the Fifth Air Force required daily delivery of small-package loads of air freight and air passengers at its tactical K-sites, the 315th Air Division moved the 6461st Troop Carrier Squadron and the RHAF detachment to Seoul on 1 February 1953 to serve as a feeder airline for the Globemaster route. As the war closed FEAF stated that the C-124 "proved itself a valuable addition to the fleet of transport aircraft." The report noted, however, that an airlift command employing Globemasters would require a balanced capability of smaller transports which could feed air cargo from Globemaster terminals to tactical airfields.[56]

Although classed as obsolete, the 315th Air Division's four squadrons of C-46 aircraft based at Brady Air Base provided a reliable cushion of airlift capability which allowed the division to maintain an adequate airlift in months when the more spectacular Globemasters and Boxcars were in logistical doldrums. In order to return the old designation to the Air Reserve, Colonel Kenneth W. Northamer activated the 315th Troop Carrier Wing with personnel and equipment received from the 437th Wing at Brady on 10 June 1952.[57] Benefiting from good supply support and high-in-commission rates, the 315th Wing carried a heavy workload on a sustained basis, even though a limited

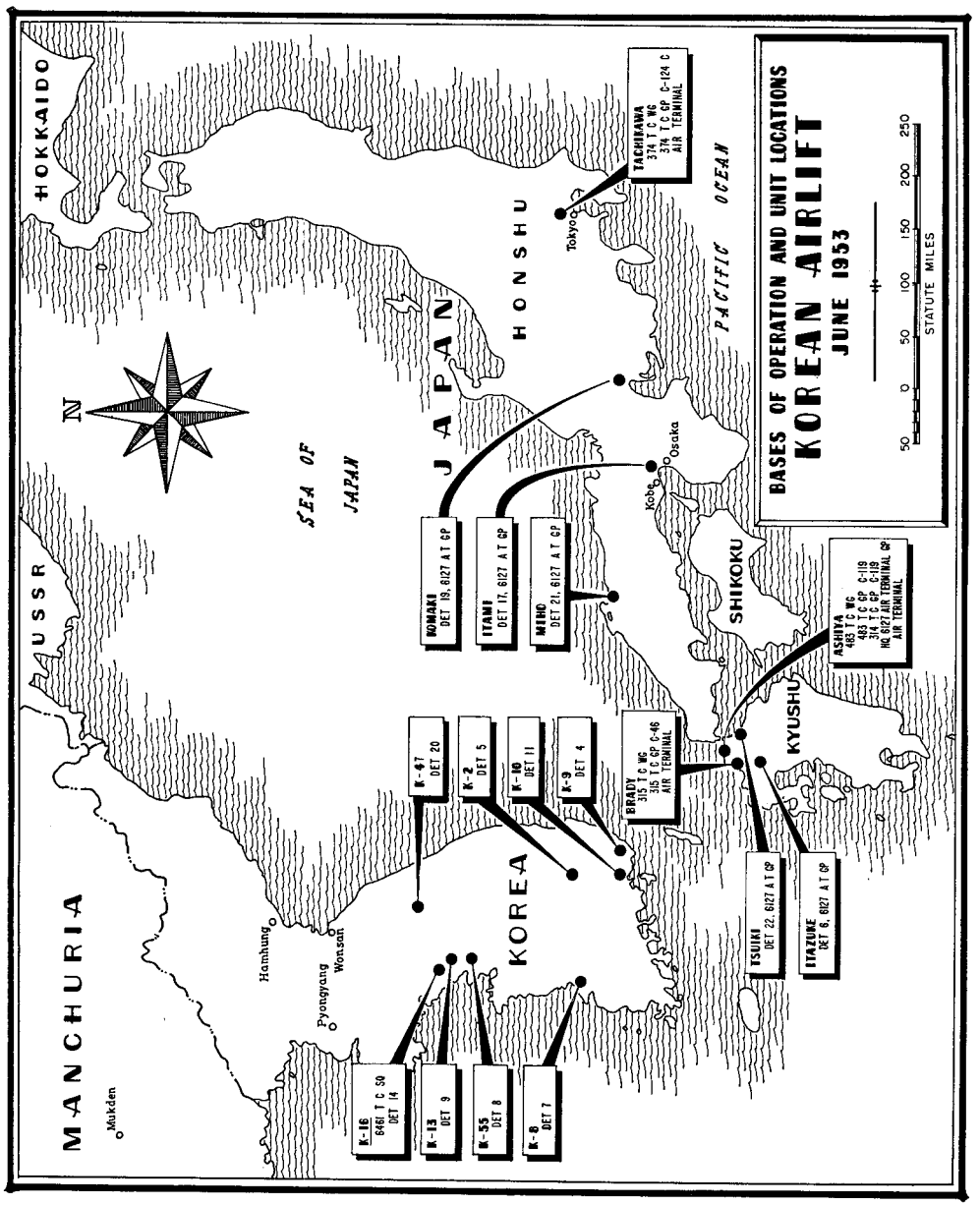


This giant C-124 "Globemaster II" will carry 30 tons of cargo on the Korean airlift.

availability of aircrews and trained mechanic replacements held the C-46 utilization rate down to four hours a day. When necessary, the Commando aircraft could do almost anything. They dropped supplies and paratroops to spell the ailing C-119's. After September 1952, when the C-54's left Ashiya, the C-46's handled routine medical air evacuation between Korea and southern Japan. When the FEALogFor moved its personnel processing center from Iwakuni to Tachikawa and the C-124's could not absorb the extra load, the 344th Squadron moved to Tachikawa on 15 December 1952 to provide airlift for some 200 combat replacements and returnees who moved between central Japan and Korea each day. In March 1953, when the Boxcars were forbidden to carry passengers, the 315th Wing moved all personnel between Korea and southern Japan.[58] But the 315th Wing was the sole remaining USAF organization equipped with the old Commando aircraft, and USAF planned its conversion to C-119's beginning in July 1953. Hearing this news in December 1952, General McCarty admitted that the C-119's were more desirable aircraft than the C-46's under normal circumstances, but he wanted to maintain the old Commando aircraft in service because of their reliability. USAF agreed to postpone conversion until January 1954, but even this was too soon to suit FEAF, which asked permission to keep the C-46's in service until the end of the Korean war. This time USAF was no longer willing to postpone the conversion because the Tactical Air Command was having trouble furnishing C-46 replacement personnel and it would be faced with difficulties in storing the Boxcars ordered for the 315th Wing. As events transpired, the Korean hostilities would be completed before the old Commando C-46's were to be relieved from combat.[59]

At the end of the Korean war General Weyland reported that FEAF had learned three major lessons concerning the command and employment of air-transport aviation: (1) Airlift missions and priorities should be established by the theater commander. (2) Airlift could not be allocated exclusively for the use of any service except for special one-time requirements. (3) All theater airlift should be concentrated to a maximum degree in one command for flexibility and best utilization.[60] Despite the demonstrated validity of these lessons and a recognition that airlift capability was a limited quantity which demanded the most efficient use, these lessons were evidently not accepted by the Navy, or the Army, and not wholeheartedly by the Air Force.

Throughout the Korean war the Naval Forces Far East operated an air-transport organization into and within the Far East theater for fleet logistical support. For a short time in the autumn of 1950 the FEAF Combat Cargo Command exercised operational control over a Marine R5D (C-54) squadron, but Marine transport units which subsequently came to the Far East were exempt from the control of the theater airlift commander. On 30 August 1951, moreover, Marine Helicopter Transport Squadron 161 arrived at Pusan with 15 Sikorski HRS-1 helicopters, and, in accordance with the Navy's wishes, General Ridgway attached the squadron to the 1st Marine Division. In the autumn of 1950 the Navy and Marines accepted approximately 10 percent of Combat Cargo Command's airlift capability, but later, when they had their own airlines in operation, they required something less than 1 percent of the 315th Air Division's capability.[61]


BASES OF OPERATION AND UNIT LOCATIONS
KOREAN AIRLIFT
JUNE 1953
STATUTE MILES
50 0 50 100 150 200 250
HOKKAIDO
HONSHU
SHIKOKU
KYUSHU
JAPAN
SEA OF JAPAN
PACIFIC OCEAN
USSR
MANCHURIA
KOREA
N
Mukden
Hamhung
Pyongyang
Wonsan
Kobe
Osaka
Tokyo
K-16 8461 T C SQ DET 14
K-13 DET 9
K-55 DET 8
K-6 DET 7
K-47 DET 20
K-2 DET 5
K-10 DET 11
K-9 DET 4
BRADY 315 T C WG 315 T C GP C-46 AIR TERMINAL
TSUIKI DET 22, 6127 A T GP
ITAZUKE DET 6, 6127 A T GP
ASHIYA 483 T C WG 483 T C GP C-119 374 T C GP C-119 HQ 6127 AIR TERMINAL GP AIR TERMINAL
BOMARI DET 19, 6127 A T GP
ITAMI DET 17, 6127 A T GP
MIHO DET 21, 6127 A T GP
TACHIKAWA 374 T C WG 374 T C GP C-124 C AIR TERMINAL

USS *Sicily* launches Sikorsky/Marine Corps HRS-1 helicopters off the west coast of Korea.

In the Joint Action Armed Forces agreements of 1948 USAF was assigned a primary responsibility for providing air transportation and airlift support to the United States Army. Throughout the Korean war the Eighth Army always received the largest portion of the theater airlift. Very early in the Korean war, however, it was evident that helicopter aircraft would be of great importance in the front-lines area. Thus on 10 August the USAF Tactical Air Command moved to meet the need for helicopters by drafting requirements for an assault transport wing, which would possess one group of conventional assault transports and one group of rotary-wing aircraft. USAF approved this proposal and placed orders for cargo helicopters.[62] In Korea the Eighth Army also knew the need for more helicopters, which it desired to employ as organic aircraft within its division, corps, and army headquarters. On 20 August 1950 General MacArthur forwarded the request to the Department of Army. Back in Washington the Department of Army not only ordered substantial numbers of utility helicopters for assignment as organic aviation, but it also planned the activation of several transport helicopter companies which were to be equipped with light-cargo helicopters.[63]

According to the Army and Air Force agreements on aviation, "organic" aircraft—which included aircraft used for such purposes as local liaison, artillery spotting, and courier duty—were defined in terms of airframe weight restrictions, so that a "light" airplane could be assumed to be "organic aviation." On 2 October 1951 Army complaints concerning the restrictive nature of these agreements were momentarily allayed by an agreement between Secretary of the Army Frank Pace and Secretary of the Air Force Thomas K. Finletter. The Pace-Finletter agreement deleted references to the weights of organic aircraft and stated that the Army would

possess organic aircraft needed "as an integral part of its components for the purpose of expediting and improving ground combat and logistical procedures within the combat zone." The "combat zone" was the area from 60 to 75 miles rearward of the battleline. The agreement stipulated that the Air Force had a primary function of providing airlift to the Army, but Army aircraft would also transport supplies, equipment, and small units within the combat zone.[64] In the autumn of 1951 Eighth Army officers were impressed with the utility displayed by Marine helicopters in Korea, and in November 1951 General Ridgway asked the Department of Army to provide four Army helicopter transport battalions, each with 280 helicopters. Korea, Ridgway said, had conclusively demonstrated that the Army vitally needed helicopters, and he recommended that the typical field army of the future should have ten helicopter transportation battalions. On a lesser scale than Ridgway proposed, the Department of Army was favorable to the idea that a field army should have helicopter transport units, and it approved an allotment order assigning four helicopter transport battalions, each with three companies, to a field army.[65]

Although the USAF had always recognized the Army's need for organic aviation which could perform necessary liaison functions, General Ridgway's proposals seemed to aim at the establishment of an Army air-transportation force which would operate within the combat zone. Such an objective duplicated functions which were assigned to the Air Force.[66] In an effort to clear up this jurisdictional controversy, the Army and Air Force jointly approved a second memorandum of understanding on Army aviation on 4 November 1952. This second memorandum renewed a weight limitation on fixed-wing Army aircraft, but defined the Army's authorization for rotary-wing aircraft in terms of functions to be performed within the Army combat zone, an area now said to extend 50 to 100 miles behind the front lines. Within this combat zone Army aviation was charged to transport Army supplies, equipment, personnel, and small units. The Air Force would provide airlift for the movement of Army supplies, equipment, personnel, and units from points outside to points within the combat zone; for the evacuation of personnel and equipment from the combat zone; and for the movement of troops, supplies, and equipment in airborne operations into the combat zone.[67] This second memorandum patently recognized the establishment of an Army category of air-transport aviation. It also required the Air Force to program for helicopter squadrons which would be required in airborne operations but which would be surplus to routine airlift operations.

The Army-Air Force agreements on Army aviation actually had little significance in Korea, for the hostilities were in their last stages before either the Army or the Air Force began to receive the cargo helicopters which they had put on order in 1950 and 1951. According to USAF programming, the 315th Air Division was slated to receive a troop-carrier assault wing in 1954,[68] but the end of the Korean war canceled these plans. Desiring to test H-19C Sikorski light-cargo helicopters in combat, the Army sent its 6th Transportation Company (Helicopter) to Korea. In May 1953 the 6th Company used 12 H-19's to supply three front-line infantry regiments for three days in an exercise called "Skyhook." Late in June the 6th and 13th Transportation Companies (Helicopter) formed an air bridge to a regiment

which was cut off from highway support, enabling it to maintain its position against Red attacks. On the basis of these limited experiences, General Taylor stated that "The cargo helicopter, employed in mass, can extend the tactical mobility of the Army far beyond its normal capability. I hope that the United States Army will make ample provisions for the full exploitation of the helicopter in the future."[69]

During the Korean hostilities the 315th Division functioned as theater airlift, and yet the Navy and Marines ran private airlines and the Army secured authority to maintain its own airlift in the combat zone. Had they been permitted to do so, moreover, the Fifth Air Force and the Far East Air Materiel Command/Far East Air Logistics Force would have operated separate air logistical airlifts. Since some 95 percent of aircraft support items for units in Korea traveled by air and the air wings in Korea were held to small stock levels, the Fifth Air Force was peculiarly vulnerable to anything which disrupted its air transportation. Shortly after the FEAF Combat Cargo Command was established as the theater airlift force, the Fifth Air Force complained that "in altogether too many instances supplies for combat units of the Air Force were backlogged...due to assignment of a higher priority to Army personnel, supplies, and equipment." A USAF evaluation board therefore recommended "that the Air Force, through its depots, must operate its own airlift."[70] In the spring of 1952 Maj. Gen. George W. Mundy of the USAF Air Materiel Command, who visited the Far East to investigate the threatening collapse of support for the Fifth's jet fighters, recommended that the Far East Air Materiel Command should be assigned organic air transports. This logistics airlift would not be subject to withdrawal for other purposes. General Mundy argued that a dependable air-logistics airlift would not only expedite the flow of air supplies from depots to tactical units but would also allow the Air Force to reduce pipeline stocks and permit monetary savings.[71]

On at least three occasions a collapse of a part of the 315th Air Division's airlift capability gravely threatened the Fifth Air Force's logistical support, twice during a period of ground emergency when the Fifth Air Force was attempting maximum effort. In April and May 1951, when the Communists were making all-out ground attacks, the Flying Boxcars were grounded for propeller changes. During this period the Eighth Army received priority claims on available airlift, thus hurting the logistical support of the Fifth Air Force.[72] In August 1952 Fifth Air Force maintenance efforts were hindered when the Boxcars were again taken off the airlift, for these planes commonly shuttled jet engines to and from air depots and rear-echelon maintenance detachments.[73] For more than two weeks, while the Globemasters were grounded during June and July 1953, General Clark gave priority to the airlift of Army reinforcements to Korea. The result was a serious dislocation of the Fifth Air Force's maintenance activities at the same time the tactical air wings were making supreme efforts to stop the Red ground offensives. After this last episode Colonel H. A. Budd, the Fifth's director of materiel, stated: "In order that Air Force tactical operations be sustained under existing methods of resupply from rear-echelon maintenance and supply activities, the Air Force must have its own fleet of logistics-support type aircraft."[74]

Despite the validity of the arguments advanced to support the contention that the Air Force needed a separate air-logistics airlift, General Weyland

continued to support the concept that airlift was essentially scarce and had to be flexibly employed to achieve the theater commander's objectives. Each serious reduction in the Fifth Air Force's logistical support, moreover, was occasioned by the grounding of air-transport planes. Had these transport aircraft been assigned to the Far East Air Logistics Force, or to the Fifth Air Force, they would have been equally prone to mechanical disorders. Twice during the time that General McCarty commanded the 315th Air Division, the Far East Air Logistics Force made strong efforts to obtain its own organic airlift, but each time General Weyland disapproved the request. Both Weyland and McCarty recognized that airlift would always be a scarce item. The tasks it would perform would be varied, and from time to time first one and then another of the tasks would take precedence and require a concentration of all or most of the airlift capability for its accomplishment. The responsibility for determining the priority of the tasks had to be vested in a theater commander who alone could impartially assess the relative importance of airlift objectives. The concentration of airlift resources for the performance of priority tasks could best be accomplished when all airlift resources were controlled by a single airlift commander. "Piecemealing of airlift resources," General McCarty reminded, "is just as dangerous a route to travel as the piecemealing of Air Force resources."[75]

A C-46 Commando awaits a sunset take off from an air base in southern Korea.

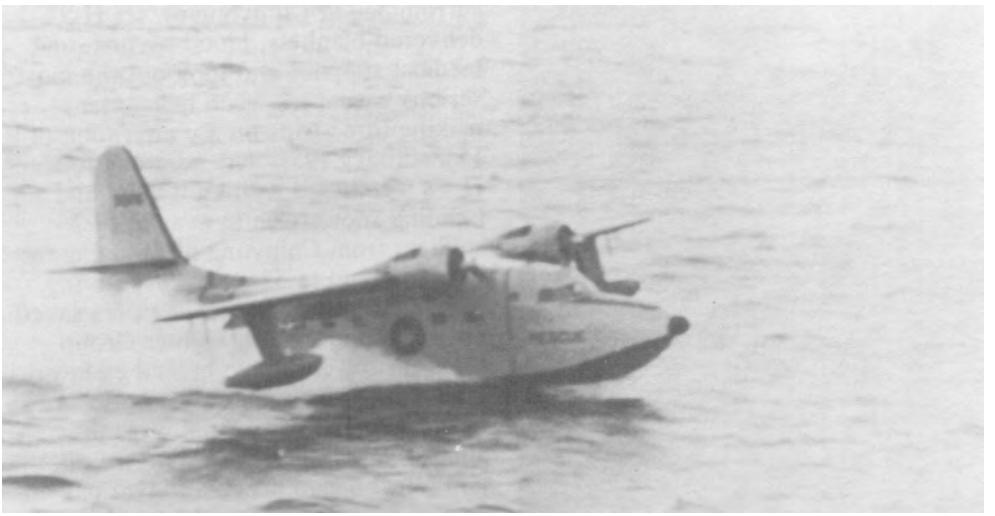
An Air Rescue Squadron chopper lands at the front to pick up a wounded G.I.

3. Air Rescue's Mission Was Expanded

The Korean war offered the first test for search and rescue organizational tactics developed in World War II. For the performance of search and rescue functions in June 1950, FEAF possessed the 2d and 3d Air Rescue Squadrons. Administratively, these units were a part of the world-wide Air Rescue Service—a subordinate command of the Military Air Transport Service—but their operations were controlled by FEAF and its subordinate commands. Flights of the 2d and 3d Air Rescue Squadrons were located at various bases where they could best perform emergency search and rescue services. The 2d Squadron served the Thirteenth and Twentieth Air Forces, while the 3d Squadron was based in Japan and came under the operational control of the Fifth Air Force and later the 314th Air Division and its successor Japan Air Defense Force. At the Korean war's beginning a search and rescue version of the Flying Fortress bomber—the SB-17—was the standard aircraft of the rescue squadrons, but the 3d Rescue Squadron had a few Sikorsky H-5A helicopters—small, two-seat, rotary-wing aircraft which were used for short-range rescue pickups. In the first month of the war, on 28 July 1950, the 3d Squadron received a detachment of Grumman SA-16 amphibian aircraft. If the seas were smooth enough, these "Albatross" SA-16's could land and retrieve downed airmen from the water.[76]

Under the command of Lt. Col. Klair E. Back after 28 August 1950, the 3d Air Rescue Squadron pioneered in the employment of new search and rescue equipment and techniques, which, for the first time as a standing procedure, included the rescue of stranded personnel from behind enemy lines. At first the 3d Squadron employed its SB-17's primarily as orbit aircraft for the B-29 strikes, and the new SA-16's maintained continuous daylight patrols over the Tsushima Straits. Seven days after their arrival an SA-16 piloted by Captain Charles E. Schroder picked up Ensign Glenn T. Farmworth, a Navy pilot who had been in the water off Korea less than two hours. On 15 August an SA-16 crew picked up a Mustang pilot only five minutes after he had parachuted into the water off southern Korea.[77]

The newest developments in air rescue were taking place in the immediate area of the ground fighting in South Korea. On 7 July 1950 the 3d Squadron sent two L-5 aircrews and aircraft to Korea. Called Mercy Mission No. 1, the L-5 pilots attempted several pickups without much luck, for the little liaison planes could not operate from the rice paddy lands of Korea. On 22 July, however, the rescue flight at Ashiya sent an H-5 helicopter detachment to Taegu, which soon attracted General Partridge's notice. In a few days, moreover, the Eighth Army's surgeon called on the helicopters to help him evacuate critically wounded soldiers from front-line aid stations to the 8076th Mobile Army Surgical Hospital at Miryang and the 8054th Hospital in Pusan. The helicopters could operate in the mountainous and rice-paddy terrain where the liaison planes could not function. Early in August 1950 General Partridge accordingly directed the 3d Squadron to station six of its nine helicopters in Korea, and General Stratemeyer asked USAF to give him 25 H-5's to be used



Because of its ability to land on water and land, the SA-16 Albatross is used to cover aircraft water routes throughout the Far East.

by a special evacuation and utility squadron. By stripping other commands, USAF started 14 H-5's to the Far East, but it ruled that the 3d Squadron would continue to handle the mercy missions. By 29 August the Helicopter Detachment had evacuated 83 soldiers whom the Eighth Army surgeon said would never have survived a ten-to-fourteen-hour trip by ambulance to a field hospital.[78]

Evacuation of front-line Army casualties continued to be a major concern, but the 3d Air Rescue Squadron and the Fifth Air Force recognized that new arrangements would be needed as United Nations Command forces attacked northward from the Pusan perimeter. On 27 August 1950 the Fifth Air Force accordingly established a Rescue Liaison Office in the Joint Operations Center, and on 30 August the 3d Squadron formally organized Detachment F in Korea, under the command of Captain Oscar N. Tibbetts. The close coordination between the Joint Operations Center and Detachment F soon permitted the first rescue of a pilot from behind the enemy's lines. Covered by a rescue combat air patrol (ResCAP) of friendly fighters, Lt. Paul W. Van Boven flew his H-5 to Hanggan-dong on 4 September and successfully retrieved Captain Robert E. Wayne. When the United Nations front lines advanced, Detachment F moved from Pusan (K-1) to Taegu (K-2) and then on to Seoul (K-16). From this location on 10 October, Lt. David C. McDaniels and paradoctor Captain John C. Shumate made a 125-mile trip to save a wounded British Navy flier, Lt. Stan W. Leonar from under enemy fire at Changjon. Employing two H-5's and three L-5's from Pyongyang, Detachment F evacuated 47 injured paratroopers from the drop zones at Sunchon and Sukchon on 22 and 23 October. Flying from Kunu-ri and Sinanju in November, the H-5 elements rescued pilots at extreme distances, one as far north as Kanggye. When the Chinese troops attacked southward, Detachment F withdrew its

TSgt. Basil L. Boatright of the 3d Air Rescue Squadron doesn't mind advertising his work.

forward elements, and on 2 January 1951 the detachment evacuated Seoul and moved to K-37 airstrip south of Taegu. In the autumn of 1950 the 3d Squadron had also begun to station SA-16 aircraft on strip alerts at Wonsan and Seoul. With the retreat of the United Nations forces, the strip-alert SA-16's stationed themselves at Taegu Airfield.[79]

In the early months of 1951 the helicopter pilots of Detachment F, 3d Air Rescue Squadron, continued to render meritorious services. When elements of the U.S. 2d Division were surrounded at Chipyong-ni, six H-5's delivered blankets, blood plasma, and medical supplies and took out the most serious casualties, each helicopter making three trips on the afternoon of 15 February 1951. The next day four H-5's weathered a 40-knot wind and a blinding snowstorm to evacuate 22 soldiers from Chipyong-ni, bringing the two-day total to 52 evacuees. During March 3d Squadron rescue pilots saved six out of seven 35th Fighter Group pilots who went down behind enemy lines. Up until this time the only helicopters used in Korea were the small H-5's, which could carry a pilot and a technician inside and two passengers in external litter capsules, but in March 1951 an Air Proving Ground team brought two test-model Sikorsky YH-19's to Korea. The day after their arrival one of the YH-19's helped the H-5's evacuate wounded and injured paratroopers from the Munsan-ni drop zone. In this effort, on 24 and 25 March, the helicopters flew 77 sorties to evacuate 148 paratroopers from under intense mortar and small-arms fire which damaged two of the helicopters. For work such as this the YH-19 excelled, for it could carry eight litter patients or ten passengers, plus a pilot and medical technician. At this time, however, Detachment F regarded the larger helicopter as a complement rather than a replacement for the smaller H-5. Most front-line evacuations or pilot pickups involved single individuals. When friendly pilots went down off Korea's coast, strip-alert SA-16's were dispatched to recover them. In a heroic demonstration after dusk on 11 June 1951 Lt. John J. Najarian landed his SA-16 in the shallow, debris-filled Taedong River, one mile south of Kyomipo, and picked up Captain Kenneth Stewart, who had bailed out of a flak-damaged Mustang

at twilight. Covering flights of Mustangs beat down flak coming from both banks of the river and switched on their landing lights to show Lieutenant Najarian low-hanging high-tension wires which he had to avoid. In spite of every possible obstacle Lieutenant Najarian saved the Mustang pilot.[80]

As United Nations Command forces defeated the Communist armies in Korea in the late spring of 1951, the search and rescue mission in Korea began to change. The Eighth Army had fewer front-line casualties, and its new organic helicopters undertook a larger proportion of the front-line medical-air evacuation missions. At this same time, however, Communist flak was beginning to down more and more United Nations fliers over enemy territory. In recognition of the growing importance of aircrew rescue work, the 3d Air Rescue Squadron reorganized its old Detachment F on 22 June 1951 and redesignated it as Detachment 1, 3d Air Rescue Squadron. Personnel augmentations allowed Detachment 1 to open a full-scale Search and Rescue Coordination Center in the Fifth Air Force's Tactical Air Control Center at Seoul. From this central location the Korea rescue coordination center received requests for rescue action through the facilities of the tactical-control system and used these same communications to direct the rescue effort.[81] Since the H-5 helicopters had a radius of action of only 85 miles, the Korea rescue detachment had always divided its planes and personnel into elements which were based where they were apt to be needed. In the summer of 1951 one element was located at the 8055th Mobile Army Surgical Hospital, a second element was placed near the U.S. 45th Division command post at the center of the battleline, a third element served the truce negotiators at Munsan-ni, and the remaining element stood strip-alert at Seoul Airfield (K-16), which was also the main base for Detachment 1. A search and rescue radio net connected the several rescue elements, and every ten days the elements rotated their H-5 crews and planes to Seoul for rest, inspections, maintenance, and repairs. The Grumman SA-16's, which rotated to Korea from Japan, were also based at Seoul Airfield.[82]

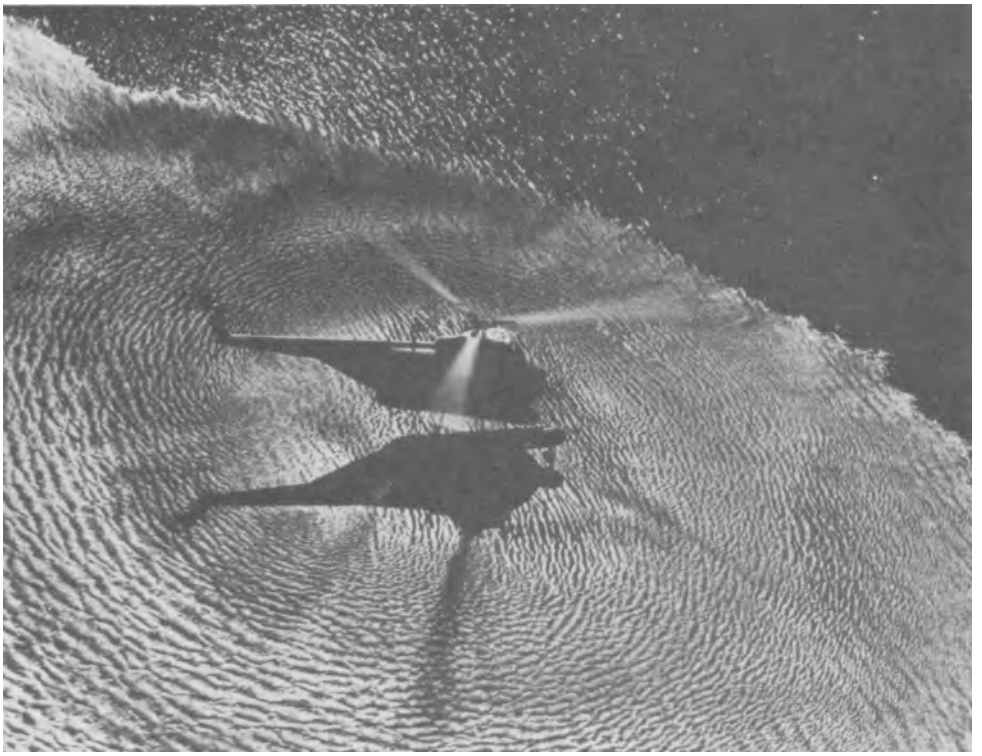
Rescue helicopter

During the months of heavy ground fighting marked by large close-support efforts, the lateral disposition of rescue elements along the front lines had been proper, but in the autumn of 1951 the Fifth Air Force began to attack rail-transportation targets in northwestern Korea. When the Sabres and fighter-bombers went into this sector of enemy territory, an SA-16 from Seoul customarily orbited north of Cho-do. If a fighter pilot ran into trouble, he called out a "Mayday" and, if possible, headed to the predetermined orbit-rescue point off Korea's western coast. When the pilot ditched, crash-landed,

or parachuted, his own flight gave him rescue combat air patrol until the SA-16 arrived. In order to augment the rescue potential, the Fifth Air Force in November 1951 required the 3d Rescue Squadron to keep three SA-16's in commission at Seoul at all times, and the 3d Squadron promptly required its Flights A, C, and D to provide one rotational amphibian apiece, which, in order to secure closer coordination, were now placed under the operational control of Detachment 1. In smooth seas and warm summer weather the amphibians had little difficulty landing to pick up surviving airmen, but with the coming of winter weather in 1951 matters took a new turn. The SA-16's could not normally chance landings if waves ran higher than five feet, and in freezing weather the amphibians could soon accumulate too much ice to take off. Even when protected by anti-exposure suits, moreover, the downed pilots could not long survive in the frigid water of the Yellow Sea. To speed the rescue work in December 1951, the Fifth Air Force asked Detachment 1 to move an H-5 helicopter element from Seoul to Cho-do. At this time the little island of Cho-do was not secure enough from the danger of enemy raids, and Detachment 1 accordingly based two H-5's on the island of Paengnyong-do, and each day that weather permitted the H-5's moved up to Cho-do for daytime alerts. Within a month Cho-do was firmly in friendly hands, and in January 1952 Detachment 1 stationed two H-5's there for a rescue alert.[83]

Exploiting the opportunity permitted by the circumstance whereby the Red MIG's virtually refused to operate over water, Detachment 1, 3d Air Rescue Squadron operated a highly effective rescue effort off Korea's northwestern coast. Since many water rescues and all land pickups were made by helicopters from Cho-do or Paengnyong-do, the closer a pilot got to either of these two points before he abandoned his plane, the better were his chances of survival. The slow and vulnerable helicopters were ordinarily able to go inland for some distance, but could not cross the belt of enemy defenses along the main west-coast supply routes. Beginning in February 1952, Detachment 1 received H-19 helicopters as replacements as the H-5 helicopters were wrecked or worn out. These larger helicopters proved more suitable for water rescue work, since they had a radius of 120 miles. Originally, the H-19's were outfitted with floats for water landings, but most H-19 pickups were made by means of a line dropped from the H-19's hydraulic-powered hoist. Two H-19's were finally stationed on Cho-do, and one H-19 handled rescue work from Paengnyong-do.[84] Although the rescue establishment grew strong in northwestern Korea, it remained unavoidably weak at the other end of the battleline and in southern Korea. Most airfields in South Korea were served by amphibious vehicles and crash boats, but these surface vessels often could not get to pilots who went down in the tidal swamps and offshore mud flats. Detachment 1 stationed an H-5 at Kunsan Airfield, but its limited resources would allow nothing more in the summer of 1952.[85]

During the autumn of 1952 the Fifth Air Force managed to get a slim augmentation of its rear-area rescue facilities. Effective on a world-wide scale on 14 November 1952, all Air Rescue Service units were reorganized on a group-squadron basis, so that the 2d and 3d Air Rescue Groups replaced the similarly numbered squadrons. At this same time the regularly constituted



An H-19 rescue chopper over the Han River near Seoul.

Air Rescue flights became numbered squadrons, and, effective on 1 March 1953, Detachment 1, 3d Air Rescue Group, was redesignated as the 2157th Air Rescue Squadron. To help in southern Korea and at the eastern end of the battleline, the 2d Air Rescue Group in December 1952 provided two SA-16's, two H-19 helicopters, and a paramedic team, and these planes and people were organized at Pohang Airfield as Detachment 2, 3d Air Rescue Group. In March 1953 one H-19 moved from Pohang to Kangnung, giving additional rescue coverage of Korea's east coast. During December 1952 the Fifth Air Force also received a small windfall of helicopters when FEAF sent four H-19's of the Philippine-based 581st Air Resupply and Communications Wing to Seoul. In March 1953 two SA-16's from the 581st also went to Seoul. These 581st Wing planes were supposed to fly covert missions, but they also helped with rescue work.[86]

Rescue resources continued to be spread thin in Korea, but the 3d Air Rescue Group added distinguished service to its already outstanding Korean war record. During the floods of July 1952 helicopter crews saved 710 United Nations soldiers who were stranded in exposed forward positions by high waters. Enemy opposition and mechanical troubles continued to send friendly pilots to Cho-do and Paengnyong-do bail-out zones, where air-alert

Maj. Frederick C. Blesse

SA-16's and ground-alert H-19's picked them up. Using standardized rescue procedures, Detachment 1 and 2157th Squadron crews worked fast and effectively. In probably the fastest air-sea rescue on record, an H-19 from Cho-do hoisted a reconnaissance pilot from the water in fifteen seconds. In September 1952 an H-19 crew rescued a downed airman and two men from a naval helicopter which had crashed in an attempted rescue. The SA-16's commonly flew escort for the H-19's and other Grumman crews also made rescues. In September 1952 an SA-16 saved Major Frederick C. Blesse, then the leading Sabre ace, when he ran out of fuel over the Yellow Sea after combat in MIG Alley. Outstanding rescues continued in the spring of 1953. On 12 April an H-19 crew rescued Captain Joseph C. McConnell, Jr., when he parachuted into the Yellow Sea. Already an ace, McConnell would continue in combat and become the leading jet ace of the Korean war. In three days, 16–18 May 1953, the H-19's made five aircrew pickups to save six lives. In the first four incidents the H-19's lifted fighter pilots from the Yellow Sea, and in the last episode an H-19 from Seoul penetrated far into enemy territory to save two survivors from a B-26 which had crashed north of Haeju.[87]

Operating rescue control centers at Misawa, Johnson, Komaki, and Ashiya air bases, and a flight-following service at Johnson Air Base, the 3d Air Rescue Squadron and Group afforded search and rescue services over Japan's land areas and sea frontiers. Equipped with a principal component of SA-16's early in the Korean war, Flight D at Ashiya (which became the 39th Squadron) was always active in the water areas off southern Korea. Using first SB-17's and then the newer SB-29's, Flight B (37th Squadron) at Komaki early provided offshore orbit patrols for B-29 strikes made by Bomber Command. The RB-45's of the 91st Strategic Reconnaissance Squadron were so unsafe for ditching that a Japan-based rescue plane held a station orbit over the Japan Sea each time these planes crossed to Korea. When the B-29's went to night operations they did not immediately require any route or orbit patrols by SB-29's, but in November 1952 hostile night fighters were stalking 98th Wing bombers and Bomber Command asked the 3d Air Rescue Group for help. Accordingly, the 37th Air Rescue Squadron began to send an SB-29 to trail the last B-29 in a bomber stream. Keeping continuous radio watch, the SB-29 followed the B-29's to their coast-in point in Korea and then orbited at a point where it could render assistance to distressed bomber crews when they coasted out of Korea.[88]

Operating in an area remote from Korea, the 2d Air Rescue Squadron

and Group used only a part of its capabilities in support of the Korean war effort. Based at Kadena, however, Flights C and D (which became the 33d and 34th Air Rescue Squadrons) initially possessed short-range H-5's, OA-10's, and SB-17's, and had to limit their rescue work to their immediate vicinity. In March 1952 Flight D received its fourth SB-29, which brought it to authorized strength and permitted a new service to B-29 crews. Searching for lost B-29's was always time-consuming and often ended in failure. Flight D therefore proposed to fly precautionary escort and orbit for the B-29's as the bombers traveled to and from Korea. When the bomber crews liked the idea, Flight D began to provide the service on 8 May 1952 and it was continued throughout the war. Prior to the departure of the first B-29 from Kadena, an SB-29 took off and stood patrol out to sea. After all bombers were successfully airborne, the SB-29 accompanied the bombers to their coast-in point at Korea and then waited for their return. When the bombers came from their mission, the SB-29 shepherded them back to Kadena. These "guardian angels" were always handy if B-29's were crippled. They could alert other rescue facilities, and if the B-29 ditched at sea the SB-29 could light the ditching area with flares and drop its 30-foot A-3 lifeboat.[89] It so happened that the SB-29's of the 34th and 37th Squadrons fortunately did not get an opportunity to use their A-3 boats to assist downed B-29 crews, but the precautionary escort and orbit tactics greatly increased the morale and well-being of the Superfortress crews.

During the Korean war the USAF Air Rescue Service met and overcame many problems and demonstrated that aircrews would be rescued from behind enemy lines as a normal operation. Contributing to the successful accomplishment of the air-rescue mission in Korea was the United Nations aerial superiority which allowed vulnerable rescue planes to operate without fear of enemy air attack, a centralized control and coordination of air-rescue capabilities in Korea within the Joint Operations Center and the Tactical Air Control Center, the employment of such new aircraft as the SA-16 amphibian and the H-19 helicopter, and the use of new emergency-survival equipment, including the little URC-4 emergency radio transceivers which were ultimately carried by all aircrews.[90] Taking advantage of these fortunate conditions, the Air Rescue Service crews ably accomplished their mission. During the Korean war 1,690 USAF airmen went down in enemy territory and many of these men doubtless did not survive their landings, but air-rescue crews saved 170, or 10 percent, of USAF airmen who were lost in action over enemy territory. The rescue crews also retrieved 84 airmen of other United Nations air services from areas held by the enemy. Counting both aircrewmen and other personnel, the Air Rescue Service crews rescued 996 men from enemy territory. Within friendly lines, the rescue crews also picked up and evacuated 86 airmen to places of safety. As a secondary mission, the Air Rescue Service organizations in Korea performed emergency front-line medical air-evacuation tasks. In fulfillment of this secondary task, Air Rescue Service aircrews evacuated a total of 8,598 men, most of whom were front-line ground casualties.[91] Without in any way reducing the luster of the Air Rescue Service achievement in Korea, it is appropriate to note that rescue crews were required to perform many tasks

Casualty Evacuation (Art by David S. Hall, *Courtesy Air Force Art Collection)*

which were not necessarily in context with their main mission of rescuing downed airmen. Foremost of these diversions was front-line medical air evacuation. The Air Rescue helicopter crews were often required to land or recover intelligence agents along the mud flats of Korea's northwestern coast, an undertaking which did not contribute to the search and rescue mission. The test of combat nevertheless indicated that in the future—as new search and rescue equipment was produced and rescue units gained the ability to penetrate deeper into enemy territory—a larger search and rescue force would be required to support a tactical air force in combat.[92]

4. Medical Air Evacuation Saved Countless Lives

In the theaters of operations of World War II United States armed forces had moved sick and wounded men by air to places of medical care and hospitalization. In this war, however, medical air evacuation had always been thought to be an emergency method of transporting the wounded, and it was used only when casualties could not be transported by normal

means of stretcher-bearers, field ambulances, hospital trains, and hospital ships. As a matter of policy, the Army sought to keep a casualty as far forward as possible in order to return him to combat as soon as possible. The echelons of the medical system and the normal surface means of transportation were keyed to keeping wounded men forward. When a man was wounded in combat he was transported to a battalion aid station by litter-bearers or by a litter jeep. From the battalion aid station he was evacuated by motor ambulance to a regimental collecting station and thence to a division clearing station, at which point he could either be dispatched to an evacuation hospital or routed to a mobile army surgical hospital which could provide emergency surgery and short periods of hospitalization. Either directly, or through the mobile army surgical hospital, the more seriously wounded patient, or the man who required special treatment, moved by motor ambulance or hospital train to an evacuation hospital, where he was hospitalized pending recovery or removal to a general or a convalescent hospital in the communications zone.[93]

If aeromedical air evacuation had not been fully developed within the theaters of operations during World War II, the AAF Air Transport Command's work in moving casualties from the theaters to the United States had nevertheless won wide acceptance. In the years after the war the Military Air Transport Service had so expeditiously managed world-wide aeromedical evacuation that in September 1949 the Secretary of Defense had made air the primary method for transoceanic movements of military patients.* Despite the recognition that aircraft provided the fastest and cheapest means of moving patients between theaters of operations and the United States, neither the Army nor the Air Force had given enough thought to the possible use of aeromedical evacuation of sick and wounded within theaters of operations. Exact service responsibilities and the procedures to be employed were not fixed. The Far East Command did not have a regulation governing medical air evacuation until 18 December 1951, and the directive issued at this late date did little more than confirm existing policies and practices which had been informally effected in the theater.[94] In the absence of established procedures and responsibilities, aeromedical evacuation gained acceptance through its demonstrations of utility, but the system employed was always far from perfect.

When American troops landed in Korea in July 1950, the Eighth Army implemented traditional systems for moving and hospitalizing its sick and wounded. As a matter of policy, the Eighth Army stated the rule that patients expected to return to duty within thirty days would be hospitalized in Korea. Men requiring specialized treatment or more than thirty days' hospitalization could be moved to general hospitals in Japan. Recognizing that the speed with which a front-line casualty received adequate medical

*At the outbreak of the Korean war, the Military Air Transport Service was providing aeromedical evacuation for about 350 patients a month who were moved from Tokyo to the United States. The first C-54 loaded with Korean war casualties left Haneda International Airport on 20 July 1950, and the Military Air Transport Service soon employed the routes, facilities, and planes that transported personnel and cargo to Japan to return casualties to the United States. Between 26 June 1950 and 31 July 1953 the Military Air Transport Service transported 43,196 Korean war casualties to the United States for further hospitalization or special medical treatment. *USAF Statistical Digest*, Fiscal Year 1953, p. 520.

care frequently determined his survival, and knowing of Korea's limited surface transportation, General Stratemeyer moved quickly to afford medical air evacuation to the Eighth Army troops in Korea. At the war's beginning Flight 3, 801st Medical Air Evacuation Squadron, was attached to the 374th Troop Carrier Wing at Tachikawa, and on 4 July 1950 General Stratemeyer informed General MacArthur that FEAF was prepared to accomplish air evacuation of casualties from Korea.[95] During July and August 1950, however, the Eighth Army made only a token use of medical air evacuation. Up to 15 September 13,105 patients were evacuated from Korea, of whom only 3,855 (29.6 percent) were evacuated by air, although it was estimated that as many as 36,000 could have been accommodated in empty cargo planes. Because of the rough roads between Taegu City and Taegu Airfield, the Eighth Army preferred to move its casualties southward by train to the evacuation hospital in Pusan. Most of the patients evacuated from Pusan to Japan were moved by ship. Some patients were taken to Pusan East Airfield (K-9) for air evacuation, but the airfield had no medical holding facilities, and patients often had to wait for excessive lengths of time before someone arranged for air transportation. The Eighth Army could not afford to count on a "catch as catch can" system of air evacuation and accordingly used more reliable and orderly surface transportation.[96]

While the Eighth Army was initially lukewarm toward the evacuation of its casualties by Air Force transports, the Eighth Army's surgeon eagerly exploited the 3d Air Rescue Squadron's helicopter detachment for the evacuation of front-line casualties to mobile army surgical hospitals. As has been seen, General Stratemeyer asked USAF on 14 August 1950 to organize and dispatch to him an "evacuation and utility squadron" with 25 H-5 helicopters and the trained medical personnel required to handle front-line evacuation work. Later on USAF would percieve that such a function as this was a logical and desirable extension of its assault troop-carrier effort, but in August 1950 some USAF officers in Washington observed that their planning for aeromedical evacuation "has not included the U.S. Army function of evacuation from front-line battle stations" and hesitated to set a precedent. The USAF Surgeon General nevertheless urged that Stratemeyer's request should be met, and USAF on 21 August agreed to send FEAF 14 H-5's and to raise the 3d Air Rescue Squadron's allocation to 23 helicopters. USAF ruled at this time that the Air Rescue Service must have first claim on all helicopters, and it refused to allow Stratemeyer to form a special evacuation squadron.[97] Following receipt of the Eighth Army's request for organic helicopters, which was passed through General MacArthur on 20 August, the Department of Army authorized organic helicopters to many of its units and organized helicopter ambulance detachments.[98] The Eighth Army would not begin to receive its organic helicopters in any numbers until January 1951, but a tacit decision had been made which would be of long-lasting significance. The Army would handle aeromedical evacuation forward of its mobile army surgical hospitals, while Air Force transports would provide medical air evacuation rearward of the initial points of medical treatment in the combat zone.

With the establishment of the FEAF Combat Cargo Command on 26 August 1950, General Tunner directed his staff to take a look at aeromedical evacua-

tion. Up until this time in Korea aeromedical evacuation was judged to have had "a rather spotty history." Although one flight of the 801st Medical Air Evacuation Squadron was attached to the 374th Wing, the Headquarters, 801st Squadron and two flights were in the Philippines, where their personnel authorizations augmented the staff of the Clark Air Force Base hospital. Making a trip to Korea on 9 September, Colonel Clyde L. Brothers, FEAF's surgeon, Colonel F. C. Kelly, the Fifth Air Force's surgeon, and Major George Hewitt, Cargo Command's assistant director of traffic, discovered that the Eighth Army wanted aeromedical evacuation but only if it could be placed on an orderly basis. Cargo Command soon effected the procedures which would give the Eighth Army the service it wanted. Wherever possible, Cargo Command preferred to develop aeromedical evacuation as a concomitant to the delivery of personnel and cargo to Korea and, after off-loading in Korea, C-54, C-47, and C-46 aircraft picked up casualties for delivery to hospitals farther south in Korea or in Japan. The command preferred to use C-54's and C-47's for the work and could employ C-46's, but the noise and drafts in the cargo hatches of the C-119's prevented use of the Boxcars for medical air evacuation. Cargo Command also decided not to commit any special transport crews to air evacuation, but to brief all the crews of suitable transports on standard evacuation procedures. Since additional medical personnel would be required for the expanded system, FEAF directed the movement of the 801st Squadron and its two flights from Clark to Japan effective on 14 September, and the squadron was filled with locally available personnel and new flight nurses from the United States. As developed in the FEAF Combat Cargo Command, air evacuation was the responsibility of Lt. Col. Allen D. Smith, who served as Cargo Command surgeon and commanded the 801st Squadron. Each day at noon Army medical evacuation officers in Korea and Japan informed the Combat Cargo Command surgeon's office of the number of patients to be moved from one place to another at a particular time on the following day, and the surgeon's office submitted consolidated requests to the Transport Movement Control for the scheduling of the necessary airlift. Whenever possible, Cargo Command added apparatus, nurses, and medical technicians of the 801st Squadron to planes which delivered their cargo in Korea and then picked up aeromedical evacuation patients. When necessary, however, special aeromedical flights were always set up to take care of the Eighth Army's requests for aeromedical airlift.[99]

During September and October 1950 the FEAF Combat Cargo Command exploited centralized control, plus continuous field liaison, to make aeromedical evacuation the standard method of transporting sick and wounded personnel in the Far East. Early in September the Eighth Army continued to deliver most patients to Pusan by train. From the hospital in Pusan, patients requiring hospitalization in Japan were moved to Pusan Airfield (K-9) where they were loaded aboard waiting planes and moved either to Itazuke or directly to Tokyo. Some patients were flown to Itazuke direct from Taegu and Pusan.[100] Later in September, when Kimpo Airfield was secured, Cargo Command instituted an immediate evacuation plan in support of the U.S. X Corps, using a minimum of three C-54 flights spaced periodically

throughout the day to lift patients. This lift was supplemented as requirements dictated. Following the capture of the airfield at Wonsan, Cargo Command evacuated casualties directly to Itami Air Base, near Osaka in Japan. On 17 October, when the airstrip at Sinmak was opened, C-54's removed patients to Kimpo, where they were turned over to the 8055th Mobile Army Surgical Hospital. On 21 October Cargo Command began to evacuate patients from Pyongyang, and on 29 October C-47's began to lift wounded men from Sinanju Airfield to Kimpo. The air-evacuation program had its troubled moments. Some aircraft reported with insufficient numbers of litters or without heating arrangements. Loading patients required extra time and tended to hold up the dispatch of planes out of Kimpo and Pyongyang, and the traffic-control officers at these fields were reluctant to release planes for air evacuation until late in the day. But the aeromedical evacuation problem was generally well managed during the United Nations attack into North Korea. During October 1950 2,840 patients were moved by airlift within Korea, 3,025 were evacuated from Korea to Japan, and 2,590 were moved within Japan. From the outbreak of the Korean hostilities to 31 October 1950 a total of 24,496 patients was moved by airlift.[101]

Aeromedical evacuation achieved new dimensions in November 1950, for the Chinese Communist attack combined with frigid weather to take a heavy toll of United Nations soldiers. Early in December Kyushu Gypsy C-47's shuttled some 4,689 wounded or frost-bitten soldiers and Marines

Flight nurses take time out to warm their toes during evacuation activities, December 1950.

from the Communist-besieged airstrips at Hagaru-ri and Koto-ri. The 21st Squadron C-47's delivered their casualties to the airfield at Yonpo, whence Marine R5D's carried Marine casualties to Itami while Air Force C-54's lifted wounded Army soldiers to Fukuoka. Because of the dangers up front, 801st medical technicians cared for patients aboard the C-47's, but 801st flight nurses staffed the planes for the aeromedical lifts to Japan. In western Korea Combat Cargo nurses and technicians cared for patients lifted to the very last from the airfields given up to the Reds as the Eighth Army retreated from Sinanju, then Pyongyang, and finally from Seoul and Suwon. Early in December the Eighth Army feared that the Communists might overrun all of Korea and decided to empty its combat-zone hospitals. On 5 December Cargo Command accordingly used 131 flights for aeromedical work and lifted 3,925 patients, thus accomplishing the Korean war's largest day of aeromedical airlift. Continuing the procedures worked out by the FEAF Combat Cargo Command, the 315th Air Divison (Combat Cargo) took air-evacuation emergencies in stride. In January 1951, as the ground fighting centered around Wonju, only the C-47's could lift patients from the short combat strips there and at nearby Chungju. At 0945 hours on 13 February the Eighth Army reported that 600 patients at Wonju required evacuation, and before midnight C-47's diverted from tactical missions lifted 818 patients from the forward hospitals, including 401 from Wonju. The report of the number of patients at Wonju had been somewhat exaggerated, and Eighth Army operations formally objected to the diversion of the C-47 aircraft from tactical airlift to medical evacuation. The Far East Command, however, ruled that the diversion was justified. Two days later the hospitals at Pusan were overloaded with casualties, and the 315th moved 1,325 patients for another one of its busiest air-evacuation days. When the fighting shifted toward the Seoul area, C-54's were able to lift casualties first from Suwon and then from Kimpo and Seoul Airfields. With the completion of a better airfield at Hoengsong later in the spring, the C-54's could also lift eastern-front casualties directly to hospitals in Taegu and Pusan.[102]

During the autumn of 1950 and the spring of 1951 3d Air Rescue Squadron helicopter crews had continued to perform most front-line medical air-evacuation work. The helicopter elements which performed this work were usually based at a mobile army surgical hospital, and they were dispatched to the front lines by the surgeon-in-charge of the hospitals. Because of a shortage of the H-5's, the helicopters had to be used conservatively, but when a soldier received a head wound, a sucking chest wound, or a stomach wound, the speed with which he received medical treatment determined whether he would live or die. With helicopter evacuation, men wounded at the front were often in surgery within an hour. As of 20 February 1951, Air Rescue Service helicopters had evacuated 750 critically wounded soldiers, and the Eighth Army surgeon said that fully half of these men would have died if they had been moved by surface transport.[103] General Stratemeyer had nothing but praise for the work of the Air Rescue helicopter pilots, but he still insisted that air evacuation ought to be divorced from air rescue. When General Vandenberg was in Tokyo on 16 January 1951, General Stratemeyer gave him a requirement for 31 helicop-

ters, most of them to be used to form a provisional evacuation squadron. Back in Washington USAF was unwilling to strip the Air Rescue Service of any more H-5's and new H-19's and H-21's would not be available from production until early 1952.[104] On 11 March 1951 General Stratemeyer nevertheless asked Vandenberg to provide the Fifth Air Force with a liaison squadron and to authorize it 12 H-5's and 12 L-5's. The squadron would handle air-evacuation missions. On 14 July USAF authorized the Fifth Air Force to activate a liaison squadron with 12 L-5 liaison aircraft, but it reminded FEAF that the Air Rescue Service would have first claims on all helicopters received from production.[105] For a third time, on 24 July 1951, FEAF insisted that it required a squadron of H-19 helicopters which it would assign to the 315th Air Division for front-line medical air-evacuation work. This time USAF bluntly stated that no liaison or helicopter units were available or even programmed for deployment to FEAF.[106] Effective on 25 July 1951, the Fifth Air Force activated the 10th Liaison Squadron at Seoul Airfield (K-16), but without helicopters this squadron was generally limited to courier and light-transport services performed for the Air Force and could not effectively perform air-evacuation missions for the Eighth Army.[107] Although the Air Rescue Service helicopters were going to continue to evacuate some front-line casualties, the Army and Air Force agreements concerning Army aviation reached on 2 October 1951 and 4 November 1952 made the Army responsible for "battlefield pickup of casualties, their air transport to initial point of treatment, and any subsequent move to hospital facilities within the combat zone."[108]

Eighth Army casualties declined after July 1951 when the beginning of the truce talks marked a lull in ground fighting, but the 315th Air Division still continued to airlift from three to six thousand sick and wounded soldiers each month. Taking advantage of the reduced emergency, the 315th worked to effect more regular aeromedical procedures than had been possible in the days of active ground fighting. Since most C-46 aircraft still lacked litter straps and sanitary facilities, the 315th decided not to use them any longer for aeromedical evacuation. Only C-47's, which could handle 26 patients, or C-54's, which could accommodate 36 patients, were to be used for aeromedical lift. Whenever possible, the C-54's would handle the patient lift, but if front-line airfields were too small for the four-engine planes, the C-47's would shuttle patients to Korean hospitals.[109] Long before then, medical air evacuation had fairly well put Navy hospital ships out of business, but in December 1951 and January 1952 the Far East Command sought to learn whether the hospital ships could serve as floating mobile surgical hospitals. To test the proposition, Marine ground casualties sustained in the Inje area of eastern Korea were brought to a forward airstrip at Pupyong-ni by Marine helicopters. At Pupyong-ni C-47's picked up the wounded Marines and flew them over some of Korea's highest mountains to a seaside airstrip at Sokcho-ri. From this strip two 3d Rescue helicopters shuttled the casualties to the hospital ship *Consolation*, anchored about two miles off shore. After surgical care aboard ship, patients were helicoptered back to Sokcho-ri, where C-54's picked them up and flew them to Tokyo hospitals. Before the termination of the experiment on 24 January 1952, 315 patients were treated on the *Consolation*. The

The USS *Consolation (Courtesy U.S. Navy)*

procedure worked fairly well, but all concerned agreed that it was inadvisable to move wounded men so many times.[110]

The conversion of the 315th Air Division's wings to more modern aircraft in the autumn of 1952 had an effect upon medical air evacuation, for the 315th was giving up four squadrons of C-54's, the planes most favored for aeromedical work. This change brought problems which demanded the especial attention of Lt. Col. Jesse K. Grace, who took over as 315th surgeon and 801st Squadron commander on 19 January 1952. The huge Globemaster C-124's that the 315th received in exchange for its C-54's proved to have certain advantages and disadvantages for lifting medical patients. As a practicable maximum, each C-124 could accommodate 127 litter patients or 200 ambulatory patients, and the loading of such numbers on a single C-124 took less time than to load equivalent numbers on several planes. The C-124 also required fewer flight nurses and medical technicians, proportionate to the patient load it carried. Under the situation in Korea, however, the Globemasters had aeromedical disadvantages. In a test mission in 1951, a C-124 lifted a record load of 167 patients from Pusan to Itami, but in the routine airlift evacuations in 1952 and 1953 the C-124's never carried this many patients again, chiefly because they could never secure so many

casualties at one time. The Fifth Air Force, moreover, would not allow the C-124's to land at Pusan East Airfield, where the 315th Air Division had always loaded patients being evacuated from the hospitals in Pusan City.[111] The 315th Air Division had anticipated these problems, and it had equipped its C-46's for air evacuation. Beginning in September 1952, the C-46's carried maximum loads of 26 patients in the intra-Korea, Korea to Japan, and intra-Japan aeromedical airlift. The C-54 aircraft retained by the 21st Troop Carrier Squadron also provided aeromedical lift from Korea to central Japan.[112]

At any time during the Korean hostilities the 315th Air Division was able to provide far more aeromedical lift than the Eighth Army required, but the small size of the 801st Medical Air Evacuation Squadron continued to be a limiting factor in the care and handling of airlifted patients. Within the means permitted to it by austerity in the medical services, USAF provided the 801st with flight nurses and enlisted technicians in excess of the squadron's authorized strength, but in the critical days of 1950 and 1951 the nurses and technicians often flew as many as three round trips a day and literally worked themselves to exhaustion. On maximum aeromedical evacuation days, moreover, the 801st simply did not have enough nurses and technicians to accompany all aircraft, and the aircrews cared for the sick and wounded men they carried. In addition to the in-flight medical care it provided, the 801st always kept a medical service corps officer or a senior noncommissioned officer in charge of the "operating location" at each airfield where patients embarked or debarked. These officers served as liaison with local medical units and supervised the loading and unloading of patients.[113] The 801st Squadron recognized that it should also have been able to man and operate casualty staging and holding facilities where patients could await airlift.[114] This informal assumption of what should have been a definitely established responsibility did not work too well. In the spring of 1951 the usual holding facility in Korea was a row of sagging tents in a sea of mud, and patients often complained of shortages of food and blankets. In many instances the holding detachments did not have patients ready when planes came, and sometimes they canceled airlift requests after flights were dispatched. Either occurrence wasted the time and effort of flight nurses and medical technicians.[115]

Based upon combat reports from Korea and upon maneuver experience in the United States, the USAF Surgeon General on 26 May 1952 completed a table of organization for an aeromedical group which was more capable of performing theater functions than was the old aeromedical evacuation squadron. Among other features, the group's table of organization included cellular casualty staging flights which could be manned, as needed, to serve staging and holding activities.[116] For more than a year the USAF medical service could not obtain the trained personnel it needed to activate overseas aeromedical evacuation groups, but in the spring of 1953 USAF was finally able to authorize FEAF to replace the 801st Squadron with the 6481st Medical Air Evacuation Group, effective on 18 June. In deference to the unusual aspects of the aeromedical problem in the Far East, the 6481st was organized as a table of distribution organization which absorbed the functions, personnel, and equipment of the 801st Squadron and was authorized

the additional strength and equipment it needed to take over the processing, temporary care, and staging of military casualties for air movements.[117] At this time, however, the Army Forces Far East was reluctant to release control of the aeromedical staging facilities and presented arguments in favor of maintaining the *status quo*. Pending a resolution of the problem by the U.S. Department of Defense, the Army medical service continued to operate the aeromedical staging facilities in the Far East. After the end of the Korean war, on 8 December 1953, an Army-Air Force agreement finally recognized that the Air Force was responsible for providing the aeromedical evacuation system for both Army and Air Force.[118]

During the three years of the Korean hostilities the 315th Air Division and its predecessors (including the 374th Wing) provided aeromedical evacuation for 311,673 sick and wounded patients, a total which exceeded the number of troop casualties, since it often included multiple movements of the same patients within Korea, between Korea and Japan, and within Japan.[119] The story of aeromedical evacuation established certain facts without doubt. Aeromedical evacuation proved so dependable that hospital ships could be used as floating hospitals rather than for transporting patients. Air evacuation was safe. Only six patients were lost in a single fatal accident, this on 22 December 1952 when the pilot of a Royal Hellenic Air Force C-47 evidently mistook instructions and collided with a jet fighter-bomber at Suwon Airfield.[120] Air evacuation was humanitarian. Knowing that an airplane would carry them speedily and comfortably to a well-equipped hospital, patients usually assumed a "worst is over" outlook, which lifted their spirits at the very time they needed to take heart. The same speed brought patients to medical centers where specialists had access to the best possible equipment. Air travel caused far less trauma than travel over rough roads or jolting railways. Other factors contributed—such as blood therapy and antibiotic drugs—but aeromedical evacuation also had a large part in reducing the Korean war's death rate of the wounded to one-half the rate in World War II and to one-quarter the rate in World War I. Air evacuation was also economical. Patients generally occupied backload space on transport planes which otherwise would not have been utilized. The system was also economical of scarce medical-service personnel. Working with a centrally controlled air fleet, a single medical air-evacuation squadron accomplished far more than had been customary for several evacuation squadrons working under decentralized controls in World War II.[121]

In Korea medical air evacuation had made tremendous strides, but many Air Force officers doubted that this phase of air activity had yet attained its maximum effectiveness. In Korea, for example, air evacuation had been fitted into the traditional Letterman organization of Army medical services—a system which had been designed in terms of walking litter-bearers, horse-drawn ambulances, and surface transport. The Army system, moreover, required the evacuation of casualties through successive hospitals in order to keep a wounded soldier as close to the front as possible. Understanding the capabilities of air transport to move the wounded and to return the recuperated to duty rapidly, Air Force medical officers doubted the validity of the Army's philosophy of medical evacuation. "The farther and faster the wounded are removed from the combat area," stated Colonel Allen D. Smith,

"the better, more efficient, and more economical will be the medical care." The advantages which might be attained by relating medical operations to air-transport capabilities were well revealed during August 1951 in a zone of interior maneuver called "Southern Pine." Employing an integrated system of aeromedical evacuation and using two helicopters for front-line pickups and a transport aircraft for evacuation to rear-area hospitals, the 1st Aeromedical Group worked so successfully that the 43d Infantry Division's surgeon was able to suspend all but the most forward echelon of ground medical activity, thus idling 600 persons and 100 vehicles of the Army medical service. In this maneuver all simulated combat casualties were sufficiently screened in advanced areas as to prevent "over evacuation," but all legitimate casualties were immediately removed from the combat area to communications zone hospitals. This procedure lessened medical manpower and logistical burdens up front, relieved patients of the stress of the battle area and got them more adequate medical care, and freed ground combat troops of responsibilities of caring for casualties. No such integrated medical evacuation system was employed in the Far East during the Korean war, and for this reason aeromedical evacuation doubtless did not make its maximum contribution to the United Nations Command war effort.[122]

5. Air Weather and Airways Communications Services

In recognition of the global air-transport responsibilities assigned at its creation in 1948, the Military Air Transport Service was charged to provide an Air Weather Service and an Airways and Air Communications Service (AACS) which would girdle the globe. At the outset of the Korean war Air Weather Service and Airways and Air Communications Service units were under FEAF's control for the performance of their assigned functions in the Far East. As the war progressed, both functions were increasingly vital to the accomplishment of the United Nations Command's mission.

When the war began in June 1950, the 2143d Air Weather Wing was responsible for weather services in the Pacific theaters of operations. From his headquarters in Tokyo Colonel Thomas S. Moorman, Jr., commander of the 2143d Wing, commanded three ground weather squadrons—the 20th Weather Squadron in Japan, the 15th Weather Squadron serving the Philippines, Okinawa, and Guam, and the 31st Weather Squadron in Hawaii and the Marshall Islands. He also commanded two weather reconnaissance squadrons—the 512th at Yokota in Japan and the 514th on Guam. In addition to the meteorological reports obtained by its own units, the 2143d Wing received weather data from stations of the Japanese national weather service and from the Ryukyuan weather service. The wing also monitored the international meteorological broadcasts emanating from Russian weather stations, which would continue during the Korean war. The wing

received no weather reports from Communist China, for even before the beginning of the war the Red Chinese government had ceased to share its weather with the remainder of the world.[123]

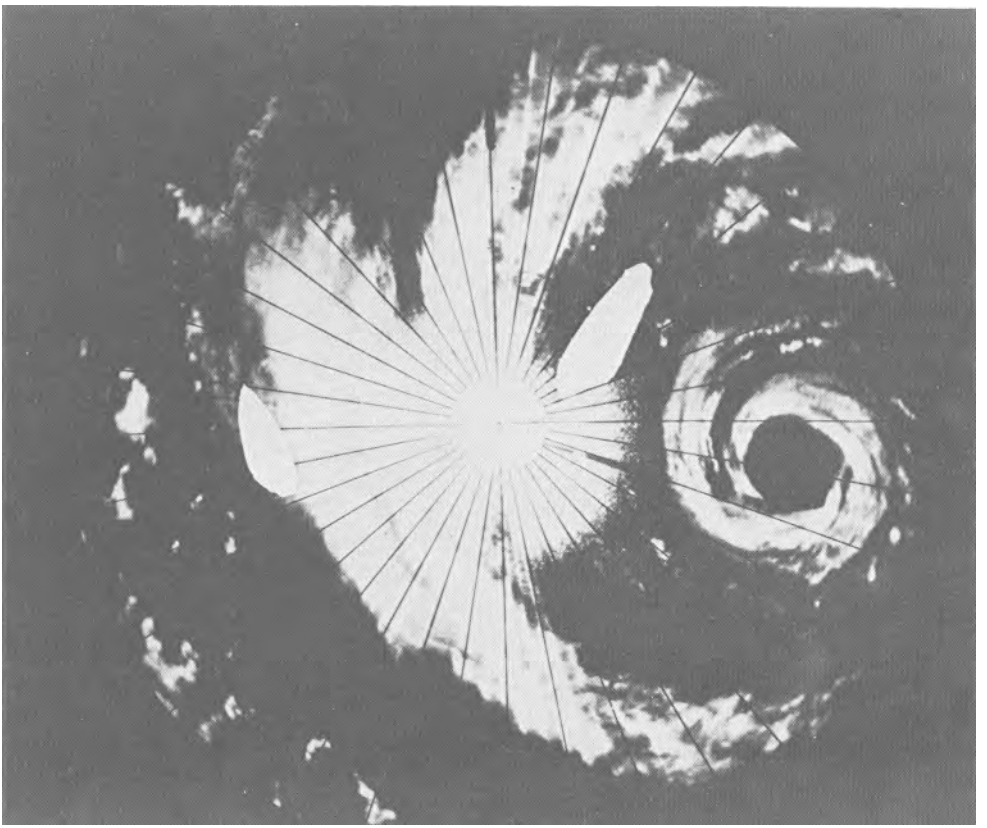
In the years since 1945 the United States armed forces had striven to develop all-weather capabilities, but air, ground, and naval forces were still vulnerable to the influence of the natural elements. As the North Koreans used weather to cover their treacherous attack, the 2143d Air Weather Wing galvanized into action. The 512th Reconnaissance Squadron Weather, flew its first "Buzzard Special" WB-29 weather-reconnaissance mission over Korea on 26 June 1950, and within the next few days the weather crews of this squadron not only provided in-flight meteorological readings but they also flew zigzag courses over Korea and reported tactical observations to the 8th Fighter-Bomber Wing at Itazuke. On 27 June the 20th Weather Squadron airlifted its first station weather detachment with portable weather equipment to the airfield at Taegu. After this weather detachments were among the first organizations to move into new Korean airfields and among the last to move out. Because of the demands in Korea, the 20th Squadron expanded the number of its regular detachments from 13 at the war's start to 32 in November 1950. On 14 November 1950 a special two-man weather-observation team began operations at Sinanju. The reports of this two-man team were so valuable that the Eighth Army agreed to attach one of them to each of its corps headquarters. Similar teams were also established at small Korean airfields, where traffic was too light to justify a weather detachment, and at isolated locations including the islands of Cheju-do and Sochong-do and later Paengnyong-do, Cho-do, and Yo-do. By the end of September 1950 the 512th Squadron was flying two weather reconnaissance missions over Korea each day: "Buzzard King" over North Korea and the Yellow Sea and either "Buzzard Dog" or "Buzzard Easy" over adjacent areas. In an effort further to expand its weather collections on 28 July 1950, the 2143d Wing had inaugurated a program whereby a weather forecaster was placed aboard combat aircraft to observe weather in areas from which such data were not otherwise available. Beginning in October 1950, moreover, two F-82's of the 68th Fighter-All Weather Squadron flew predawn weather-reconnaissance missions over North Korea.[124]

Although the 2143d Air Weather Wing expanded to accomplish the added tasks posed by the war in Korea, the improvised weather structure in the Far East ultimately required a more permanent organization. Since the general organizational concept of the Air Weather Service was to align its units with major commands wherever possible, the 2143d Wing activated the 30th Weather Squadron effective on 16 November 1950 and charged it to provide specialized services for the Fifth Air Force and to control the weather detachments in Korea. Months earlier the 2143d Wing had pleaded the need for a tactical weather-reconnaissance unit, and on 25 December 1950 the Fifth Air Force organized the 6166th Air Weather Reconnaissance Flight, which was first attached to the 543d Tactical Support Group and finally to the 67th Tactical Reconnaissance Wing. Authorized six WB-26's, the flight commenced operations on the night of 7 February 1951 and thereafter commonly flew several prebriefed routes over North Korea and such other special coverage as the Joint

Operations Center directed. In a service-wide reorganization of weather-reconnaissance squadrons, the 512th and 514th Squadrons were replaced by the 56th and 54th Strategic Reconnaissance Squadrons, Medium, Weather, on 21 February 1951. Flying synoptic weather and typhoon warning missions from Guam continued to be the business of the 54th Squadron, but the 56th Squadron had already standardized its weather reconnaissance to include a "Buzzard King" flight which departed Yokota early each morning, dropped southward down through the East China Sea, then turned northward up through the Yellow Sea, and finally headed home across Korea. "Buzzard King," or "Buzzard Kilo," as it was called after July 1952, observed the weather as it was making up along the coast of China and in the Yellow Sea. In another general reorganization of 20 May 1952 the Air Weather Service discontinued the 31st Weather Squadron and assigned its detachments to a zone of interior weather group. At this same time the 57th Strategic Reconnaissance Squadron at Hickam Air Force Base was assigned to the 2143d Wing, and the Tokyo Weather Central was discontinued as a 20th Squadron detachment and organized as a staff section of the 2143d Wing. In addition to its own weather-observation capabilities, the 30th Weather Squadron placed increasing importance upon the accumulation of pilot reports of weather observations, which were consolidated at the combat airfields and normally reported to the Fifth Air Force weather station at three-hour intervals.[125]

To observe and to report weather data were major functions of the 2143d Air Weather Wing, but United Nations Command forces also needed to know what the weather was likely to be in the future. The task of forecasting Korea's weather was not easy, for Korea's predominantly seasonal weather was complicated by the warm ocean currents which surrounded the mountainous peninsula. Local weather in Korea was quite variable, especially in the transitional spring and autumnal seasons. Nor could forecasters always exactly predict the movements of weather fronts. They could plot frontal weather as it made up over Siberia, but they received no reports as the fronts passed over Communist China.[126] Despite the complexity of the problem, both Colonel Moorman and Colonel James W. Twaddell, Jr., who commanded the 2143d Wing after the summer of 1951, attempted to provide the accurate and timely weather forecasts which using services required. The weather forecasting process in the Far East ultimately involved a consensus of many forecasting agencies. The nerve center of the weather service in the Far East was the Tokyo Weather Central, which supported FEAF and provided field weather detachments with analyses and forecasts transmitted to them by facsimile, teletype, and blind radio broadcasts.* Based in part upon a three-way evening telephone conference between the Fifth Air Force weather station, the FEAF Bomber Command staff weather officer, and its own people, the Tokyo Weather Central prepared and broadcasted each midnight a "Korean Operational Forecast" which was expected to be valid during the daylight hours of the following day. At about 1100 hours each day the Fifth Air Force weather station held another

*The Naval Forces Far East also depended upon the 2143d Wing for some meteorological support and maintained its aerological office adjacent to the Tokyo Weather Central.



A radar set scope catches the antics of a typhoon.

telephone conversation with the Tokyo Weather Central, preliminary to preparing the twenty-four-hour weather forecast which it presented to the Joint Operations Center at 1300 hours each day. At each of the Fifth Air Force's combat airfields the tactical staff weather officers who were eventually attached to the combat groups visited the station weather detachments in the predawn hours, developed independent forecasts, and discussed them with station duty forecasters. Following this, each tactical staff weather officer discussed his proposed forecast by telephone with the Fifth Air Force weather station before briefing the combat group commander and the aircrews.[127] These coordinated operational procedures, which reached fruition in May 1952, effectively terminated an earlier situation wherein as many as three different forecasts (covering the same time and area) had sometimes been placed before using commanders.[128]

During the spring of 1953 an interplay of several factors compelled the 30th Weather Squadron to enforce an even greater centralization of weather-forecast responsibilities in the Fifth Air Force weather station in Seoul. As the

war progressed the experience and rank of weather forecasters progressively declined, with the result that tactical staff weather officers were more and more dependent upon the better forecasters who were concentrated at the weather forecast center in Seoul. The spring weather of 1953 often varied greatly within an hour's time over Korea, and the Fifth Air Force's tactical responsibilities required it to get off as many missions against scattered targets as terminal weather at the airfields and target weather permitted. The Joint Operations Center could not afford to depend upon periodic weather reports which were usually more than thirty minutes old by the time they reached Seoul. In order to handle the situation, the 30th Squadron organized a present weather section, whose members were divided between the Joint Operations Center and the Tactical Air Control Center. By this time the old WB-26's were no longer able to penetrate deeply into hostile territory, and the 30th Squadron recommended that eight jet fighter weather aircraft ought to be assigned to the 6166th Flight. When nothing came of this request, the present weather section had to depend upon weather reports received from tactical aircrews. When necessary, the senior weather-duty officer in the Joint Operations Center requested the combat wings to fly special weather-reconnaissance missions, and the tactical staff weather officers at South Korean airfields telephoned special terminal weather forecasts and pilot reports of target weather to the junior weather-duty officer in the Tactical Air Control Center. In June and July 1953, when the Reds timed ground assaults to coincide with bad flying weather, the present weather section provided invaluable support to the Joint Operations Center.[129]

At the same time in which it was working out an organization and procedure to provide weather support to the jet air operations of the Fifth Air Force, the 30th Weather Squadron was also building a new program of weather services for the Eighth Army. In November 1950 the weather observer teams at the corps headquarters began to disseminate some 12 specialized daily forecasts, which the 30th Squadron prepared for the Army. Although the 30th Squadron was far from satisfied with the limited services it was providing, the Eighth Army had no complaints. In October 1951, however, the Department of Army sought to determine the weather requirements of its troops and accordingly sent a winter environment team to Korea, headed by its cold-weather expert, Dr. Paul A. Siple. In May 1952 the Siple team issued a report which established the fact that even low-echelon Army commanders had a need for weather-forecast services. Such factors as the time at which valley fogs would lift, what local snowfalls would be, or how much cloud cover could be expected were matters of consequence in planning local military operations. The Siple report commended the 30th Weather Squadron for attempting to provide better services than the Eighth Army wanted, but it noted that most of the general area forecasts provided by the squadron were not greatly useful below corps level. If weather forecasts were to be of maximum value at lower echelons, more weather data would have to be gathered at front-line observer posts.[130]

In negotiations with the Eighth Army staff meteorologist, the 30th Weather Squadron's liaison officer worked out the details of expanded front-line

weather services which would be employed in a ninety-day test period. Since the Eighth Army did not wish to station USAF weather observers at front-line positions, it arranged to secure specially trained Signal Corps weather observers on temporary duty from Fort Monmouth, New Jersey. These observers reached Korea late in November 1952 and dispersed to forward area sites to start the surface-observation net. In December 1952 the 30th Weather Squadron sent corps forecast teams to the United States and South Korean corps headquarters. Additional forecasters were assigned to the weather station in Seoul to meet added Eighth Army requirements. The Eighth Army had agreed to provide radio facsimile equipment to connect the corps forecast teams with the weather station in Seoul, but this equipment proved difficult to secure and was erratic in performance when it was finally put into operation. As a result, the corps teams routinely depended upon the Army's administrative teletype and telephone channels, neither of which permitted the dissemination of more than a minimum of weather information. The test was nevertheless generally successful, and in a change in policy the Eighth Army asked the 30th Squadron to take over the front-line weather observer posts when the Signal Corps men completed their temporary duty. After 1 May 1953 the Eighth Army weather program

Airways & Air Communications Service trucks at an 18th Air Base Group airfield.

therefore became the sole responsibility of the 30th Weather Squadron, and, except for continuing communicating problems, the program gave increasingly better weather services to Eighth Army units. Back in the United States some Signal Corps officers continued to insist that the Army ought to develop its own organic weather services, but the 30th Weather Squadron's support of the Eighth Army was counted so satisfactory that in January 1954 the Department of Army elected not to develop its own competing weather service and to depend upon the USAF Air Weather Service.[131]

Like the other members of the Military Air Transport Service family, the Airways and Air Communications Service (AACS) was a global command which provided airways-communications facilities, navigational aids, and flight services for the Air Force. As a secondary mission, the AACS provided communications for the Air Weather Service. For the performance of their mission, AACS organizations operated control towers, direction finders, radio ranges, ground-controlled approach (GCA) and instrument-landing systems, radio and radar beacons, air-to-ground and point-to-point radio, message centers, cryptocenters, and military air-traffic control (MATCon) centers. Like the air-route traffic-control center, which was its civilian counterpart in the United States, the MATCon established routes and altitudes for all aircraft flying over a given control area, kept record of the flights of such aircraft, and generally ensured against air collisions in the control area. When the Communist invaders struck in June 1950, Colonel Charles B. Overacker's 1808th AACS Wing, which had its headquarters in Tokyo's Meiji building, was responsible for airways and air-communications services in the Far East and Pacific. Under the 1808th Wing were the 1809th AACS Group at Nagoya, the 1810th Group at Hickam Air Force Base in Hawaii, and the 1811th Group at Kadena Air Base on Okinawa. Each of these groups was divided into squadrons, which were subdivided into detachments at various airfields. In June 1950 the undermanned 1809th AACS Group was operating ten control towers, three direction-finder stations, and two MATCon centers at Tokyo and Fukuoka in Japan. The only navigational aid in Korea was a low-power homing beacon at Kimpo Airfield. The system was capable of handling slow-flying conventional aircraft in the moderate number of flights usual during the occupation, but FEAF was beginning to be concerned about the system's inadequacy for controlling jet air traffic. At the beginning of hostilities air traffic suddenly tripled at Tokyo and quintupled in the Fukuoka area, and new AACS facilities were immediately required for the additional airfields occupied in Japan and in Korea. Because of economy considerations, USAF had not permitted the 1808th Wing to establish a mobile AACS squadron in 1948, an organization which would have provided a most efficient means for handling the suddenly increased demands of the Korean air war.[132]

In response to immediate requirements, the 1809th AACS Group drew upon men and equipment in Japan to establish AACS detachments at Pusan, Taegu, and Pohang early in July 1950. Meanwhile, the AACS rushed ten air-transportable AACS detachments to the Far East from the United States. At first the AACS detachments in Korea operated under the 1955th AACS Squadron at Itazuke, but on 1 August 1950 the 1973d AACS Squadron was organized at Taegu. Within a few days

A3C Nick Psairas of the 502d Tactical Control Group adjusts a hilltop radio relay directional antenna to the proper channel.

the force of North Korean ground assault compelled the AACS detachment to fight its way out of Pohang, but the 1973d Squadron held its position at Taegu.[133] As the United Nations Command forces moved northward in September and October 1950, the 1973d Squadron moved detachments first to Kimpo Airfield and then to Wonsan, Pyongyang, Yonpo, Hamhung, and Anju airfields, north of the 38th parallel. In addition to operating terminal air-control facilities at the airfields, the 1809th AACS Group also established airways between Japan and Korea. These airways facilitated a closely scheduled flow of combat cargo aircraft to the foward airfields, but over Japan and Korea a combination of mountainous terrain and frequently adverse flying weather nevertheless made air-traffic control extremely complex. To reduce the possibility of collisions between aircraft following the airways under instrument flight rules, FEAF assigned permanent altitude blocks to the Combat Cargo Command and to the tactical air wings. In order to provide enough altitude blocks, FEAF reduced the vertical separation of aircraft on airways to 500 feet during periods of military necessity. This permanent assignment of numerous altitude blocks to individual air units naturally reduced the amount of traffic which could be handled along the airways in any given period, and the reduction of the vertical separation of aircraft on airways carried an element of danger. Another problem arose when tactical air-direction centers were established in Korea. The tactical air-direction centers were charged to control the movements of tactical aircraft, but the dividing line between the control of the tactical air-direction centers and the AACS system was quite indefinite. These problems were already apparent in November 1950, when Chinese Communist attack forced a withdrawal from North Korea. During the retreat the 1973d Squadron's detachments displayed extraordinary heroism and fidelity as they defied enemy attack and remained at their stations to the very last directing the takeoffs and landings of cargo planes which evacuated United Nations forces. For its actions in the emergency, the 1973d AACS Squadron was awarded a distinguished unit citation.[134]

In an effort to find some solutions to its control problems early in 1951, FEAF secured specialists from the Civil Aeronautics Administration and instituted an extensive air-traffic control survey. As a direct result of the facts brought out by the survey, FEAF organized an Air Traffic Control Committee, which began to function in February 1951. This committee deter-

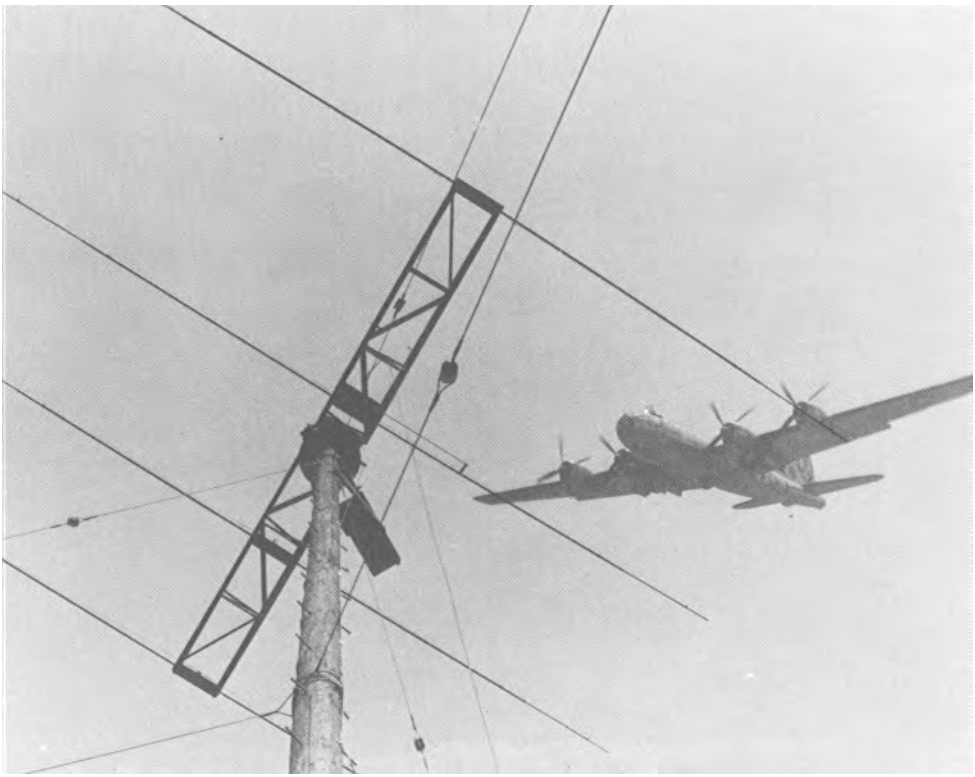
mined requirements and priorities for the use of available air space and handled procedural conflicts. Smaller area air-traffic control committees were also established. The works of these committees permitted the adoption of realistic air-traffic control procedures which expedited movement of all types of air traffic. In order to provide expanded services and closer supervision of AACS functions in Korea, the 1808th AACS Wing secured approval for a reorganization effective on 1 July 1951. At this time the 1818th AACS Group was organized at Pusan to control the 1973d and 1993d AACS Squadrons. From Pusan the 1818th Group soon went forward to Seoul, but it was sent back to Taegu in the spring of 1953. From locations at Taegu and Kimpo the 1973d and 1993d AACS Squadrons operated MATCon centers and controlled the operating locations at the airfields in their respective sectors. To assure it a potential for meeting requirements which could not be programmed in advance, the 1808th Wing was permitted to activate the long-needed 1859th AACS Mobile Communications Squadron at Tokyo on 20 July 1951.[135]

Except for a few minor organizational changes and adjustments which were desirable for more efficient operations, the 1808th AACS Wing attained the organizational status which it required for effective operations by mid-1951. The successive commanders of the 1808th Wing—Colonel Frederick L. Moore (September 1951) and Colonel Donald P. Graul (May 1953)—nevertheless faced serious difficulties. Although Japan and Korea were ultimately covered with airways, ten-minute lateral aircraft spacings and 500-foot-altitude separations were necessary to handle the large volume of air traffic. Under these crowded conditions the potentially dangerous condition in a number of congested air-traffic areas was a matter of continuing concern. Within Korea a procedure was adopted whereby all traffic below 12,000 feet was controlled by the MATCon's and all traffic above 12,000 feet operated under tactical flight plans filed with the Tactical Air Control Center. This provided free air space for jet operations, except when these aircraft arrived and departed from their home bases. Since the B-26's did not operate at high altitudes north of the bombline, however, it was illogical to require these planes to climb to such altitudes over South Korea. The only solution to this problem was to assign altitude blocks to the two light bombardment wings at the expense of regular air-route traffic. In the closing days of the war arrangements were made which allowed the MATCon's to use all altitudes until they received a tactical flight plan and then to reserve airspace only for the minimum time to permit completion of the tactical mission.[136]

The heavy air traffic that followed the crowded airways was a major cause for concern, but the control of approaches and departures from terminal airfields was actually the weakest point in the traffic-control system in Korea. The volume of air traffic at several South Korean airfields frequently surpassed that at Tempehof Airdrome during the Berlin Airlift, and the Korean traffic consisted of mixed-type aircraft—anything from F-86's to C-124's. Even in good weather, approaches and departures often could not be controlled quickly enough to prevent incoming aircraft from saturating the area while waiting their turns to land. The decreasing endurance of jet aircraft made any landing delay a serious safety problem. The heavy air

traffic demanded the utmost skill from AACS control-tower operators, and these men often distinguished themselves. In May 1952, for example, General McCarty commended the control-tower operators and the air-traffic control personnel at Brady, Ashiya, and Pusan East (K-9) airfields for their expeditious handling of combat cargo aircraft during the emergency airlift of the 187th Regimental Combat Team to Korea. In this movement control-tower personnel at Pusan East Airfield handled a takeoff and landing every three minutes. In view of the prevalent bad weather in the theater, FEAF frankly admitted that it could not have operated without the ground-controlled approach services provided by AACS detachments. In a splendid example of duty, the GCA unit at Itazuke, without previous warning, landed 26 C-46 aircraft at three-minute intervals during minimum weather conditions on the night of 21 June 1953. On this night the Itazuke ground-control intercept radar assisted the GCA by spacing the aircraft on their final approach headings before the GCA controller took over.[137]

Despite unique problems of topography and weather, the 1808th AACS Wing successfully performed its air-traffic control functions in the Far East during the Korean hostilities, but the experience of this war nevertheless



This radio tower of the 6161st Communications Section throws out the radio beam linking the plane and crew with their home base.

indicated that the jet air age was rapidly outrunning the existing air-control techniques and equipment. As a matter of policy, the AACS normally attempted to train its personnel on the job, but FEAF strongly insisted that air-traffic personnel ought to be well trained prior to detail to an overseas assignment. Looking toward future methods of controlling large volumes of air traffic, FEAF suggested that terminal radar would be the most likely solution. The use of traffic-control radar in the Far East permitted closer spacing of aircraft in the terminal areas, thus expediting climb-outs and letdowns during periods of instrument weather. In order to conserve radar equipment and to simplify identification of aircraft in flight, FEAF further suggested that some thought should be given to a possible combination of aircraft control and warning and air-traffic control functions in a combat theater.[138] Other than these suggestions, FEAF had no possible solutions for the ever-increasing problems of air-traffic control.